STEVE WATSON
& PARTNERS

Job No 2005/307

Wednesday, 10 December 2008

Pittwater Council,
PO Box 882,
Mona Vale, NSW 1660

Attention General Manager

RE Construction Certificate No 05/307/06
6-14 Macpherson Street, Warriewood

Please find attached a copy of Construction Certificate 05/307/06 and required attachments issued by Steve Watson & Partners for the above mentioned development in accordance with Section 109C(1)(b) and 81A(2) of the Environmental Planning and Assessment Act 1979

Please find attached a cheque in the amount of $30 00 payable for the registration of the Construction Certificate

Can you please forward SWP a receipt for the acknowledgment of the lodgement cheque

If you have any queries please do not hesitate to contact me on (02) 9283 6555

Regards,

Paul Curjak
Steve Watson & Partners

Rec - 251962
15/12/08
$30

S \Jobs\2005 Jobs\2005 307 Warriewood Valley Retirement Village
6 14 Macpherson Street Warriewood\CC Docs\CC 6\20081209 CC
Letter to Council doc

BUILDING REGULATIONS CONSULTANTS AND CERTIFIERS
FIRE SAFETY ENGINEERS
LEVEL 5 432 KENT STREET SYDNEY NSW 2000
TEL +61 2 9283 6555 | FAX +61 2 9283 8500
www swpartners com au
ABN 48 102 366 576

STEVE WATSON
& PARTNERS

LEVEL 5 432 KENT STREET SYDNEY NSW 2000
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sydney@swpartners com au
www swpartners com au
ABN 48 102 366 576

CONSTRUCTION CERTIFICATE

Construction Certificate No. 05/307/06

I, Steve Watson, certify that work completed in accordance with documentation accompanying the application for this certificate (with such modifications verified by me as may be shown on that documentation) will comply with the requirements of this Regulation as are referred to in section 81A (5) of the Environmental Planning and Assessment Act 1979

Applicant	Name **Anglican Retirement Villages, Diocese of Sydney** Address **PO Box 284** Suburb **Castle Hill** State **NSW** Postcode **1765**
Location of the Property	Address **6-14 Macpherson Street** Suburb **Warriewood** State **NSW** Postcode **2102** Real Property Description **Lot B DP400488, Lot 22 DP5464, Lot B DP358765, Lot B DP345528, PT Lot 1 DP208149, PT Lot 3 DP579309, PT Lot 3 DP942319, PT Lot 4 DP579309**
Building description	**Alternative Solution for Residential Aged Care Facility, basement carpark and 2 storey age care accommodation**
Building Code of Australia Classification	**Class 7a & 9c**
Date of Receipt	Date Received **28th November 2008**
Determination	**Approved** Date of Determination **10th December 2008**
Development Consent	Development Consent Number **0102/05 & S96 modifications** Council **Pittwater** Date of Determination **6th April 2006 & 24th October 2007, 22nd December 2006, 8th January 2007 & 24th October 2007 and 8th February 2008**

Attachments

1 Plans and specifications endorsed by this certificate
2 Fire safety schedule
3 Alternative Solution Report from Defire revision R1 3 dated June 2008

STEVE WATSON & PARTNERS
05/307/06
Construction Certificate
Steve Watson Reg # BPB0432

Steve Watson
Accreditation Body **BPB** Accreditation no **BPB0432** Date of Endorsement **Wednesday, 10 December 2008**

Design documentation approved for Construction Certificate 05/307/04 for Residential Aged Care Facility, 6-14 Macpherson Street, Warriewood

Drawing No	Drawing Title	Revision	Date	Drawn by
A202	Ground Floor Plan	I	18 11 08	Mermn and Cranston
A701	Stair Plans and Sections	C	05 09 08	Mermn and Cranston

STEVE WATSON & PARTNERS

05/307/06

Construction Certificate
Steve Watson Reg # BPB0432

APPLICATION FOR CONSTRUCTION CERTIFICATE

STEVE WATSON & PARTNERS
BUILDING REGULATION CONSULTANTS AND CERTIFIERS
HERITAGE ARCHITECTS
LEVEL 5 432 KENT STREET SYDNEY NSW 2000
TEL +61 2 9283 6551 FAX +61 2 9283 8500
Sydney@watsonpartners.com.au
www.watsonpartners.com.au
ABN 48 074 354 576

PART 1 Application and Site Details

Applicant

It is important that we are able to contact you if we need more information

Please give us as much detail as possible

Mr ☐ Mrs ☐ Miss ☐ Ms ☐ Other [COMPANY]

Surname (or Company) ANGLICAN RETIREMENT VILLAGES, DIOCESE OF SYDNEY

Given names (or ABN) 39 922 848 563

Address C/O MICHAEL LOCKWOOD - MANAGER, CONSTRUCTION - PO BOX 284

CASTLE HILL State NSW Post Code 1765

Phone (02) 9421 5333 Fax (02) 9421 2217

Mobile _____ E-mail michael_lockwood@arv org au

Please ensure you sign the declaration in Part 3 of this application

Owner's Consent

***Every** owner of the land must sign this form*

If the owner is a company an authorised director must sign the form

Where the works are being carried out in a strata titled building the consent of the Body Corporate must be provided

Surname (or Company) ANGLICAN RETIREMENT VILLAGES DIOCESE OF SYDNEY

Given names (or ABN) 39 922 848 563

Address PO BOX 284 CASTLE HILL

State NSW Post Code 1765

Phone (02) 9421 5333 Fax (02) 9421 2217

Mobile _____ E-mail michael_lockwood@arv org au

As owner of the land to which this application relates, I consent to this application I also consent for SWP staff to enter the land to carry out inspections relating to this application

MICHAEL LOCKWOOD - MANAGER, CONSTRUCTION

Signature(s) _____ Date 28 / 11 / 2008

Without the owner's consent we will not accept the application This is a very strict requirement for all applications. If you are signing on the owner's behalf as the owner's legal representative you must state the nature of your legal authority and attach documentary evidence (eg Power of attorney executor trustee company director etc.

