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4. 50% SDR Design Development

4.1 Response to the 30% CDR Review

The 30% CDR was non-rejected by the PMCA in November 2022. The 30% CDR Report was distributed to various stakeholders, users and third parties for review and comment. All comments have been reviewed and actioned in the design development leading up to the 50% SDR milestone.

4.2 50% SDR Progression

The 30% CDR put forward three options to progress into 50% SDR phase. The options were MLOC (Medium Level of Capability), MLOC+ (Medium Level of Capability Plus) and FLOC (Full Level of Capability)

- MLOC - The MLOC option most closely adheres to the DOAG whilst including the core facilities stated in the URB
- MLOC+ - Absorbs the existing secure facilities into the enlarged s47E(d) receives an additional s47E(d) video conferencing facility and exchanges an s47E(d) meet s47E(d) meeting room.
- FLOC - The FLOC option develops the MLOC+ option by adding s47E(d as a secure facility. All other features are identical to the MLOC+ option

The FLOC Option was selected to progress into 50% SDR Phase.

One year and eight months elapsed between 30% CDR and the commencement of 50% SDR prompting the Sponsor to request an update to the P80 early in the 50% SDR design stage. A ROM Cost Report was prepared to support funding discussions and the DSC presented the outcomes to the Sponsor group on the 25 September 2024. The updated ROM Cost Report indicated an increase in the Cost Plan. Three different scope and delivery options were outlined in the ROM Cost Report:

- Option 1 - Deliver the full scope in 2 stages, s47E(d) in Stage 1 and s47E(d in Stage 2
- Option 2 - Deliver the full scope in 1 stage s47E(d)
- Option 3 - Delive s47E(d) remains as existing

Reviewing the ROM Cost Report options and given the budget constraints the project is facing s47F noted her preference at UCM2 held on the 17 October 24 that s47E(s to be fully documented and costed but will not proceed past 50% SDR Phase. This discussion was subsequently substantiated, and Jacobs were directed by CFI (via PMCA) to proceed with design and documentation of s47E(d n 50% SDR Phase.

s47E(d design intent was altered at stakeholder request. 30% CDR s47E(d) esign was a single work group contained within the s47E(d) stakeholders requested at PSWG1 held on the 31 July 2024, three separate communities be housed in s47E(for 50% SDR design progression, this request was upheld at subsequent UCM Workshops with the Sponsor. The resulting increase in built environment in s47E(added to overall scope and cost of the project.

Below is a table summarising the scope progression in 50% SDR. PMB representatives were present throughout the engagements noted in the table.

Table 12. 50% SDR Scope Progression

30% CDR Identified Scope	50% SDR Scope	Requested by and forum	Date Change Requested
s47E(d o proceed in 50% SDR	s47E(to be documented and costed but will not proceed past 50% SDR Phase.	s47F UCM2	17.10.24
s47E(one open nity	s47E(d equired to be redesigned to accommodate 3 separate communities/compartments.	s47F PSWG1	30.07.24
30% CDR Identified Scope	50% SDR Scope	Requested by and forum	Date Change Requested
Conference Rooms to be accessed from within the s47E(d	2x Conference Rooms (1 i s47E(d) and 1 in s47E(d) to be accessed from the corridor and reduced to Zone 4.	s47F PSWG1	30.07.24
1x Conference Room to seat 20 in s47E(d	Given s47E(will not proceed past 50% SDR, CASG requested the 20-person Conference Room in s47E(d) e replicated in s47E(to maintain this facility in the project.	s47F UCM2	17.10.24
10 Offices	CASG requested s47E(ave 2 offices deleted from the layout, reducing available offices from 4 to 2 i s47E(d	s47F UCM2	17.10.24
Glazing between Offices, Quiet Rooms and Internal Meeting rooms and the open workstation area in all s47E(	s47E(d)	s47F UCM2	17.10.24
Work points against boundary partitions in s47E(d)	FAA requested all work points be relocated to observe the s47E(d) s47E(d)	s47F PSWG2	27.09.24
s47E(d) 2700mm AFFL (Above Finished Floor Level)	s47E(d)	AA01 PSWG2	27.09.24
Update of Brew Area Joinery	Site investigations revealed the poor state of the existing joinery and value for money prompted an allowance in the ROM Cost Report for replacement of joinery	Site visit informed scope	30.07.24
No Scope in Base Building TERs	Site investigations revealed the non-compliance with s47E(d) Upgrade scope required to meet Zone 4.	Site visit informed scope	30.07.24
Replacement of Air Handling Units	Site investigations held on the 30.07.24 informed the design team the Mechanical AHUs are end of life and require replacement	Site visit informed scope	30.07.24

4.3 Activities Undertaken During 50% SDR

Jacobs design team undertook multiple activities during 50% SDR Phase. At the completion of the 50% SDR, it is anticipated non-rejection will be issued allowing progress and further development into the 90% DDR phase. The key tasks for 50% SDR include:

- Schematic design development – develop the designs based on the approved 30% CDR Report and stakeholder/Value management strategy outcomes.
- Stakeholder engagement in 50% SDR refer to Table 13
- Services Site Investigations - design team gained deeper understanding of existing services layout and age of plant - 30 July 2024

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- AV/ICT Site Investigations - Informed scope to bring s47E(d) 30 September 2024
- Fire Engineer Site Visit - investigations into existing fire protection system and basis of Fire Engineer Report - 13 November 2024

Table 13 summarises the stakeholder engagement activities undertaken, and inputs gathered to inform the 50% SDR:

Table 13. Stakeholder Engagement Schedule

Stakeholder Engagement Schedule	Date
PSWG1 Workshop	31.07.24
s47E(d eeting	16.08.24
ROM Cost Report Presentation	26.09.24
AV/ICT1 Workshop	30.09.24
UCM1 Workshop	30.09.24
PSWG2 Workshop	01.10.24
UCM2 Workshop	17.10.24
PSWG3 Workshop	17.10.24
AV/ICT2 Workshop	21.10.24
Risk Workshop	06.11.24
Safety in Design Workshop	11.11.24
50% SDR Presentation	25.11.24
Value Management Workshop	25.11.24
Weekly Design Team Meetings have been held during the design process. These meetings focused on the design development, collaboration, and coordination, and provide a forum to establish progress updates and address any designs queries.	

4.4 Design Verification and Compliance

4.4.1 Design Verification

The preparation of 50% SDR followed the Project's Design Management Plan administered through Jacobs Quality Assurance process and associated procedures.

Over the time period for the preparation of the 50% SDR the project's design team have reviewed evaluated and further developed the designs presented in the 30% CDR. This was undertaken via stakeholder engagement / consultation with the PMCA, representatives from Defence, Service Authorities, via design coordination collaboration within the entire project team. Previously implemented measures to assure technical and architectural design integrity of the proposed technical solution were followed.

Jacobs Technical leads ensured designs were reviewed and checked prior to submission to the Design Manager and Design Director for approval and submission to Defence.

Summaries of interactions between the various stakeholder engagements to verify the design is set out in the stakeholder engagement section of this report. The report now includes developed schematic drawings. Key Information Requirements and RFIs were also used to refine, develop, clarify, and verify the URB, the 30% CDR, and the concept design. Summaries of these interactions are provided in Appendix A.

4.4.2 Design Compliance

Internal Peer reviews were conducted by appropriately qualified designers within the design team prior to the issue of the design for review by the Technical Reviewer. Resources carrying out verification reviews were independent of the project design development. These design reviews have been undertaken for each design discipline by the following suitably qualified personnel. Refer to Appendix G for further detail of technical reviews.

Table 14. Design Compliance Review

Discipline	Date	Responsible
Architecture	29.10.24	s47F
Quantity Surveyor	19.11.24 21.11.24	
Structural	12.11.24	
ICT	04.11.24 03.12.24	
Electrical	25.10.24	
Fire Protection	12.11.24	
Mechanical	01.11.24	
Hydraulic	30.10.24	
Security	30.10.24 12.11.24 03.12.24	
ESD & WOL	07.11.24	
Environment	11.11.24 13.11.24	
Structural	04.11.24	

The 50% SDR schematic drawings have been reviewed by the Building Certifier for compliance with the NCC and relevant Australian Standards and Codes. The report details minimum compliance requirements and identifies non-compliances. Drawing mark-ups show travel distances that require addressing in a Fire Engineer Report in the Building Certification Section18 of this report. Refer to Appendix L for the NCC Report, MFPE and Accessibility Reports.

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11. Mechanical Services

11.1 Overview

The building was constructed in 1998 and consists of basement areas, ground floor including office space, plant, 6 levels of office floor and a s47E(d) loor consisting of plantroom.

Base building mechanical systems were also installed around 1998 and include water cooled chillers located at ground floor, cooling towers and hot heating water boilers at s47E(d lant. There is also a building supplementary system heat rejection condenser water loop/riser provided. The associated cooling towers are located in the same s47E(plant.

Air conditioning to the level 6 floor area is generally via VAV boxes and 7 AHUs located in 4 localised plant room at the end of each s47E Chilled water is reticulated to each AHU plant. Hot heating water is reticulated throughout the floor and connect to the hot heating water coil of each VAV box. All centre zone VAV boxes appear to be fan assisted terminal type. Each AHU plant is typically fitted with a return/relief air fan and outside and relief air louvre with associated plenum. Economy cycle is also provided by motorised dampers. A small FCU is also located in one of the AHU plant rooms to serve an adjacent s47E(d onference room.

Existing AHUs appeared to be installed when the building was constructed and are considered to be nearing or already exceeding their service life. Refer 12.5.1 for further details.

The mechanical services will be designed to suit proposed working accommodation for R2 L6 as shown on the architectural drawings. Designs will be cognisant of the space's functionality and operation.

Key design requirements include:

- Compliance with applicable codes and standards
- Buildability
- Fully tested and commissioned.
- Accessibility for maintenance and major maintenance work
- Thorough handover, including instruction, asset register, manuals, maintenance plans and "as-built" documentation.

11.2 Heating, Ventilation, and Air Conditioning (HVAC)

Heating Ventilation and Air Conditioning (HVAC) installations shall conform to the requirements of all applicable legislation, codes of practice and guidance publications. The principles and guidelines set out in the Department of Defence Security and Estate Group - Heating Ventilation and Air Conditioning Systems (2022).