Location of the Property

We need this to correctly identify the land

Address 6-14 MACPHERSON STREET WARRIEWOOD NSW

Post Code 2102

Real Property Description (eg Lot/DP/Section etc)

LOT B DP 400488 LOT A DP400488 LOT 22 DP5464
LOT B DP358765 LOT A DP358765 PT LOT 2 DP345528
PT LOT 1 DP208149 PT LOT 3 DP579309, PT LOT 3 DP942319 PT LOT 4 DP579309

The real property description is mandatory these details are shown on your rate notices property deeds etc

RECEIVED 12 JAN 2009

PART 2 Work Description

Description of Work

Please describe briefly everything that you want approved

Building Work ALTERNATIVE SOLUTION FOR

119 BED RESIDENTIAL AGED CARE FACILITY (RACF) BASEMENT CARPARK AND ANCILLARY FACILITIES WITHIN BASEMENT GROUND FLOOR ADMINISTRATION PORTE COCHERE AND ASSOCIATED EXTERNAL WORKS INCLUDING ROADWORKS

Estimated Cost of Work *(inclusive of GST)*

$ 25 100 000 00

Development Consent

Development Consent No N0102/05

Date of Determination 06 / 04 / 2006 *ORIGINAL CONSENT MODIFIED 22/12/2006 8/1/2007 & 24/10/2007

Building Code of Australia Classification

BCA Classification 5 7a & 9c

Principal Contractors Details

Required for all projects

Name ST HILLIERS CONTRACTING

Address 88 CUMBERLAND STREET, THE ROCKS NSW 2000

Contact Number (02) 9259 5200

PART 3 Declaration

ALL THE DETAILS SOUGHT IN THE CHECKLIST IN PART 5 MUST BE PROVIDED

THE COMPLETED CHECKLIST MUST BE SUBMITTED WITH THIS APPLICATION FAILURE TO PROVIDE THE REQUIRED DOCUMENTATION OF AN ACCEPTABLE STANDARD WILL RESULT IN YOUR APPLICATION BEING RETURNED

Declaration

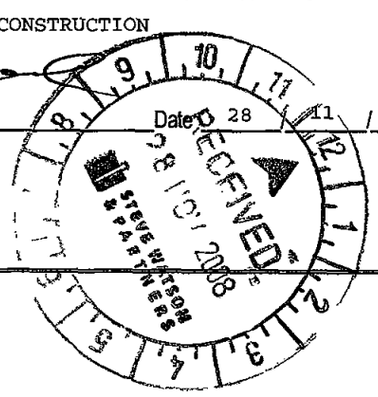
If the applicant is a company or strata title body corporate a director or authorised delegate must sign this declaration

I apply for approval to carry out the development or works described in this application I declare that all the information in the application and checklist is to the best of my knowledge true and correct

I also understand that if the information is incomplete the application may be delayed or rejected or more information may be requested I acknowledge that if the information provided is misleading any approval granted may be void

MICHAEL LOCKWOOD - MANAGER CONSTRUCTION

Signature _____ Date 28 / 11 / 2008



PART 4 Schedule to Application for a Construction Certificate

Please complete this schedule The information will be sent to the Australian Bureau of Statistics

All new buildings

Please complete the following

- ξ Number of storeys (including underground floors) — 3 + ROOFTOP PLANT
- ξ Gross floor area of new building (m²) — 9820
- ξ Gross site area (m²)

Residential buildings only

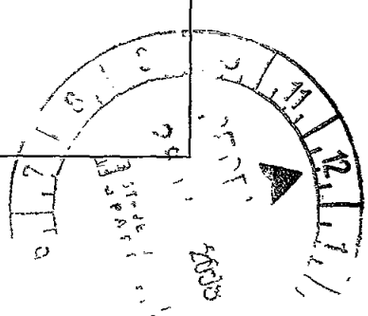
Please complete the following details on residential structures

- ξ Number of dwellings to be constructed
- ξ Number of pre existing dwellings on site
- ξ Number of dwellings to be demolished
- ξ Will the new dwelling(s) be attached to other new buildings? Yes ☐ No ☐
- ξ Will the new building(s) be attached to existing buildings? Yes ☐ No ☐
- ξ Does the site contain a dual occupancy? (NB dual occupancy = two dwellings on the same site) Yes ☐ No ☐

Materials – residential buildings

Please indicate the materials to be used in the construction of the new building(s)

Walls	Code	Roof	Code	Floor	Code	Frame	Code
Brick (double) ☐	11	Tiles ☐	10	Concrete or slate ☐	20	Timber ☐	40
Brick (veneer) ☐	12	Concrete or slate ☐	20	Timber ☐	40	Steel ☐	60
Concrete or stone ☐	20	Fibre cement ☐	30	Other ☐	80	Aluminium ☐	70
Fibre cement ☐	30	Steel ☐	60	Not specified ☐	90	Other ☐	80
Timber ☐	40	Aluminium ☐	70			Not specified ☐	90
Curtain glass ☐	50	Other ☐	80				
Steel ☐	60	Not specified ☐	90				
Aluminium ☐	70						
Other ☐	80						
Not specified ☐	90						