HVAC installations shall comply with National Construction Code (NCC) as well as applicable and relevant Australian Standards, for the type of the installation or equipment to be used, irrespective of the status. Where Australian Standards are not available, recognised international or overseas national standards shall be used where they are relevant to the type of installation or equipment and to the installation conditions in Australia.

11.3 Building Management and control systems

Mechanical services switchboards, controls and BMS in each of the four existing plantrooms will be upgraded to suit new air handling plant requirements and fitout.

New mechanical switchboards, controls and BMS will be provided for equipment serving s47E(areas.

11.4 Design Concept and Proposed HVAC System

Most of s47E(will comprise s47E(areas i.e. s47E(d) will each include a s47E(d) conferen m. Consequently, major changes to existing HVAC systems will be required to meet Defence security requirements, including:

- Entry/exit of services through bounding security wall at two ends (for each of s47E(d) .
- No transiting of services through these areas to serve other areas
- Strict acoustic requirements
- Security grilles
- Clear inspection access to security perimeter including security grilles in ductwork

Security requirements for mechanical services are further shown and described on the drawings.

There will be substantial demolition, modification, and provision of new systems/equipment to meet the required objectives. Including provision of new Air Handling Units (AHU), Variable Air Volume (VAV) and Mechanical Service Switch Boards (MSSB).

New air handling units and VAV boxes will be provided to replace existing and cater for the revised heat load and layout due to fitout. No terminal fan VAV box will be proposed due to frequent maintenance and access requirement for the fan. Existing troffer light grilles will be removed and replaced with new swirl diffusers. New return air grilles will be introduced to the new ceiling where no troffer lights are used.

Economy cycle operation of AHU's shall be retained as that of existing system.

Terminal equipment rooms will be provided with dedicated ducted, water-cooled air-conditioning units, to enable continuous operation and to satisfy the cooling requirements of each space. Heat rejection will be via building supplementary condenser water system.

Each of the conference room and meeting room will be provided with dedicated, ducted fan coil units to satisfy increased ventilation and load requirements. Chilled water, heating hot water and outdoor air will be connected to each FCU. Acoustic treatment will be provided as required. Outside air will be sourced from the existing louvres in AHU plant and ducted to associated fan coil unit by outside air fan.

The kitchenette in s47E(d) will be provided with a general mechanical exhaust and discharged to outside via a local louvre.

In the event of fire alarm, all new air handling units shall operate as per existing building smoke management arrangement and shut down. TER room, meeting/conference room air conditioning and kitchenette exhaust system can continue to operate.

Further details are shown on 50% SDR mechanical drawings.

11.4.1 Existing Conditions / Findings

Existing mechanical services documentation made available to Jacobs is somewhat limited. Building operation and maintenance manual unable to be made available, (Refer RFI003) which would otherwise provide schedule of installed mechanical equipment and description of existing mechanical service operation strategy, including any fire mode operation.

The drawings provided have been reviewed and main layouts have been incorporated into the mechanical services 50% SDR drawing set. The existing base building mechanical services are approximately 26 years old.

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s47E(d) comprises s47E(d) There are four air handling plantrooms, and s47E(d) s typically fed from two plantrooms, one at each end. Each plantroom houses either one or two variable air volume (VAV) air handling units (AHUs) and one return relief air fan. Outside air louvre and relief air louvre are provided locally at each plantroom building façade. During normal operation, the outside air is ducted to each AHU via a minimum outside air fan. Economy cycle is achieved by series motorised dampers which operate in conjunction with associated AHU's and return/relief air fan. Conditioned air is distributed via low velocity ductwork and VAV boxes with heating coils, generally to light air troffers and perimeter zone linear diffusers. The centre zone VAV boxes appear to be fitted with terminal fan. This type of VAV box would require more frequent service and access hence not quite suitable for the fitout where access s47E(d) area should be minimised.

Ducted fan coil units serving dedicated areas appear to be located either in plantroom or in office ceiling space.

Water cooled chillers at ground level receive condenser water from cooling towers s47E(d) One supplementary condenser water dropper is provided for the building. Heating hot water units are located at roof level. Chilled water (CHW) and heating hot water (HHW) is reticulated via pipe risers in or adjacent to each plantroom to enable distribution to AHU's, FCU's, VAV's on the level.

Ventilation systems include toilet exhausts and brew area exhausts. Although technically outside the scope of this project, modification of toilet exhaust systems may be necessary to enable clear passage for new or modified HVAC ductwork.

The existing s47E(d) base building air handling units are nearing or exceeding their service life. Hence the design approach accommodates replacement to mitigate any future break down and BAU interruption.

11.4.2 Proposed Infrastructure Works

New air handling units will be installed within the existing AHU plantrooms. Prior to the installation, AHU's will be disassembled and delivered via goods lift. Same to the demolition and removal of existing AHU's. If necessary, the existing single leaf AHU plantroom door may need to be removed to allow better work passage.

11.4.3 External Design conditions

Table 33. Summary of Design Ambient Conditions in Canberra (ACT)

Outdoor Design Condition	Summer	Winter
Comfort/non-critical	34.3°C DB / 19.6°C WB	-2.2°C DB

The above parameters have been based on the AIRAH design guide as per the Defence requirements.

NCC Climate Zone for the site is 7.

11.4.4 Internal Design Conditions

Table 34. Summary of Design Internal Conditions

Area	Cooling	Heating
Offices/Workstations, Meeting, and conference Rooms, (refer Note 1)	22.5°C +/- 1.5°C DB / 50% RH (RH, not specifically controlled)	20.0°C DB
TER Rooms	22.5°C +/- 1.5°C DB / 50% RH (RH, not specifically controlled)	

Notes:

1. The temperature set-points of the air-conditioning systems for the offices and related spaces shall be 22.5°C with a tolerance range of ±1.5°C.

11.4.5 Plant Capacities

In addition to indoor and outdoor environmental conditions, all relevant air conditioning calculation data shall be obtained, including building characteristics and configuration, operating schedules, number of occupants, activities, sources of heat gain and heat loss, and peak and partial air conditioning load requirements.

Spare capacity shall be incorporated into plant capacity sizing in accordance with the Sponsors requirements.

HVAC plant capacities shall be calculated using software package s47E(d)

11.4.6 Plant Redundancy Requirements

No redundancy is provided for the air conditioning and ventilation systems, including TER rooms.

It is understood there is no data storage on site on Level 6, all data is housed and stored by an industry partner. This negates the requirement to keep racks going in the event of a power outage and in turn means there is no requirement to keep racks cool in a power outage, hence no requirement for redundancy in the Mechanical HVAC systems.

11.5 HVAC System Selection Report

HVAC Systems are typically utilised to maintain the desired indoor environmental conditions and air quality in a space. The mechanical services systems proposed for this project will be capable of maintaining the desired indoor conditions within an acceptable tolerance under specified conditions and occupant activities.

The typical key objectives for the HVAC systems include the following:

- Safety and reliability;
- Maintainability and supportability;
- Site/facility/ user specific performance requirements;
- System components that are properly designed, and appropriately sized and selected; and
- System design and installed in full compliance with all relevant legislations, standards, codes, and guidance for the type of HVAC system and equipment selected.

Typically, the defence HVAC system selection procedure is undertaken from 30% CDR to 90% DDR to assist in ensuring the key system objectives noted above are met. The mechanical services scope forming part of these works is outside the scope of the requirements outlined within the Defence Standard 'Guidelines for Heating, Ventilation and Air Conditioning System Selection', and therefore, a full system selection report has not been undertaken.

The justifications for not completing a full system selection report are listed below:

- The base building mechanical central plant is not within scope of this project. The mechanical services works are limited to the airside plant of Level 6 of the building, with the majority of the building's mechanical services plant remaining unchanged.
- The mechanical services scope included on level 6 is a like-for-like replacement of the existing mechanical services systems, with any alternations and additions necessary to account for minor changes in the floors fitout. The design intent of the original floor's mechanical services systems remains unchanged, with the floor being served by large variable air volume AHUs feeding local VAV boxes serving the specific thermal zones throughout the floor.

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- The above works lies outside of the nominated list of applicable projects within the guideline above, as the project works are neither:
  - A new building;
  - A major refurbishing of the base building;
  - A large-scale fit-out of the building that impacts a majority of the building's net lettable area or;
  - The construction of an additional annex to the base building.

The mechanical services systems proposed for the works contained within this project accomplish the key HVAC system objectives shown above and will provide an effective mechanical solution for Defence.

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17. Environmental, Heritage and Contamination

Defence follows a self-assessment process, whereby Defence Directorate of Environmental Planning, Approval and Compliance (DEPAC) reviews the proposed action and environmental and determines whether there is a potential significant impact on Matters of National Environmental Significance (MNES) or Whole of Environment matters protected under the Commonwealth Environment Planning and Biodiversity Conservation Act 1999 (EPBC Act), to determine whether a referral under the EPBC Act is required.

This section provides a description of the environment that may be affected by the proposed design at the R2 building in the Russell Offices precinct. As scope is documented to be internal the potential environmental risk is limited to the fabric of level 6, within the R2 building.

17.1 The Physical Environment

A search using the EPBC Protected Matters Search Tool (PMST) with a 10 km buffer was completed on the 7 November 2024. The search did not identify any relevant MNES to the project that would potentially be impacted by the proposed works. A summary of MNES outcomes and those that are relevant to the project area are provided in Table 38.

Table 38. Summary EPBC Act PMST Tool

MNES (EPBC Act)	PMST result	Assessment Summary
World Heritage Properties	None	No World Heritage Properties were identified within 10km of the R2 building area.
National Heritage Places	4	No further assessment required
Wetlands of International Importance (Ramsar wetlands)	4	Four National Heritage Places were identified within 10km of the R2 building. As all Places were within the buffer area only and the proposed works are internal refurbishments this matter is not relevant to the Project.
Great Barrier Reef Marine Park	None	No further assessment required
Commonwealth Marine Area	None	Four Ramsar wetlands were identified within 10km of the R2 building. As works are internal refurbishments this matter is not relevant to the Project.
Listed Threatened Ecological Communities (TECs)	2	No further assessment required
Listed Threatened Species	54	This matter is not relevant.
Listed Migratory Species	13	No further assessment required

17.2 Actions on, or impacting upon Commonwealth land and actions by Commonwealth agencies

A summary of the assessment of Whole of Environment matters as potentially relevant to the project is provided in Table 39.