PART 5 Checklist

Where relevant, have you provided/completed the following	Yes	Not Relevant
ξ 4 copies of plans, elevations and sections	[X]	☐
ξ 4 copies of specifications	[1] AS REQUESTED	☐
ξ List of any existing and proposed fire safety measures (Refer to the Fire Safety Schedule)	[X]	☐
ξ Evidence of Home Building Act requirements satisfied	☐	☐
ξ Evidence that Long Service Levy has been paid	☐	☐
ξ Schedule to application for a construction certificate is completed	☐	
ξ Owners consent	☐	
ξ Applicants signature	☐	

PART 6 Notes for Completing Application for a Construction Certificate

The following information must accompany applications for a Construction Certificate for Building Work

1 The ABS schedule is required to be completed for the purposes of providing information to the Australian Bureau of Statistics

2. Copies of compliance certificates relied upon

3. Four (4) copies of all plans and specifications must be submitted with your application Plans for the building must be drawn to a suitable scale and consist of a general plan and a block plan The general plan of the building is to
   a) Show a plan of each floor section
   b) Show a plan of each elevation
   c) Show the levels of the lowest floor and of any yard or unbuilt on area belonging to that floor and the levels of the adjacent ground
   d) Indicate the height design construction and provisions for fire safety and fire resistance

4. Where proposed building work involves any alteration or addition to, or rebuilding of an existing building the plan is to be coloured or otherwise marked to distinguish the prosed work to be approved

5. Where the proposed building work involves a modification to previously approved plans and specifications the general plans must be coloured or marked up to adequately distinguish the modifications

6 The specification is
   a) To describe the construction and materials of which the building is to be built and the method of drainage sewerage and water supply
   b) State whether the materials proposed to be used are new or second hand and give particulars of any second hand materials used

7 Where the application involves an alternative solution to meet the Performance Requirements of the BCA, the application must also be accompanied by
   a) Details of the Performance Requirements that the alternative solution is intended to meet, and
   Details of the assessment methods used to establish compliance with those Performance Requirements

8 Evidence of any accredited component, process or design sought to be relied upon

9 Except in the case of any application for or in the respect of a class 1a or class 10 building
   a) A list of any fire safety measures that are proposed to be implemented in the building or on the land on which the building is situated
   b) If the application relates to a proposal to carry out any alteration or rebuilding of or addition to, an existing building, a separate list of such of those measures as are currently implemented in the building or on the land on which the building is situated

   The list must describe the extent capability and basis of design of each of the measures concerned

10 The Development Consent conditions together with stamped approved DA drawings are to be provided for our assessment of the development and record purposes

11 Under section 109F(1)(b) of the *Environmental Planning and Assessment Act 1979* a Construction Certificate cannot be issued until any long service levy payable under section 34 of the *Building and Construction Industry Long Service Payments Act 1986* (or where such a levy is payable by instalments the first instalment of the levy) has been paid The local council may be authorised to accept payment.

12. In the case of an application for a Construction Certificate for residential building work (within the meaning of the Home Building Act 1989) attach the following
   a) In the case of work performed by a licensee under that Act:
      i) A statement detailing the licensee s name and contract licence number and
      ii) documentary evidence that the licensee has complied with the applicable requirements of that Act* or
   b) in the case of work done by an y other person
      i) a statement detailing the persons name and owner-builder permit number or
      ii) a declaration signed by the owner of the land to the effect that the reasonable market cost of the labour and materials involved in the work is less than the amount prescribed for the purposes of the definition of owner-builder work in section 29 of that Act *(if the building work is less than $12 000 provide a statement that states the proposed work is less than $12,000)*

   * A certificate purporting to be issued by an approved insurer under Part 6 of the Home Building Act 1989 to the effect that a person is the holder of an insurance contract issued for the purposes of that Part, is sufficient evidence that the person has complied with the requirements of that Part.

FIRE SAFETY SCHEDULE

STEVE WATSON & PARTNERS

RACF, 6-14 Macpherson Street, Warriewood

CC No 05/307/06

Existing Fire Safety Schedule

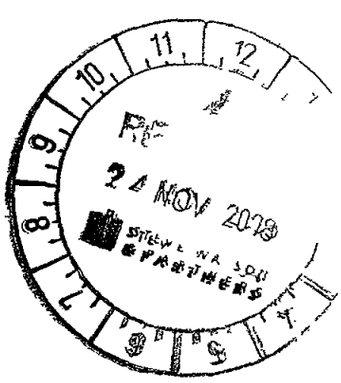
Nil

Proposed Fire Safety Schedule

Measure	Standard of Performance
Access panels, doors and hoppers to fire resisting shafts	BCA2007 Clause C3 13 and tested prototypes (AS 1530 4 – 2005)
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection fire detection or sprinkler activation in accordance with BCA2007 Clause D2 21
Automatic fire detection and alarm system *(smoke detection system)*	BCA2007 Specification E2 2a and AS 1670 1 – 2004 *(note Class 9c requires manual call points and mimic panels) (System monitoring in accordance with AS1670 3-2004)*
Automatic fire suppression systems *(Residential sprinkler system)*	BCA2007 Specification E1 5 and AS2118 4 – 1995
Emergency lighting	BCA2007 Clause E4 2, E4 4 and AS 2293 1 – 2005
Exit signs	BCA2007 Clause E4 5, NSW E4 6, E4 8 and AS 2293 1 – 2005
Fire dampers	BCA2007 Clause C3 15 and AS/NZS 1668 1 – 1998 (AS 1682 1-1990 and AS 1682 2-1990)
Fire doors	BCA2007 Specification C3 4 and AS 1905 1 – 2005
Fire hydrants systems	BCA2007 Clause E1 3 and AS 2419 1 – 2005
Fire seals protecting opening in fire resisting components of the building	BCA2007 Clause C3 15, Specification C3 15 and AS 1530 4 – 2005 and AS 4072 1 – 2005 and installed in accordance with the tested prototype
Fire Shutters	BCA 2007 Specification C3 4 and AS 1905 2 – 2005
Hose reel system	BCA2007 Clause E1 4 and AS 2441 – 2005
Lightweight construction	BCA2007 Specifications C1 8, Clause A2 3 and AS 1530 4-2005
Mechanical air handling system *(automatic shut down of air-handling system)*	BCA2007 Clause E2 2 and AS/NZ 1668 1-1998
Portable fire extinguishers	BCA2007 Clause E1 6 and AS 2444 – 2001
Smoke dampers	AS/NZS 1668 1 – 1998 (AS 1682 1-1990 and AS 1682 2-1990)
Smoke detectors and heat detectors *(detectors for the automatic closing operation of fire doors and fire shutters in fire walls)*	BCA2007 Clause C3 5 and AS 1670 1 – 2004
Smoke detectors and heat detectors *(detectors for the automatic closing operation of horizontal exits)*	BCA2007 Clause C3 7 and AS 1670 1 – 2004
Smoke detectors and heat detectors *(detectors for the automatic closing operation of smoke doors)*	BCA2007 Specification C3 4 and AS 1670 1 – 2004

Smoke doors	BCA2007 Specifications C2 5 and C3 4 and AS 1288 – 2006
Solid core doors	BCA2007 Clause C3 11 and NSW C3 11(d)
Stand-by power systems	BCA2007 Clause 6 of Specification G3 8
Wall wetting sprinkler and drencher systems	BCA2007 Clause C3 4, and AS 2118 2 – 1995
Warning and operational signs	BCA2007 Clauses D1 17, , D2 23, E1 4, E3 3,
Discharge of fire stairs	Alternative Solution Report by Defire report number SY080105 revision R1 3 dated June 2008
FRLs / type of construction	Alternative Solution Report by Defire report number SY080105 revision R1 3 dated June 2008

Defire



Alternative solution report

Warriewood Valley RACF – Stage 2a

Client Anglican Retirement Villages

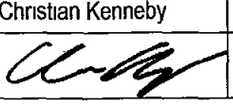
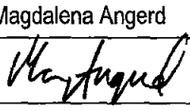
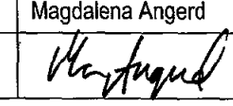
Report number SY080105

Revision R1 3

Report issued June 2008

Defire (NSW) Pty Ltd | ABN 30 099 090 089 | T 2 9211 4333 | F 2 9211 4366
Suite 3, Level 4 83-97 Kippax Street Surry Hills

Amendment schedule

Version	Date	Information relating to report			
R1 0	09/05/2008	Reason for issue	Draft report issued for review and comment		
			Prepared by	Reviewed by	Approved by
		Name	Christian Kenneby	Magdalena Angerd	
		Signature			
R1 1	15/05/2008	Reason for issue	Revised draft report issued after initial comments from the BCA consultant		
			Prepared by	Reviewed by	Approved by
		Name	Christian Kenneby	Magdalena Angerd	
		Signature			
R1 2	04/06/2008	Reason for issue	Final report after minor changes		
			Prepared by	Reviewed by	Approved by
		Name	Christian Kenneby	Magdalena Angerd	Magdalena Angerd
		Signature			
R1 3	17/06/2008	Reason for issue	Final report after incorporated minor changes from the architect		
			Prepared by	Reviewed by	Approved by
		Name	Christian Kenneby	Magdalena Angerd	Magdalena Angerd
		Signature			

Executive summary

This alternative solution report documents the findings of a fire safety engineering assessment undertaken to determine whether the proposed Warriewood Valley RACF – stage 2a complies with the relevant performance requirements of the Building Code of Australia 2007 (BCA) Defire undertook the assessment in accordance with the International Fire Engineering Guidelines at the request of Anglican Retirement Villages

The project is a two storey aged care building The south-east wing of building also contains administration and assembly areas The building is located above a single storey basement carpark

The building is to be provided with a sprinkler system in accordance with specification E1 5 of the BCA and AS 2118 4 and 6 – 1995

The design of the building includes areas which do not comply with the deemed-to-satisfy (DTS) provisions of the BCA Table 1 describes the BCA requirements associated with the alternative solutions

No	Description of alternative solutions	DTS provision	Performance requirements (A0 10)	Method of meeting performance requirements (A0 5)	Assessment method (A0 9)
1	The fire rating of the construction is proposed to be reduced to be consistent with the requirements for a type C construction	Clause C1 1 and specification C1 1	CP1 and CP2	Equivalent to DTS A0 5(b)(ii)	Verification method A0 9(c)
2	Openings within 6m of external path of travel from a fire isolated stair are not proposed to be protected in accordance with clause C3 4 of the BCA	Clause D1 7	CP2 and DP5	Complies with performance requirements A0 5(b)(i)	Verification method A0 9(b)(ii)