Table 39. Summary of assessment of Whole of Environment matters as potentially relevant to the Project

Matter	Assessment
Landscapes and soils	Not relevant as all works are contained within an existing building.
Coastal landscapes and processes	No further assessment required.
Ocean forms, ocean processes and ocean life	Not relevant as all works are contained within an existing building.
Water resources	No further assessment required.
Pollutants, chemicals, and toxic substances	All works are contained within an existing building. No known asbestos containing material (ACM) was identified in the Defence Asbestos Register. This matter is discussed further in 17.4.
Plants	No further assessment required.
Animals	Not relevant as all works are contained within an existing building.
People and communities	All works will be contained within the R2 building, level 6. Minimal temporary disruptions to Defence personnel working within the other levels of the building during the construction phase, associated with increased pedestrian traffic. Russell Offices is a complex of buildings that supports a large Defence workforce. Given the size of the Russell Offices a temporary increase in construction traffic is not anticipated to be a significant impact, with existing carparking being able to accommodate construction vehicle parking requirements.
Heritage	The Russell Precinct Heritage Area (105621) (including the R2 building) and the Australian American Memorial and Sir Thomas Blamey Square (105313) (adjacent to the R2 building) are listed on the Commonwealth Heritage List (CHL). The Russell Offices Precinct Heritage Management Plan (Woodhead 2009) was reviewed, with a summary provided in section 17.6

17.3 National Capital Plan

The National Capital Plan (NCP) requires development consent from the National Capital Authority (NCA) for development proposal on National Land or areas which are Designated Areas. The Russell Offices Precinct is within a Designated Area and therefore the proposed action would require approval from the NCA prior to construction if the works meet the definition of 'works.' The ACT Planning and Land Management (PALM) Act 1988 'excludes anything done inside buildings or structures', within the definition of 'work.'

The proposed works are contained within the existing R2 building and will not extend or demolish the building, and there will be no changes to the external façade of the building. Therefore, the activity is exempt from requiring a Works Approval.

An exception to this is the potential for a temporary contractor site shed during the construction phase. Consultation with the NCA confirmed that a minor works approval would be required for the temporary establishment of a construction site shed s47F 2 November 2024). The minor works application requires the following documents to support the application:

- Site plan showing the location and dimensions of the site shed.
- Description of the works (in relation to the establishment of the site shed only).
- Letter of authorisation from the landowner.

The NCA confirmed that the application would be assessed within the statutory timeframe of 15 working days and the application fee would be calculated based on the cost of the establishment of the temporary site shed, not the total project cost. Under the NCA Cost Recovery Implementation Statement projects with a value of works below $20,000 the application fee payable is $150.

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17.4 Site Contamination

The following sections provide a summary of potential impact on contaminated materials as part of the project.

17.5 Hazardous Materials

17.5.1 Asbestos

A review of an extract from the Defence Asbestos register dated 27 October 2023 was reviewed as part of the assessment. There were six entries within the register for R2, Level 6, with one sample tested on the 25 March 2014 and the remainder all sampled on 25 February 2020. All six entries were identified as no asbestos detected with the laboratory results. Given the Asbestos register extract is over 12 months old RFI035 has been submitted to confirm whether there have been any updates to the register within the last 12 months. An update to this section will be provided within subsequent design phases when response to RFI035 has been provided.

17.5.2 Polychlorinated Biphenyls (PCBs)

The Australian and New Zealand Environment Conservation Council "Polychlorinated Biphenyls Management Plan, November 1996" outlines the National Strategy for the management of PCB's.

A Hazardous Building Survey (HBS) should be completed prior to construction with representative samples of each major type of fluorescent light are to be examined to determine which lights are fitted with PCB containing ballast capacitors.

The details of the brand and model of each capacitor are to be recorded and checked with the ANZECC database and our in-house database of known PCB capacitors and PCB free capacitors.

17.5.3 Lead Based Paints

Representative samples of the typical paints and surface coatings, particularly those which are showing signs of deterioration, are to be tested, prior to construction to confirm the presence or absence of lead-based paints.

Dust samples from floor areas containing lead-based paints must also be tested for lead content. Lead based paints and dusts are to be tested using a portable XRF (X-Ray Fluorescence) lead paint analyser or Lead Checktm Test Swabs.

Representative samples of paint systems will be analysed for the presence of lead using a portable, handheld InnovX Systems Portable X-Ray Fluorescence (XRF) Spectrum Analyser.

An XRF measures the lead content in paint as mass per unit area with the results expressed in mg/cm2. For a paint film thickness of 1.0 mm, an XRF result of 0.5 mg/cm2 is equivalent to a lead content of approximately 0.25% (AS 4361.2-1998 Guide to lead paint management: Part 2, Residential and commercial buildings). The detection limit of the XRF Lead Analyser is approximately 0.1 mg/cm2.

- Lead Paint Sample Identification to be conducted using Lead Checktm Test Swabs

Representative samples of paint systems on surfaces such as walls and ceilings that are peeling or showing other signs of deterioration will be collected and screened in our laboratory using Lead Check (test swabs acidic sodium rhodizonate).

They are most effective where the lead concentration exceeds 0.5% w/w (i.e., positive response to lead compounds at 0.5% or greater). At lower levels, they may give a negative result, or a slow positive response.

17.5.4 Hazardous Materials Survey

Although the Asbestos register extract did not identify any known asbestos within Level 6, R2, given there is known asbestos on other levels of the building, including s47E(d and the extract reviewed was over four years old, its recommended that the Construction Contractor still undertake a destructive hazardous buildings material (HBMS) survey to confirm the presence/ absence of asbestos containing material (ACM) and other HBM's to be interacted with during the Project and may require amendment or removal.

The HBM survey is to be completed by a suitably qualified person/s to assess any suspected ACM, including its nature/condition, extent, and type. The HBM survey should be completed for all accessible areas within the building, with any inaccessible or non-permitted areas to be noted during the survey - although these should be limited as the register should inform a HAZMAT removal and demolition plan. Representative samples should be collected to confirm the presence/absence of asbestos in the materials. Other hazardous materials including lead, synthetic mineral fibre, polychlorinated biphenyls, and ozone-depleting substances should also be investigated during the HBMS survey

The HBM survey will inform the development of an Asbestos Management Plan if required to be prepared prior to construction.

The HBM scope should include identification of the following hazardous materials associated with existing building structures touted for demolition or adaptive re-use:

- Asbestos and asbestos containing materials (ACM's)
- Synthetic mineral fibre materials (SMF)
- PCB's (in light fitting capacitors)
- Lead Paint

The HBM Survey is to be carried out to conform to the requirements contained in the NSW Work Health and Safety Regulation 2011 and the Code of Practice "How to Manage and Control Asbestos in the Workplace"; Instructions General Personnel 40-1 Asbestos Management in the ADF and Department of Defence; Policy on Asbestos Management (DI[AF]PERS56-24, Asbestos Management).

The aims of the HBM Survey are to:

- Conduct an inspection of the buildings and structures on the site to identify the typical locations and applications in which hazardous building materials have been used
- Collect and analyse samples of suspected hazardous building materials in areas where the Project will interact with them
- Conduct a qualitative assessment of the risk that the identified hazardous building materials pose to the users of the site
- Label the asbestos materials in accordance with the requirements of the State Water Corporation and the general guidelines of the Safe Work Australia approved code of practice "How to Manage and Control Asbestos in the Workplace
- Prepare a register stating the nature, type, quantity, condition and recommend hazard control strategies for management of the hazardous building materials identified during the Project
- Provide recommendations where remediation works are identified
- Prepare a report with a Hazardous Building Materials Register and recommendations from which a Hazardous Building Materials Risk Management Programme can be developed

HMS findings, risk assessment and scheme of management are to be recorded in a Microsoft Access Database. This database is to be customised for the project and the format is to be provided for review prior to the commencement of the site investigation works.

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The findings of the site inspections are to be presented in hard and soft copy reports. If asbestos is found to be present, or likely to be present then the Defence Asbestos Register also must be updated. The database is to include basic building information and descriptions, a register for each hazardous material type for each building, queries to produce a range of standard reports, a search and filter function and a feature to export selected data to an excel spreadsheet.

17.5.5 Management Recommendations

Following completion of the delivery contractor's HBM survey and risk assessment a recommendation for the management of hazardous materials, including the development of an Asbestos Management Plan, is to be prepared.

For each hazardous material this is to include the recommended management option. Options include:

- Leave in situ and manage
- Label
- Encapsulate or enclose
- Carry out other remedial works
- Remove

The management recommendations shall consider the project wide aims and identify what limitations exist to either adaptively re-use, refurbish or demolish.

17.5.6 Dangerous Goods

No dangerous goods storage facilities have been identified in relation to the proposed works.

17.6 Heritage

17.6.1 Heritage Values

The Russell Precinct Heritage Area is listed on the Commonwealth Heritage List (CHL) for its historic heritage values, including historical significance, characteristic values, aesthetic characteristics, technical achievement, social value, and association with significant people. The Russell Precinct is significant for its grand scale urban landscape particularly as the 'highly significant eastern apex of Canberra's Parliamentary Triangle, with the vista and terminus a 'significant component of the Walter Burley Griffin Canberra Plan concept and his 1918 Canberra Plan' (DCCEEW, 2004). It is also important for the arrangement of the buildings, open spaces, and plantings; its continued occupation by Defence and its important work there; and the important examples of late 20th century office architecture (Woodhead, 2009).