Table 1 BCA requirements associated with the alternative solutions

The fire safety engineering assessment undertaken found that the design of the building achieves compliance with the relevant performance requirements of the BCA, subject to the following recommendations

- This report and the fire safety measures listed in section 5 must be identified on the fire safety schedule for the building They must be maintained and certified in accordance with the Environmental Planning and Assessment Regulations, 2000 and relevant Australian standards

- If there are building alterations or additions, a change in use or changes to the fire safety system in the future, a reassessment will be needed to verify consistency with the assessment contained in this report

Contents

1 Introduction

This alternative solution report documents the findings of a fire safety engineering assessment undertaken to determine whether the proposed Warriewood Valley RACF – stage 2a complies with the relevant performance requirements of the Building Code of Australia 2007 (BCA)[1] Defire undertook the assessment in accordance with the International Fire Engineering Guidelines [2] at the request of Anglican Retirement Villages

2. Fire engineering brief

A formal fire engineering brief (FEB) meeting was not held before the preparation of the draft report because the alternative solution relates to only minor departures from the deemed-to-satisfy (DTS) provisions of the BCA The stakeholders were provided with the opportunity to comment on the proposed design, performance requirements identified, assessment methodology and fire safety measures when the draft alternative solution report was issued Comments were received from Blackett Maguire + Goldsmith on version R1 0 and report amended to address these comments The main areas raised were to address reduced fire rating in lieu of change of type of construction and all areas of the building being used by the age care residents Comments where received on version 1 1 by Steve Watson and Partners clarifying that all of the south-east wing of the ground floor has been classified as class 5/9b This is considered to fulfil the FEB process for the relatively simple issues associated with the project

If any of the stakeholders identified in Table 2 believe a formal FEB meeting is required please contact Christian Kenneby of Defire to arrange on 02 9211 4333

Name	Role	Organisation	Contact details
Michael Lockwood	Client	Anglican Retirement Villages	02 9421 5333
George Bellas	Architect	Mernin & Cranston Architects	07 3840 3930
David Blackett	BCA consultant	Blackett Maguire & Goldsmith	02 9211 7777
Steve Watson	Private Certifier	Steve Watson & Partners	02 9283 6555
Christian Kenneby	Fire safety engineer	Defire	02 9211 4333

Table 2 Stakeholders

3. Description of the building and alternative solutions

3 1 Building description

The project comprises the construction of Warriewood Valley RACF – stage 2a

The project is a two storey aged care building The south-east wing of building also contains administration and assembly areas The building is located above a single storey basement carpark

The building is to be provided with a sprinkler system in accordance with specification E1 5 of the BCA and AS 2118 4 and 6 – 1995

[1] *Building Code of Australia 2007* Australian Building Codes Board Australia 2007
[2] *International Fire Engineering Guidelines – Edition 2005* Australian Building Codes Board Australia 2005

A description of the main characteristics of the building for the purpose of determining compliance with the BCA is given in Table 3 [3] The proposed use and classification of the building or part in accordance with clause A3 2 of the BCA is described in Table 4

Characteristic	BCA clause	Description
Effective height	A1 1	Less than 25m
Type of construction required	C1 1	Type B Reduced fire ratings are proposed
Rise in storeys	C1 2	Two

Table 3 Main building characteristics

Part of building	Use	Classification (A3 2)
Basement	Carparking and ancillary services	Class 7a
Ground floor level	Offices, public assembly and aged care	Class 5, 9b and 9c
Level 1	Aged care	Class 9c

Table 4 Use and classification

3 2 Occupant characteristics

The characteristics of the occupants expected to be in the building are listed in Table 5

Characteristic	Description
Familiarity	Office – Occupants are expected to be staff who are familiar with the layout of the building and trained in emergency situations in accordance with AS3745 Aged care – Occupants are expected to be staff, visitors and residents The residents are expected to require a varying level of assistance from staff - from partially dependent to fully dependant - ie residents may have Dementia Carpark – Occupants are mainly expected to be associated with the aged care and be within the carpark for short periods
Awareness	Aged care – Occupants may be asleep at the time of a fire which could delay their response time for evacuation Some residents – eg Dementia residents may require full assistance in evacuation Office/Carpark – Occupants are expected to be awake and alert to a potential emergency event such as a fire in the building
Mobility	Occupants are elderly visitors and staff Some occupants may be mobility impaired These occupants may require crutches, a wheelchair or similar to evacuate on their own or need assistance from staff Staged evacuation procedures between fire and smoke compartments are likely to be required
Age	The majority of the occupants are expected to be elderly people Staff and visitors are of mixed ages
Language	Although occupants may have English as their second language they are expected to understand signs and verbal instructions in English
Occupant load	Population densities used in this assessment are based upon table D1 13 of the BCA which specifies 30 m²/person for the carpark portion of the building and 10 m²/person for offices All rooms are for one resident

Table 5 Occupant characteristics

[3] *Warnewood Valley RACF(Stage2A) Project No 80124* Blackett Maguire & Associates 31/03/2008

3 3 Alternative solutions

The design of the building includes areas that do not comply with the DTS provisions of the BCA We intend to use a performance-based fire safety engineering approach to develop alternative solutions to the DTS provisions of the BCA Table 6 describes the BCA requirements associated with the alternative solutions