The R2 Building was constructed in 1997-1998 and contributes aesthetically to the Commonwealth significance of the Precinct due to the visual enclosure of the Parliamentary vista and Blamey Square, and (along with the R1 building) by its use of classical scale, form, and quality building materials (Woodhead, 2009). The R2 building is ranked as being of moderate heritage value in the Russell Offices Precinct Heritage Management Plan (Woodhead, 2009), for its Building form and location; high quality façade materials and design; and its relationship to R1, R3, R4 and Blamey Square. The Heritage Management Plan does not identify the interiors of R2 as having heritage significance and identifies interior redevelopment of R2 as being appropriate.

Other aspects of the Precinct of exceptional and high heritage significance include:

- The overall formal layout of the site
- Blamey Square, including its plaques and flagpoles
- Australian-American Memorial
- Building R3
- Building R4
- Tunnel
- Australian-Netherlands War Memorial

17.6.2 Impacts on Heritage

While the Russell Precinct Heritage Area, in which R2 building is situated, is listed on the CHL, the interior of the building does not have any significant heritage elements. Therefore, the proposed works which are within the interior of the building would not have any impact on the significance of the R2 building, nor on the heritage place as a whole.

The potential for a temporary contractor site shed during the construction may have the potential for impact on heritage values. The location of the temporary shed should not physically interact with any of the exceptional or high heritage significance elements listed above; any existing plantings across the precinct; and should be situated in a location where it is NOT visible within the Parliamentary Vista at the Russel Apex in Blamey Square. If the location of the temporary shed takes these into consideration, given its temporary nature, it is unlikely to impact on heritage values.

17.7 Conclusions and Recommendations

The location of the temporary site shed should not physically interact with any of the exceptional or high heritage significance elements listed above; any existing plantings across the precinct; and should be situated in a location where it is NOT visible within the Parliamentary Vista at the Russel Apex in Blamey Square. As there are no significant impacts on heritage, no further assessment or approvals are required.

The proposed works will not have a potential significant impact on matters protected under the EPBC Act.

If a temporary site shed is proposed during the construction period, a minor Works Approval will be required under the NCP. The minor Works Approval should be submitted to the NCA.

Prior to construction a review of a recent extract from the Defence asbestos register should be completed and a HBM survey conducted in order to confirm the presence/ absence of ACM, PCB's, SMF, lead based paint and other hazardous substances.

17.8 References

DCCEEW (2004) Russell Precinct Heritage Area, Australian Heritage Database, https://www.environment.gov.au/cgi-bin/ahdb/search.pl, accessed 30 August 2024.

Woodhead (2009) Russell Offices Precinct, Russell ACT, Heritage Management Plan. Prepared for Department of Defence, by Woodhead Pty Ltd, Adelaide.

OFFICIAL:Sensitive

Defence FOI 351/26/27
Document 4

Jacobs

EST08953 – Office Accommodation Pilot
Russell Building R2 Level 6
50% Schematic Design Report

Volume 1
Appendix L. Building Assessment Reports

Document no: EST08953-JAC-1004-000R2-APP-DM-02121



Defence FOI 351/26/27
Document 4

BUILDING SURVEYORS

BCA/DDA/MFPE COMPLIANCE REPORT
50% SDR PHASE

NATIONAL CONSTURCTION CODE VOLUME ONE: BUILDING CODE OF AUSTRALIA CLASS 2 TO 9 BUILDINGS

EST08953 Office Accommodation Pilot Russell Building
R2 Level 6 08953-JAC-1004-000R2-APP-DM-02121

PREPARED FOR:

Jacobs Challenging today. Reinventing tomorrow.

ISSUED: 05/11/2024 REV: 1.0
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CB BUILDING SURVEYORS

1. EXECUTIVE SUMMARY

1.1. General

CBS Building Surveyors have been engaged to provide a *National Construction Code 2022 Volume One: Building Code of Australia Class 2 to Class 9 Buildings* (BCA) & Building Works Manual compliance review on the for 50% SDR Design for the proposed alteration to Level 6 or R2 Building (Block 17, Section 87) Russell.

1.2. Scope and Purpose

This report has been prepared to assist the design team in identifying project specifics and non-compliances when reviewed against the BCA. The purpose of this document is not to assist or direct design but inform the project team of project specifics in relation to interpreting the BCA and identifying non-compliances or areas where more information is required.

1.3. Development Summary

The proposed development consists of an alteration to existing office level 6. The site is located at Russell Campus Building R2 (Block 17, Section 87) Russell. The location of the works is shown below figures.

Figure 1: ActMapi location reference

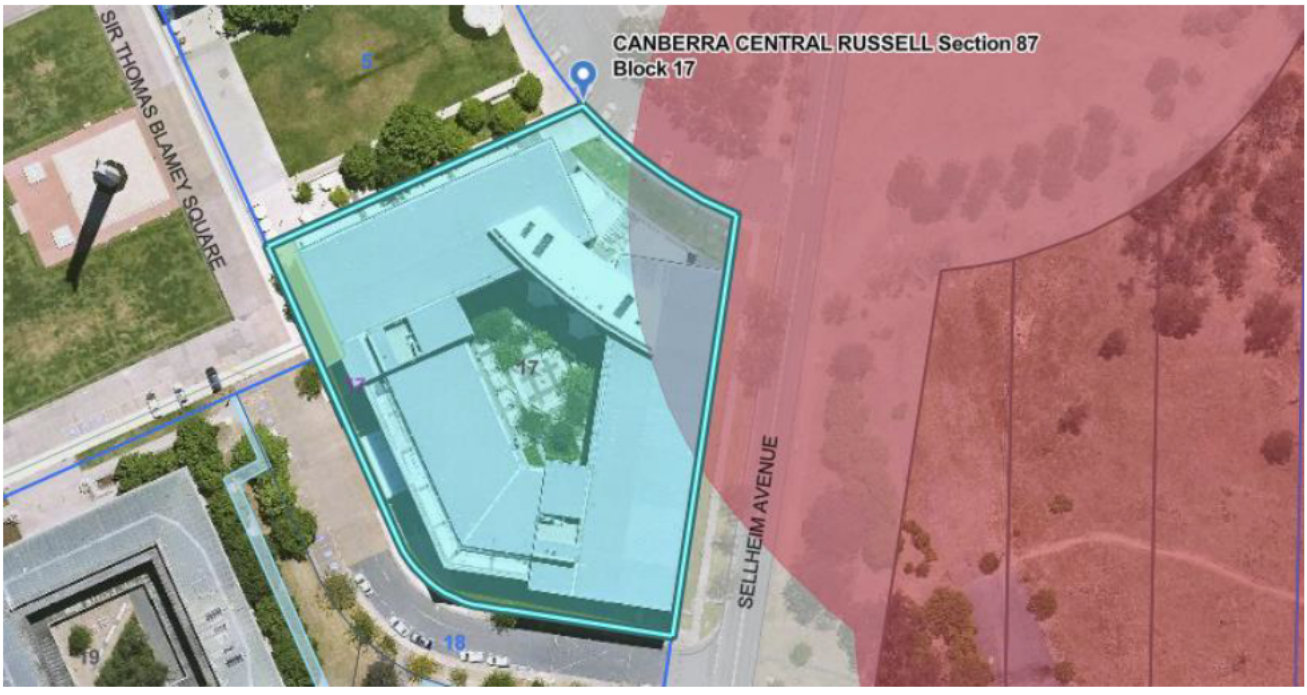


Image from ACTmapI Maps, accessed 05/11/2024

Table 1: Building Overview

Characteristics	Description
Building	Office Building Including Basement Carpark
Description	Office Alteration – Level 6
Building Classification	Class 5 (Office), 7a (Carpark)
Type of Construction	A
Rise in Storeys	6
Number of Storeys	TBA

CB BUILDING SURVEYORS

Effective Height	More than 12m and less than 25m
Area (Part of Building)	4,100m^2

**Roof not counted in rise in storeys as it only contains plant.*

1.4. Summary of findings

Based on this review the plans are noted to be capable of complying with the BCA. The below table lists items where further design investigation may be warranted in future design.

Table 2 – Summary of Findings

No	Item	Status
1.	D2D5(1)&(3) - Exit travel distances (D1.4) The following distances have been identified on plan - **Distance to a point of choice exceeds 20m (Measured 34m).** From s47E(d) - Distance to an exit with a point choice exceeds 40m (Measured 50m). s47E(d) **Note this distance is due to access restrictions into subject area.** **Refer Mark Up Appendix B**	**Does not comply**
2.	D2D6 – Distance between alternative exits (D1.5) (Class 5 to 9 buildings) Distance to alternative exits exceeds 60m (Measured 84m). **From Existing** s47E(d) **Note this distance is due to access restrictions into subject area.** **Refer Mark Up Appendix B**	**Does not comply**

Where compliance with any listed items is seen as too significant of a change, it may be possible to pursue a Performance Solution. This should be discussed with the relevant professional and designer.

It is suggested that consultation is sought with a hydraulic design engineer to understand requirements and ensure adequate provision is made for the hydraulic services as required (ie fire hydrant coverage).

Any alterations to the plans, including providing solutions to any items listed, will need to be reassessed to ensure they are holistic and do not create or trigger other non-compliances.

CB BUILDING SURVEYORS

2. INTRODUCTION

1.5. General

CBS Building Surveyors have been engaged by Jacobs to provide a *National Construction Code 2022 Volume One: Building Code of Australia Class 2 to Class 9 Buildings* (BCA) compliance review on the for 50% SDR design for the proposed alteration to building – Level 6.

1.6. Scope and Purpose

This report has been prepared to assist the design team in identifying project specifics and non-compliances when reviewed against the BCA, DDA & MFPE. The purpose of this document is not to assist or direct design but inform the project team of project specifics in relation to interpreting the BCA and identifying non-compliances or areas where more information is required.

1.7. Development Summary

The proposed development consists of a whole of floor alteration to a multistorey building.

CBS has not attended a site visit or had the opportunity to review existing base building documentation. Assumptions made in the report may be altered as additional information is presented.

The proposal is to alter an existing building. Our understanding of scope include

- Refurbishment of existing building
- New Secure Zones
- Services alteration and modification

Based on the findings of this review compliance to the BCA, DDA, MFPE and applicable Australian Standards will be determined. If options to comply are deemed in adequate compliance with the BCA via performance solution may be considered.

It is noted the design is in progress and future changes may occur. Reassessment will be required

The proposal and existing building are summarised in the table below.

Table 1: Building Overview

Characteristic	*Existing Building*	*Proposed Alteration*
Description	Office Building	Office Building
Building Classification	5 (Office)	5 (Office)

No change of use or alteration to existing building use is proposed.

1.8. General

The BCA contains technical design and construction requirements for all buildings within Australia. BCA Volume One contains requirements for all Class 2 to 9 Buildings and provides provision for Structure, Fire Resistance, Access and Egress, Services and Equipment, Health and Amenity, Special Use Buildings, Energy Efficiency, and specific requirements as part of State and territory variations. BCA Volume Two contains requirements for Class 1 and 10 Buildings.

The BCA is a performance-based code which can be satisfied by complying with the deemed-to-satisfy (DtS) provisions contained within or by a performance solution or by a combination of both.

This report has been prepared to provide feedback and compliance direction regarding the proposed use of the existing building as an office building.

1.9. Applicable Legislation

The following legislation is applicable to any development proposed

1) National Construction Code Volume One Building Code of Australia Class 2 to 9 Buildings 2022, Australian Building Codes Board (NCC)
2) Disability (Access to Premises – Buildings) Standards 2010 (Premises Standard)
3) Manual for Fire Protection Engineering Edition 4, Amendment 4.1 (MFPE)
4) Building Works Manual Edition 1 Amendment 4 (BWM)
5) Guidelines for Certification, Performance Solutions and Dispensations

1.10. Benchmark of Performance

It is expected that the building works will comply with the BCA 2022. Existing compliance of building elements may be relied upon where the works are not altered.

Additionally, the Disability (Access to Premises – Buildings) Standard 2010 would be applicable to this project. Requiring access to and within all areas of the building.

1.11. Limitations

The following report has been assessed against the requirements of the BCA and does not include nor imply compliance with:

- Structural adequacy or design
- Earthquake or seismic design
- Fire-resistance levels for structural elements of the building unless specifically addressed/commented on.
- Services design to compliance with Australian Standards including fire services, mechanical services, hydraulic, electrical services, vertical transportation, and civil design.
- Hydraulic design services.
- Specific Energy Rating requirements.
- Construction in bushfire prone areas
- Special Hazard Report
- Invasive or destructive testing of onsite conditions

1.12. Assumptions and Clarifications

The following assumptions and clarifications have been made to inform this assessment:

- Please note that the NCC 2022 is now in effect
- It is noted the current proposal is a work in progress and the design is preliminary. Future design changes may require reassessment.
- All services to be design in accordance with NCC 2022 and applicable Australian Standards reference by NCC 2022.
- Hydraulic Consultant to confirm fire hydrant coverage. Note new hydrant standard will be applicable to this project.
- Any external cladding materials and walls should be non-combustible to C2D10 (2019:C1.9).
- Any ancillary element fixed, installed, attached to, or supported by the concealed internal parts or external facades must be non-combustible or exempted underC2D14 (2019:C1.14)
- Hearing augmentation is provided to areas identified in Clause D4D8
- Design has made provision for compliance with any local requirements

2. BUILDING CHARACTERISTICS

2.1. Building classification & parameters

The existing building has been classified and assessed under the *National Construction Code 2022 Volume One: Building Code of Australia Class 2 to Class 9* with the following applying to the development:

This report has been based on drawings provided as per Appendix A.

CB BUILDING SURVEYORS

Table 4: Preliminary classification and type of construction

Characteristic		Description		
Building Description		Existing Office Building		
Proposed Development		Alteration to Level 6 Office Fitout		
NCC Volume Applicable		NCC 2022 Volume 1		
BCA Classification(s)		**Part of building**	**Use**	**Classification (Part A6)**
		Level 6	Office	5 (Current Use)
Number of floors	**Above ground**	6		
	Below ground	Unknown		
Rise in Storeys		6		
Effective height*		Less than 25m (Assumed)		
Type of construction		A		
Large-isolated building		NA		
Bushfire Prone Land		TBC		
Atrium		NA		
Occupiable outdoor area		Yes, Existing compliance provisions apply		
Fire Compartments		Multiple		
Lift Access Required		Yes		
Sanitary Compartments		Existing.		
Floor Area (Fitout Area) **Floors areas are approximate*		4,100m^2		
Climate Zone		Climate Zone 7		
Importance Level (Assumed)		Current importance level would be consistent with a Level 3 or 4		
**Effective height has been assumed, this is to be confirmed by the design team*				

2.2. Building Characteristics

The general building characteristic/construction materials include:

Table 5a: General Characteristics of Construction

Characteristic	Description
Floor	Concrete
External Walls (Load Bearing)	Concrete or Masonry
External Walls (Non- Load Bearing)	Concrete or Masonry or Lightweight (Non-combustible)
External Cladding	Masonry
Internal Walls and Columns (Load Bearing)	s47E(d)
Internal Walls (Non-Load Bearing)	s47E(d)
Roof	s47E(d)
Windows	Aluminium Glazed System

Floor Coverings	Carpet/Vinyl/Tiles

2.3. Building Works Manual Assessment

Table 5b: General Characteristics of Construction

Characteristic	*Description*
Building	*To be advised by client*
Defence Property	*To be advised by client*
E&IG Region	*To be advised by client*
Address	R2, Russell Campus
GEMS ID	*To be advised by client*
Contribution Factor	*To be advised by client*
Existing Building Dispensations or Performance Solutions	*To be advised by client*
Proposed Dispensations or Performance Solutions	To be confirmed

3. LOCATION OF SITE

3.1. Site location

The site is located block 17, Section 87 Russell



Accessed 05/11/2025 https://www.actmapi.act.gov.au/

4. BUILDING ASSESSMENT

4.1. Building Description

The existing building is a government office building and includes basement carpark.

4.2. Approvals Process

Any proposed works would require approval under the *Building Works Manual (BWM)*. Any proposed works are required to comply NCC 2022, Manual for Fire Protection Engineering (MFPE) and *Disability (Access to Premises — Buildings) Standards 2010.*

As the proposed works maintain does not include a change of use or new building area the existing compliance of the building may be maintained. Ie where an item is not being modified as part of the proposed works the existing compliance of that element may be considered.

Form For Building Contribution Factor Assessment will be required to complete the approval.

5. DEEMED-TO-SATISFY REVIEW AND IDENTIFICATION OF NON-COMPLIANCES

Based on the site inspection and plans the existing building have been assessed against the Deemed-to-Satisfy provisions of the current BCA.

Selected clauses and items are noted in the tables below. The BCA requirements stated are tailored to the proposed development and are not the full clauses. Please refer to the BCA for more information.

The following status have been documented for each item:

Status	Description
Noted or N/A	Be aware of this requirement. Knowing this requirement may assist when specifying requirements.
Does not comply	The existing building element has been identified as not to meeting the listed clause.
Further Information Required	The existing building element has been identified as requiring further information to demonstrate compliance with the clause.
Compliance readily achievable	Compliance is possible within the existing building with limited alteration or design.

5.1 Section A – Governing Requirements

Table 6a: Governing Requirements

Clause and Notes	Status
A2G2 Performance Solution (A2.2)	
Requirements Development of performance solutions must be developed in accordance with a designated pathway. Where a performance solution is provided it must comply with the requirements of A2G2. The development of a performance-based design brief must be completed prior to the development of a performance solution design report.	Noted

(4) Where a *Performance Requirement* is proposed to be satisfied by a *Performance Solution*, the following steps must be undertaken: (a) Prepare a *performance-based design brief* in consultation with relevant stakeholders. (b) Carry out analysis, as proposed by the *performance-based design brief*. (c) Evaluate results from (4)(b) against the acceptance criteria in the *performance-based design brief*. (d) Prepare a final report that includes— (i) all *Performance Requirements* and/or *Deemed-to-Satisfy Provisions* identified through A2G2(3) or A2G4(3) as applicable; and (ii) identification of all *Assessment Methods* used; and (iii) details of steps (4)(a) to (4)(c); and (iv) confirmation that the *Performance Requirement* has been met; and (v) details of conditions or limitations, if any exist, regarding the *Performance Solution*. Key stakeholders must be identified and consulted at all stages of the performance solution development. Key stakeholders include but are not limited to – 1) Owner/Building Owner 2) Design Team (Architects, Engineers, Services, Passive Fire) 3) Building Surveyor/Certifier 4) Local Building Authority and/or Emergency Services Agency **5)** Relevant expert or specialist in their field	
A6G1 Building Classification(s)	
Requirements Building classifications are to be determined in accordance with the BCA. Please refer to Table 4 for building classification applicable to this project.	**Noted**

5.1 Section B – Structure

Table 6b: Structural Provisions

Clause and Notes	Status
B1D1-B1D4 - Structural Provisions	
Requirements The importance level of the buildings is determined by table B1D3a. Structural designs and drawings are required for the proposal. Design to comply with minimum documentation standards. Consideration to be given to AS1170.4 – Earthquake Actions in Australia. Note: Services and non-loadbearing elements will also be required to comply with these requirements. **Table B1D3a: Importance Levels of buildings and structures** Importance level | Building Types 1 | Buildings or structures presenting a low degree of hazard to life and *other property* in the case of failure. 2 | Buildings or structures not included in Importance Level 1, 3 and 4. 3 | Buildings or structures that are designed to contain a large number of people. 4 | Buildings or structures that are essential to post-disaster recovery or associated with hazardous facilities. **Comments** ***Consideration of new structure and connection of services to base building will need to consider Earthquake actions. Based on the scope, it is expected the building has an importance level of 3 or 4.***	**Further Information Required**

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5.2 Section C – Fire Resistance