No	Description of alternative solutions	DTS provision	Performance requirements (A0 10)	Method of meeting performance requirements (A0 5)	Assessment method (A0 9)
1	The fire rating of the construction is proposed to be reduced to be consistent with the requirements for a type C construction	Clause C1 1 and specification C1 1	CP1 and CP2	Equivalent to DTS A0 5(b)(ii)	Verification method A0 9(c)
2	Openings within 6m of external path of travel from a fire isolated stair are not proposed to be protected in accordance with clause C3 4 of the BCA	Clause D1 7	CP2 and DP5	Complies with performance requirements A0 5(b)(i)	Verification method A0 9(b)(ii)

Table 6 BCA requirements associated with the alternative solutions

4. Scope, limitations and assumptions

4 1 Scope and limitations

- This report is limited to the alternative solutions described in section 3 3
- This report is limited to compliance with the fire safety aspect of the performance requirements of the BCA Matters such as property protection (other than protection of adjoining property), business interruption, public perception, environmental impacts and broader community issues – such as loss of a major employer and impact on tourism – have not been considered as they are outside the scope of the BCA
- This report considers single point arson as a source of ignition Arson involving accelerants or multiple ignition sources is not considered in this assessment as it is outside the scope of the BCA
- The scope of our works is limited to considering evacuation and fire safety issues for people with disabilities to the same degree as the DTS provisions of the BCA Specifically, consideration of evacuation from the building by people with disabilities under the provisions of the Disability Discrimination Act 1992 is excluded
- If there are building alterations or additions, a change in use or changes to the fire safety systems in the future, a reassessment will be needed to verify consistency with the assessment in this report
- The data, methodologies, calculations and conclusions documented within this report specifically relate to the building and must not be used for any other purpose
- A number of issues within the BCA are recognised to be interpretive in nature Where these issues are encountered, interpretations are made that are consistent with standard industry practice and / or Defire policy formulated in regard of each issue
- The documentation that forms the basis for this report is listed within Appendix A

- This report has been prepared based upon information provided by others Defire has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated into this report as a result

4 2 Assumptions

- The design complies with the current DTS provisions of the BCA except for the specific alternative solutions described within section 3 3
- All of the fire safety systems are assumed to be designed, installed and operate in accordance with the appropriate Australian standards, other design codes, legislation and regulations relevant to the project unless specifically stated otherwise
- For a satisfactory level of fire safety to be achieved, regular testing and maintenance of all fire safety systems and measures, including management-in-use systems, is essential and is assumed in the conclusion of this assessment

5. Fire safety measures

The fire safety engineering assessment undertaken found that the design of the building achieves compliance with the relevant performance requirements of the BCA, subject to the following recommendations

5 1 General

1 The design must comply with the current DTS provisions of the BCA unless specifically mentioned This section does not provide a comprehensive list of fire safety measures required by the DTS provisions of the BCA The fire safety measures listed within this section relate only to the alternative solutions The fire safety measures must be read in conjunction with the DTS provisions of the BCA

2 This report and the requirements listed in this section must be identified on the fire safety schedule for the building They must be maintained and certified in accordance with the Environmental Planning and Assessment Regulations, 2000 and relevant Australian standards

3 If there are building alterations or additions, a change in use or changes to the fire safety measures in the future, a reassessment will be needed to verify consistency with the assessment in this report

5 2 Structural fire resistance

4 The fire resistance levels (FRLs) of the building elements are to be reduced to be consistent with type C construction – including external walls located further than 3m from a fire-source feature are not required to be fire-rated and external load-bearing walls are not required to be of non-combustible construction

5 3 Fire compartmentation

5 Carpark to be separated from ground floor with a separation achieving an FRL of 90/90/90 if load-bearing and -/90/90 if non load-bearing

6 Class 5/9b portion to be separated from class 9c portion with a separation achieving an FRL of 90/90/90 if load-bearing and -/90/90 if non load-bearing and with any doors being -/90/30 fire doors

7 Fire and smoke compartments to comply with clause C2 5 of the BCA in the class 9c portion, including separation of north-west wing and north-east wing as shown in Figure 1 and Figure 2

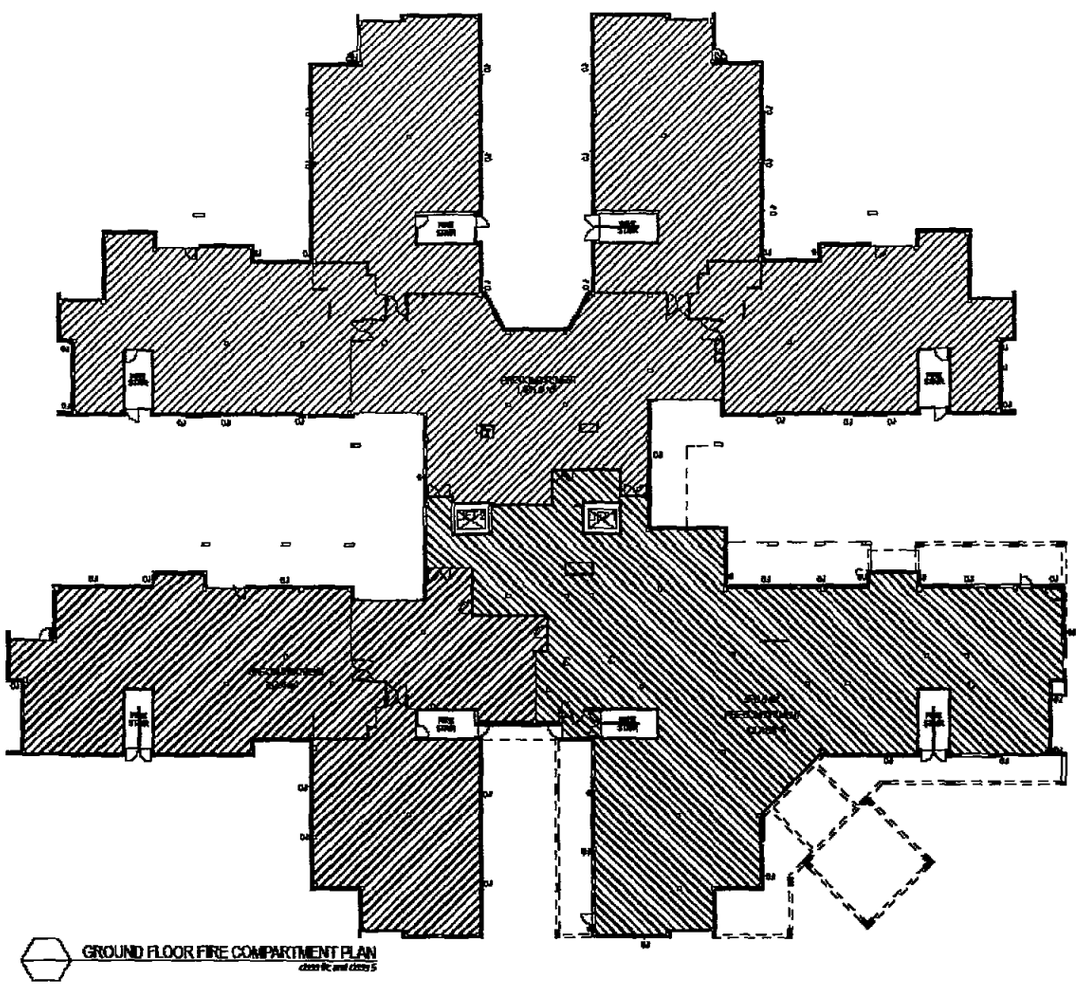


Figure 1 Ground floor fire compartment plan

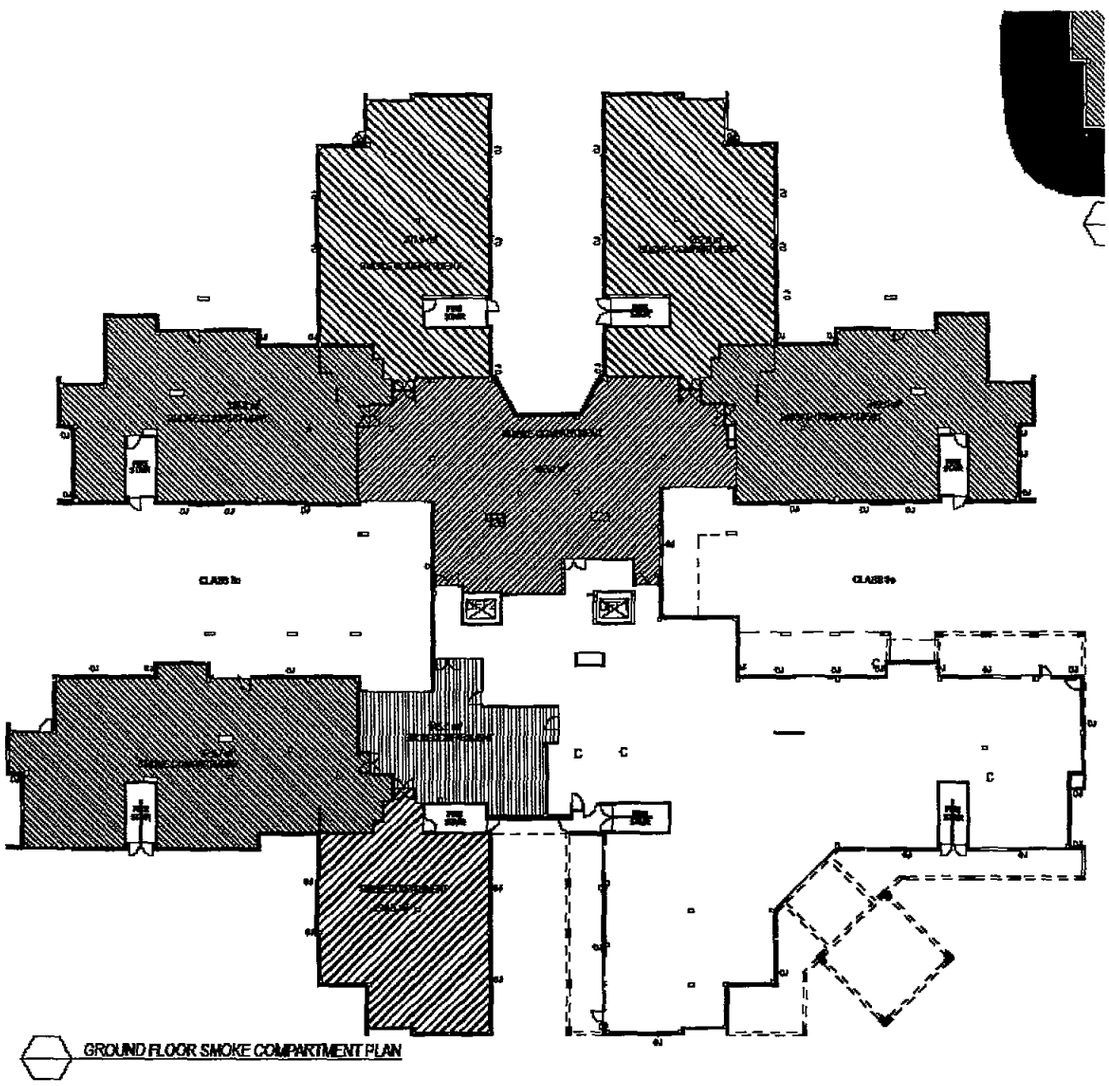


Figure 2 Ground floor smoke compartment plan

5 4 Protection of openings

8 Openings within 6m of the path of travel from the discharge of the fire isolated stairs (NW) STAIR 1, (NE) STAIR 1, (SE) STAIR 2 and (SW) STAIR 2 – refer to Figure 3 to Figure 5 – need not be protected in accordance with clause D1 7 and C3 4 of the BCA