Table 6c: Fire Resistance

<table>
<tr><th>Clause and Notes</th><th>Status</th></tr>
<tr><td colspan="2">C2D2 Type of construction required (C1.1)</td></tr>
<tr><td>Requirements
The buildings type of construction is to be determine in accordance with Table C2D2, C3D3 & C2D3.
Comments
The building will require Type A construction based on the existing number of storeys</td><td>Noted</td></tr>
<tr><td colspan="2">C2D10 Non-combustible building elements</td></tr>
<tr><td>Requirements
Buildings with a type of construction of A & B must consist of non-combustible construction unless specified elsewhere in the BCA. This includes External and common walls, flooring of lift pits, non-load bearing internal walls where they are required to be fire-resisting.
Comments
Existing building</td><td>Noted</td></tr>
<tr><td colspan="2">C2D11 Fire Hazard Properties</td></tr>
<tr><td>Requirements
All buildings must use materials with fire hazard properties for internal linings, materials and assemblies within a class 2 to 9 building unless exempted. Materials must comply with Specification 7.
Comments
Material schedules are to be provided to determine compliance as design progresses
<u>Wall and Ceiling Linings</u>
Table S7C4: Wall and ceiling lining materials (material groups permitted)
<table>
<tr><th>Class of building</th><th>Fire-isolated exits and fire control rooms</th><th>Public corridors</th><th>Specific areas</th><th>Other areas</th></tr>
<tr><td rowspan="2">Class 2 or 3, unsprinklered, excluding accommodation for the aged, people with disabilities and children</td><td>Walls: 1</td><td>Walls: 1, 2</td><td>Walls: 1, 2, 3</td><td>Walls: 1, 2, 3</td></tr>
<tr><td>Ceilings: 1</td><td>Ceilings: 1, 2</td><td>Ceilings: 1, 2, 3</td><td>Ceilings: 1, 2, 3</td></tr>
<tr><td rowspan="2">Class 9b other than schools, unsprinklered</td><td>Walls: 1</td><td>Walls: 1</td><td>Walls: 1, 2</td><td>Walls: 1, 2, 3</td></tr>
<tr><td>Ceilings: 1</td><td>Ceilings: 1</td><td>Ceilings: 1, 2</td><td>Ceilings: 1, 2, 3</td></tr>
<tr><td rowspan="2">Class 9b other than schools, sprinklered</td><td>Walls: 1</td><td>Walls: 1, 2</td><td>Walls: 1, 2, 3</td><td>Walls: 1, 2, 3</td></tr>
<tr><td>Ceilings: 1</td><td>Ceilings: 1, 2</td><td>Ceilings: 1, 2, 3</td><td>Ceilings: 1, 2, 3</td></tr>
</table>
<u>Floor Linings and Floor Coverings</u></td><td>Compliance readily achievable</td></tr>
</table>

Class of building	Building not fitted with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17	Building fitted with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17	Fire-isolated *exits* and fire control rooms
Class 2, 3, 5, 6, 7, 8 or 9b, excluding Class 3 accommodation for the aged and Class 9b as specified below	2.2 kW/m^2	1.2 kW/m^2	2.2 kW/m^2
Class 9b auditorium or audience seating area used mainly for other sports or multi-purpose functions	2.2 kW/m^2	1.2 kW/m^2	2.2 kW/m^2

C2D14 Ancillary Elements (C1.14)

Requirements

An ancillary element must not be fixed, installed, attached to or supported by the concealed internal parts or external face of an external wall that is required to be non-combustible unless an ancillary element that is non-combustible or it is specifically mentioned by this clause.

Comments

Wall and material schedules are to be provided to determine compliance as design progresses

Compliance readily achievable

C3D3 General floor area and volume limitations (Class 5,6,7,8,9 Parts of Building)

Requirements

The size of any fire compartment must not exceed areas and volume permitted under Table C3D3 unless permitted under C3D4 (Large Isolated Building) or atrium provisions (Part G3)

Comments

The proposed building has been assessed to have a type of construction of Type A. Therefore, compartmentation size must not exceed Table C3D3.

Assume fire compartment per floor plate.

Table C3D3: Maximum size of fire compartments or atria

Classification	Type A construction	Type B construction	Type C construction
5, 9b or 9c	Max *floor area*—8000 m^2	Max *floor area*—5500 m^2	Max *floor area*—3000 m^2
	Max *volume*—48000 m^3	Max *volume*—33000 m^3	max *volume*—18000 m^3
6, 7, 8 or 9a (except for *patient care areas*)	Max *floor area*—5000 m^2	Max *floor area*—3500 m^2	Max *floor area*—2000 m^2
	Max *volume*—30000 m^3	Max *volume*—21000 m^3	Max *volume*—12000 m^3

Compliance readily achievable

C3D4- Large isolated buildings (C2.3), and

C3D5- Requirements for open spaces and vehicular access (C2.4), and

Requirements

A Building may exceed general floor area and volume limitations where it complies as a large isolated building as per this clause. This includes provisions for ring road access and a sprinkler system (in certain circumstances)

Comments

Noted

The proposed building does not require assessment under Large Isolated Building Provisions	
C3D14 Electrical supply system (C2.13)	
Requirements Equipment sustaining emergency equipment (such as smoke exhaust) must be fire separated from the remainder of the building to 12/120/120 **Comments** Confirm location of equipment and details of fire separation.	Noted
C4D3 Protection of openings in external walls (C3.2)	
Requirements Openings within an external wall which is required to have an FRL must be protected when within 3m of an adjoining boundary or 6m from another building.	Noted
Specification 5 Fire Resisting Construction	
Requirements Building elements must comply with applicable tables within this section. Building elements and supports may require fire ratings. **Comments** Refer to tables within the BCA for required fire ratings of building elements.	Noted

5.3 Section D – Access and Egress

Table 6d: Access & Egress provisions

Clause and Notes	Status
D2D3 Number of Exits (D1.2)	
Requirements No less than 1 exits are required to each storey **Comment** Sufficient exits provided from storey.	Compliance readily achievable
D2D4- When fire-isolated stairways and ramps are required (D1.3)	
Requirements Required exits servicing a building exceeding 2 storeys (3 with a fire sprinkler) are required to be fire-isolated.	Noted
D2D5(1)&(3) - Exit travel distances (D1.4)	
Requirements Class 5-9 buildings no point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 m. **Comment**	Does not comply

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The following distances have been identified on plan - **Distance to a point of choice exceeds 20m (Measured 34m).** s47E(d) s47E(d) - **Distance to an exit with a point choice exceeds 40m (Measured 50m)** s47E(d) s47E(d) Note this distance is due to access restrictions into subject area. Refer Mark Up Appendix B	
D2D6 – Distance between alternative exits (D1.5) (Class 5 to 9 buildings)	
Requirements Class 5-9 buildings exits must be provided not further than 60m apart, measured between exits and any point of choice used to determine compliance with D2D5 exit travel distances. **Comment** **Distance to alternative exits exceeds 60m (Measured 84m)** s47E(d) s47E(d) Refer Mark Up Appendix B	**Does not comply**
D2D7 – Heights of exits, paths of travel to exits and doorways	
Requirements Required height through a path of travel must have an unobstructed height of not less than 2.0m except at a doorway where 1980mm is permitted.	**Compliance readily achievable**
D2D8 – Width of exits and path of travel (D1.6)	
Requirements Exit widths are required to be a minimum of 1.0, and aggregate exit width must provide safe egress for all occupants.	**Compliance readily achievable**
D2D8 – Width of exits and path of travel (D1.6)	
Requirements Aggregate exit width must provide safe egress for all occupants at 2m per 200 persons + for every 500mm an additional 60 persons is supported. **Comment** s47E(d)	**Compliance readily achievable**
D2D12 – Travel via fire-isolated exits (D1.7)	
Requirements Entry into a fire isolated stairways must be via a public corridor, public lobby, or a sole-occupancy unit occupying all of a storey. Sanitary facilities and airlocks may be permitted with restrictions.	**Compliance readily achievable**
D2D14 – Travel by non-fire-isolated stairways or ramps (D1.9)	
Requirements	**NA**

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Travel via non-fire isolated stairways must be via a continuous means of travel and not exceed distances permitted.	
D2D17 – Non-required stairways, ramps or escalators (D1.12)	
Requirements Travel via non-required stairways or ramps must not connect floors exceeding 2 storeys (3 storeys permitted with sprinkler and one of the floors is at ground level).	NA
D2D18 – Number of persons accommodated (D1.13)	
Requirements For the purposes of deemed-to-satisfy clauses the number of persons accommodated for a building or part of building is to be determined by either – 1) Table D2D18 2) Reference to the total number of seating available 3) Any other means such as design limits or confirmation from designer of total persons accommodated. **Comment** Occupancy to be determined by client. s47E(d)	Compliance readily achievable
D3D4 – Non-fire-isolated stairways and ramps (D2.3)	
Requirements Non-fire-isolated stairways in a building exceeding a rise of storeys or more than 2 must be constructed our of concrete, steel (not less than 6mm thick) or timber (not less than 44m thick and density not less than 800kg/m^3)	NA
D3D9 – Enclosure of space under stairways or ramps (D2.8)	
Requirements Enclosure underneath a required stairway must be fire separated by fire rated construction equal to the fire-isolated stairway or 60/60/60 with a self-closing fire rated access doorway	NA
D3D14 – Goings and Risers (D2.13)	
Requirements Goings and risers must meet minimum and maximum dimensions as per Table D3D14. Treads must be consistent throughout the flight of stairway with a tolerance of not more then 5mm between riser/going and 10mm variance between all riser/goings. Table D3D14: Riser and going dimensions	Compliance readily achievable Existing

Stairway location	Riser (R)		Going (G)[Note 3]		Quantity (2R + G)	
	Max	Min	Max	Min	Max	Min
Public	190	115	355	250	700	550
Private [Note 1]	190	115	355	240	700	550

D3D15 – Landings (D2.14) & D3D16 – Threshold (D2.12)	
Requirements A landing must be provided with a maximum gradient of 1:50 at the top of each flight of stairways and within the threshold of a doorway. A landing must also be slip resistance to Table D3D15.	Compliance readily achievable Existing

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A step or ramp is not permitted within the doorway threshold unless permitted under AS1428.1-2009.	
D3D17 – Barriers to prevent falls (D2.16), D3D18 – Height of barriers (D2.16a), D3D19 – Openings in Barrier (D2.16a) & D3D20 – Barrier climbability (D2.16a)	
Requirements Barriers are required to be provided if fall exceeds 1.0m measured from a standing area to the ground below.	Compliance readily achievable Existing
D3D22 – Handrails (D2.17)	
Requirements Handrails are required to both sides of a ramp or flight of stairs as per AS1428.1-2009	Compliance readily achievable Existing
D3D25 – Swinging doors (D2.20)	
Requirements Required doorways are to swing in the direction of egress.	Compliance readily achievable Existing
D3D26 – Operation of latch (D2.21)	
Requirements A doorway must be able to provide free handle egress on a single device located 1.0m +/- 100mm. The doorhandle must be "D" type to prevent a hand from slipping. **Several exemptions may apply to this clause.** **Comment** s47E(d) s47E(d) can be operated by a fail safe device or by a hand of a person tasked with the duties and responsibilities during occupation of the area.	Compliance readily achievable Existing
D3D27 – Re-entry from fire-isolated exits (D2.22)	
Requirements Doorways in a fire-isolated exits must not be locked in a Class 9a, 9b (early childhood centre), 9c or any exit serving a building storey with an effective height of 25m.	NA
D4D2 – General building access requirements (D3.1)	
Requirements Buildings must provide access to and within all areas normally used by the occupants including access from the carpark or kerb. **Comment** The existing building has been assumed to contain a lift with accessible features and access is permitted from the entry doorway to the subject floor. **Access is provided to most areas unless specifically exempted under D4D5 as it would be unsuitable for access due to health and safety reasons.**	Compliance readily achievable

This includes access to s47E(d)	
D4D2 – General building access requirements Stairways and Ramps (D3.1)	
Requirements All stairways and ramps must comply with AS1428.1-2009 and include accessible features. **Comment** Existing building is assumed to contain stairways and ramps which have tactile indicators, handrails to both sides & contrast nosing's.	Compliance readily achievable
D4D6 – Accessible carparking (D3.5)	
Requirements Class 5 buildings require 1 in every 100 carparking spaces must be designed as an accessible carparking space.	NA
D4D8 – Hearing augmentation	
Requirements A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed— in a room in a Class 9b building; or in an auditorium, conference room, meeting room or room for judicatory purposes; or at any ticket office, teller's booth, reception area or the like, where the public is screened from the service provider.	Compliance readily achievable

5.3 Section E – Services and equipment

Table 6e: Services & Equipment

Clause and Notes	Status
E1D2 - Fire Hydrants (E1.3)	
Requirements Fire Hydrant coverage is required to be provided throughout the building	Compliance readily achievable
E1D3 – Fire Hose Reels (E1.4)	
Requirements Fire Hose Reels coverage is required to be provided throughout the Class 5 building areas. **Comment** **Note fire hose reels are installed to the existing building and therefore compliance must be maintained. Provision for additional fire hose reels to services secure areas may be required.**	Compliance readily achievable
E1D14 – Portable Fire Extinguishers (E1.6)	
Requirements Fire extinguishers are required to be provided throughout the building to cover risks identified in E1D14(3).	Compliance readily achievable

Comment Fire extinguishers to be provided throughout the building. Extinguishers .to be co-located with Fire Hose Reels if provided and provided throughout floor plate with 15m.	
E2D2 – Emergency Lighting Requirements (E4.2)	
Requirements Emergency lighting is required throughout the building	Compliance readily achievable
E2D5 – Exit Signage (E4.5)	
Requirements Exit signage is required to identify required exits	Compliance readily achievable
E2D6 – Direction Signs (E4.6)	
Requirements Directional exit signage is required to clearly identify paths of travel to an exit.	Compliance readily achievable

5.4 Section F – Health and amenity

Table 6f: Health and amenity

Clause and Notes	Status
F2D2 – Wet area construction (F1.7)	
Requirements Wet area construction must be waterproofed or water resistant to AS3740 and Specification 26 **Comment** Waterproofing will be required to any new and existing bathroom upgrades	NA
F2D2 – Wet area construction (F1.7)	
Requirements Where a floor was is installed, it must be provided with continuous fall of a floor plane between 1:50 & 1:80. **Comment** Waterproofing was unable to be determined however new facilities to consider falls to floor wastes.	NA
F3D5 – Wall cladding	
Requirements Any external walls must comply with F3F5 or a performance solution for weatherproofing of the external cladding is required.	NA

The external cladding materials are considered deemed-to-satisfy: (a) Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. (b) Autoclaved aerated concrete: AS 5146.3. (c) Metal wall cladding: AS 1562.1. **Comment** A performance solution may be required to address F3P1 (FP1.4) if external wall systems are outside the above deemed-to-satisfy elements. This will be required to address the method and materials used for weatherproofing this space.	
F2D4 – Floor Wastes	
Requirements A floor waste is required in a bathroom or laundry located above another level of the building. Falls to the floor waste must comply with minimum 1:80 & maximum 1:50	NA
F4D4 – Facilities in Class 3 to 9 Buildings	
Requirements Facilities must be provided for use by staff members and patrons	NA – Existing facilities not part of scope.
F4D5 – Accessible Sanitary Facilities (Ambulant Facilities) (F2.4)	
Requirements Where an accessible unisex sanitary compartment is provided and additional facilities are co-located, at that bank not less than one sanitary compartment suitable for a person with an ambulant disability is to be provided for each sex. Note this means two facilities must be provided.	NA – Existing facilities not part of scope.
F4D6 – Accessible Unisex Sanitary Facilities (F2.4)	
Requirements Provision of an accessible unisex sanitary compartment is required to be provided for use by occupants.	NA – Existing facilities not part of scope.
F5D2 – Height of Rooms and Other Spaces (F3.1)	
Requirements Heights of ceilings and other spaces are as per the requirements of this clause including 1) Class 5 – 2.4m to workspaces **Comment** s47E(d) existing building has sufficient height to accommodate.	Compliance readily achievable

6. INDENTIFICATION OF ACTIVE FIRE SERVICES

The following active fire services have been identified as applicable to this project. Please note variation to these items may be considered and this is not a final list. This relates to new works only.

Table 7: Active Fire Services

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Item	Active Fire Service	Australian Standard	Applicable
1.	Fire Hydrants	AS2419.1-2021	**Yes**
2.	Fire Hose Reels	AS2441-2005	**Yes**
3.	Automatic Sprinklers	AS2118.1-2017	**Yes**
4.	Automatic Smoke Detection System	AS1670.1-2018	**Yes**
5.	Emergency Warning Systems	AA1670.4-2015	**Yes**
6.	Portable Fire Extinguishers & Fire Blankets	AS2444-2001	**Yes**
7.	Exit, Directional & Emergency Lighting/Signage	AS/NZS2293.1-2018	**Yes**

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7. APPENDIX

7.1. Appendix A: Documents Reviewed

Drawing No	*Title*	*Rev*	*Revision Date*
AR-1400	PROPOSED FF&E PLAN – OVERALL	A	15/11/2024 (Printed 25/10/2024)
AR-1401	PROPOSED FF&E PLAN s47E(d)	A	15/11/2024 (Printed 25/10/2024)
AR-1402	PROPOSED FF&E PLAN	A	15/11/2024 (Printed 25/10/2024)
AR-1403	PROPOSED FF&E PLAN	A	15/11/2024 (Printed 25/10/2024)

- **Date reflects documentation and will need to be updated reflecting actual date.**

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16. Environmentally Sustainable Design (ESD)

16.1 Introduction

In accordance with Defence's sustainability policies and best practice, Environmentally Sustainable Design (ESD) and Whole-of-Life (WOL) principles and objectives are a high priority. As such, it is essential that they are actively pursued throughout the life of the project.

16.1.1 Schematic Design (50%) Process

The development of this 50% SDR has been an iterative process involving key stakeholders exploring sustainability initiatives proposed for adoption into the design, or for further development. The 50% SDR represents a refinement of the needs and opportunities for the project and develops a clear understanding of the themes to be further developed throughout later project phases. An overview of the ESD tasks required in each design phase is outlined below.

Figure 40. Overview of ESD Tasks per Design Stage



16.1.2 Progressing ESD Design

Preliminary coordination discussions have been held design discipline leads to introduce the applicable sustainability benchmarks and objectives to be targeted, as well as ESD initiatives to be included in the design.

ESD workshops will be held during subsequent design phases to confirm the progress of sustainability initiative inclusion into the design.

16.1.3 Section Aim

This section of the report aims to demonstrate the project's commitment to sustainable design practices by outlining:

- The sustainable design philosophy for the project; and
- The key ESD initiatives considered in the current design to meet the project ESD objectives.

16.2 Key ESD Requirements

The Building Energy Performance Guide (BEPG) forms the overarching framework for sustainable building design in this project. Although this document is focussed primarily on operational energy use, its principles will be used to guide the design towards the holistic inclusion of sustainability features. The development will consider ESD throughout all stages of the design, construction, and operation of the building.

16.2.1 Building Energy Performance Guide (BEPG)

This document identifies Defence's obligations to reduce greenhouse gas emissions and Defence's responsibility for optimising the efficient use of energy and resources in buildings. The key target requires office buildings to be designed to achieve a 4.5 Starts NABERS Energy rating. Further, it requires energy use reporting and NCC compliance reporting, and outlines energy and water metering requirements.

16.2.2 Smart Infrastructure Handbook (SmartIH)

The Smart Infrastructure Handbook outlines Defence's requirements for the improvement of efficiency, effectiveness, and sustainability of the Defence Estate. It identifies ESD and Whole-of-Life (WOL) requirements as design inputs and pathways for their implementation through all project stages to final completion. The Defence requirements stipulate specific criteria which must be individually met. These are not performance based, rather, they are individual criteria that govern. For example, product selection or requirements for facilities.

The key requirement of the handbook is that building sealing, insulation and glazing shall meet or exceed NCC 2022 Section J Energy Efficiency requirements.

The SMART Infrastructure checklist has been completed at 30% CDR phase and 50% SDR phase. Refer to Appendix I for SMART Infrastructure checklist.

16.2.3 Commonwealth Requirements

Commonwealth ESD requirements are those stipulated by the APS Net Zero in Government Operations (NZGO) policy. These requirements focus on operational energy efficiency and reporting, emissions reductions, and decarbonisation. Defence is required to demonstrate compliance with the policy for certain buildings. In general, this refers to meeting energy use benchmarks, provision of metering, and appliance selection.

16.2.4 Defence ESD Performance Targets

Defence ESD performance targets are minimum design benchmarks for energy efficiency and waste reduction. Building energy efficiency must be shown to meet the current NCC Section J target though a deemed-to-satisfy (DTS) approach or via dynamic simulation modelling if approved.

16.2.5 ESD Best Practice

Additional ESD initiatives beyond Defence requirements sourced from third-party sustainability rating standards (e.g. Green Star Buildings v1) are to be incorporated in the design. Green Star Buildings v1 has been used as a reference for best practice along with our knowledge and experience of ESD initiatives. Initiatives include:

- Measures to reduce operational energy consumption and site emissions;
- Improve indoor environment quality;
- Target responsibly sourced products and materials; and
- Enhance occupant comfort and promote wellbeing.

16.3 Establishing ESD Initiatives

Noting that the scope of this project is limited to level 6 of the R2 building, opportunities for sustainable interventions are limited. The refurbishment intends to retain as much of the existing structure as possible, meaning that the building envelope remains consistent and compliance with the NCC Section J is maintained.

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The Smart Infrastructure Checklist outlines the sustainability elements beyond the project's scope, while specific initiatives being implemented are outlined in the following sections.

16.3.1 Management

Any construction project has the potential to incur a significant impact on the environment in both its construction and operational phase. Consequently, sustainable construction practices and operational management practices will be embedded in the project delivery. Construction requirements will be incorporated within the design documentation in line with the requirements of the SmartIH.

16.3.2 Energy

16.3.2.1 HVAC

Modifications to existing HVAC systems will be required to meet Defence security requirements, including:

- Entry/exit of services through bounding security wall at s47E(d)
- No transiting of services through these areas to serve other areas
- Strict acoustic requirements
- Security grilles
- Clear inspection access to security perimeter including security grilles in ductwork

The mechanical works will involve demolition, modification, and provision of new systems/equipment to meet the required objectives.

The existing 7 off AHUs on level 6 were installed around 1998 and are considered to be nearing or already exceeding their service life. New air handling units along with new VAV boxes will be provided to replace existing and cater for the revised heat load and layout due to fitout. No terminal fan VAV box will be proposed due to frequent maintenance and access requirement for the fan. Existing troffer light grilles will be removed and replaced with new swirl diffusers. New return air grilles will be introduced to the new ceiling where no troffer lights are used.

Economy cycle operation of AHU's shall be retained as that of existing system. Terminal equipment rooms will be provided with dedicated ducted, water-cooled air-conditioning units, to enable continuous operation and to satisfy the cooling requirements of each space. Heat rejection will be via building supplementary condenser water system.

Each of the conference room and meeting room will be provided with dedicated, ducted fan coil units (FCU) to satisfy increased ventilation and load requirements. Chilled water, heating hot water and outdoor air will be connected to each FCU. Acoustic treatment will be provided as required. Outside air will be sourced from the existing louvres in AHU plant and ducted to associated fan coil unit by outside air fan.

The kitchenette in s47E(d) area will be provided with a general mechanical exhaust and discharged to outside via a local louvre.

16.3.2.2 Artificial Lighting

Internal lighting design will meet NCC 2022 requirements and with lighting levels to comply with best practice guidelines as per Table 3.1 of AS1680.2. The lighting design incorporates all LED luminaires and lighting controls. All lighting is controlled with consideration of the task/s, flexibility, occupancy, and daylight contribution whilst preventing lights from being left operating during periods of non-occupancy.

16.3.2.3 Appliances

Domestic appliances are required to meet or exceed the minimum energy label Australian Appliance Star Ratings, as outlined below.

Table 35. Star Rating for Domestic Appliances

Appliance	Minimum Required Rating
Refrigerator	3 Star
Dishwasher	3.5 Star
Television	4 Star

16.3.3 Water

The facilities within this project have a requirement to comply with the Defence Estate Water Management Strategy. Accordingly, a number of water efficiency measures such as low flow fixtures have been proposed to ensure that the facility does not utilise potable water unnecessarily. The minimum WELS ratings defined below have been specified to meet or exceed those of the SmartIH.

Table 36. WELS Ratings for Fixtures

Fixture	WELS rating to be within one star of nominated rating
Taps	5
Dishwashers	4

16.3.4 Materials

Materials initiatives are intended to ensure that the project procures products which have a reduced impact on the environment in their extraction and manufacture. Strategies include sourcing responsible timber and best practice PVC products, as well as specifying interior furnishings with reduced environmental and occupant health impacts.

16.3.4.1 Recycled Content

Materials with recycled content will be referenced as appropriate. Steel with recycled content will be sourced from a responsible steel maker with ISO 140001 certification. Fittings, fixtures, and equipment selections will preference products with recycled and recyclable content.

16.3.4.2 Sustainable Products

Sustainable construction materials will be selected according to the following criteria:

- At least 95% of timber will be sourced from pre-consumer content or be responsibly harvested;
- Treated timber will be specified to avoid copper chromium arsenic (CCA);
- Manufactured timber will contain low or no added formaldehyde;
- Do not contain PVC and have an Environmental Product Declaration (EPD);
- Meet 'Best Practice Guidelines for PVC' (reused PVC products may be excluded from this requirement);
- The amount of PVC used in electrical and hydraulic works will be reduced through the use of alternative materials. Where PVC must be used, only best practice, responsibly manufactured PVC will be specified

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16.3.4.3 Emissions

Initiatives have been included into the design to ensure that the facility complies with the Defence Pollution Prevention Strategy, and minimise any negative environmental impact associated with emissions from the facility or site. Initiatives include:

- Refrigerants are specified with an ODP of zero;
- Refrigerants with low GWP are prioritised; and
- All insulation used in building fabric and services shall have an ODP of zero.

16.3.4.4 Indoor Air Quality

Maintaining high indoor air quality is important for the comfort and health of occupants. Interior finishes are a primary source of indoor pollutants; all paints, sealants, and adhesives will be specified with low levels of Volatile Organic Compounds (VOCs). Maximum Total Volatile Organic Compound (TVOC) limits from Green Star Buildings v1 are specified in the table below. In addition, materials containing the flame retarded hexabromocyclododecane (HBCD) will be avoided.

Table 37. TVOC Limits

Product Category	Max TVOC content (g/L) of ready to use product
General purpose adhesives and sealants	50
Interior wall and ceiling paint, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers, and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

16.3.5 Waste

The SmartIH places a large importance on managing construction and operational waste for Defence facilities.

Strategies with a preference to reuse, recover and recycle unavoidable waste streams generated during construction and operation will be implemented in design. Targets will be established for diversion of construction waste from landfill.

16.4 Whole of Life Assessment

Given the project scope is an internal refurbishment of one floor of an existing office building the typical WOL assessments including solar, rainwater harvesting, and domestic hot water are not applicable as they are not included within the project scope.

HVAC system selection is included within Section 11.5 of this report. The SDR design proposes like-for-like replacement of existing AHU's which have reached end of serviceable life and does not propose to alter base building central plant, such as chillers, boilers and cooling towers. Therefore, given that the mechanical design does not deviate from the existing building systems a detailed WOL analysis has not been provided. Refer to Section 11.5 for further detail.

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1.4 Design and Scope Progression in 50% SDR

A summary of the Project scope and key changes since the 30% CDR Report is provided in Table 1.

Scope has been developed throughout 50% SDR based on the endorsed URB and alignment to budget constraints. All wings have been documented within the 50% SDR design, with a view to deliver in a single construction stage. However, it is anticipated that s47E(will not progress beyond 50% SDR phase due to budget constraints s47E(d) s47E(d) that can continue in the s47E(d) uilt environment and potentially be uplifted in the future.

Initially in 50% SDR Phase the project team explored a two stage construction methodology:
s47E(d)

The staged approach was reflected in a ROM Cost Report update that outlined 3 options:
s47E(d)

The ROM Cost Report was presented to the Sponsor group on 25 September 2024. The consensus from participants was Option 3 s47E(d) was the preferred way forward given budget challenges. The Sponsor noted the Va still be required to bring Option 3 down to an 'in-cost option'.

s47E(d was previously designed to accommodate a single work group in a single compartment in 30% CDR Phase. The stakeholder group requested this design be altered to support s47E(d) s47E(d) The Conference Room located in s47E(d hould have the s47E(d) s47E(d)

Site investigations at the beginning of 50% SDR Phase revealed the scope required to meet s47E(d) of s47E(d) Jacobs ICT lead s47F visited site on the 30 September 2024 escorted by ROS (Regional Operational Specialists) s47F Uplift of these four s47E(d) as been incorporated into the 50% SDR scope and is costed in the 50% SDR P80 Cost Plan. Scope includes s47E(d) s47E(d)

Site visits also revealed the Air Handling Units (AHU) on Level 6 are nearing end of life and require removal and replacement. New AHU's have been costed into the project and included in the design and documentation scope.

Given the approximate two-year time lapse between 30% CDR and 50% SDR, CFI requested the PMCA revise the URB and bring up to speed with the progression of the project in 50% SDR Phase. At the time of issuing this report the draft SFRB was in progress. Refer to Section 7.6 for workforce accommodation work point yield.

Table 1. Updates since 30% CDR

Scope description	Change since 30% CDR / PDBC Option FLOC
Scope reduction	s47E(d as documented and costed at 50%SDR however it is anticipated s47E(d ill not progress past 50% SDR.
s47E(d)	s47E(equires separate working accommodation for s47E(d) s47E(d)
Base building s47E(d) included in scope	s47E(d)
Conference Room Access	Two conference rooms s47E(d) s47E(d)
s47E(d) Conference Room	Conference room s47E(d) with corridor access was increased in size s47E(d) s47E(d)
s47E(d) ffices Reduced	Four offices in s47E(d) educed to two offices
New AHU on Level 6	Mechanical AHUs are near end of life and require removal and replacement

1.5 Key Design Considerations

In order for the design to progress further to the 90%DDR detailed design phase, the following key design considerations need to be confirmed.

s47E(d)