9 Openings within 6m of the path of travel from the discharge of the fire isolated stairs (NW) STAIR 2, (NE) STAIR 2, (SW) STAIR 1 and (SE) STAIR 1 – refer to Figure 6 to Figure 8 – must be protected in accordance with clause D1 7 and C3 4 of the BCA

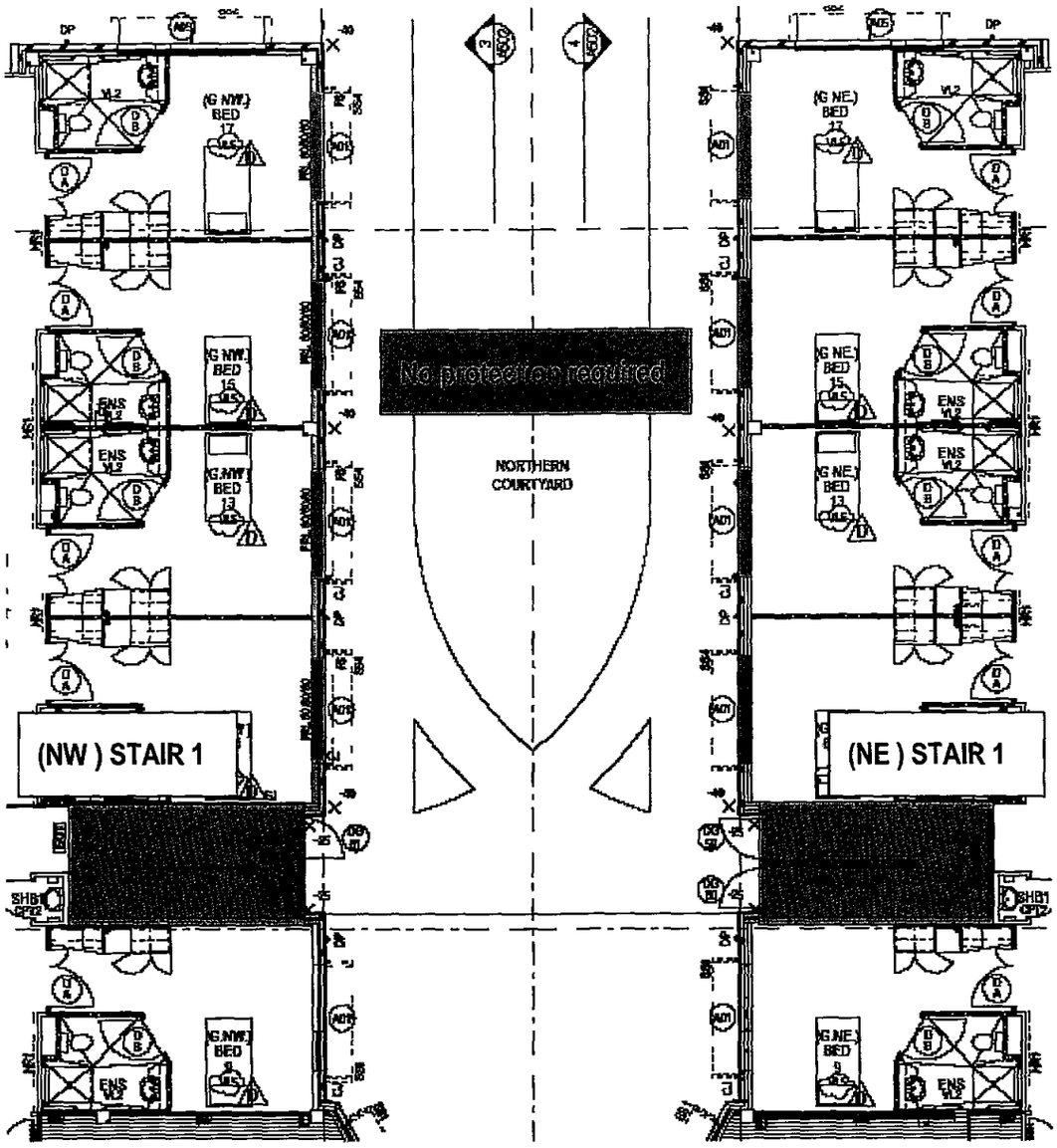


Figure 3 Discharge from (NW) STAIR 1 and (NE) STAIR 1

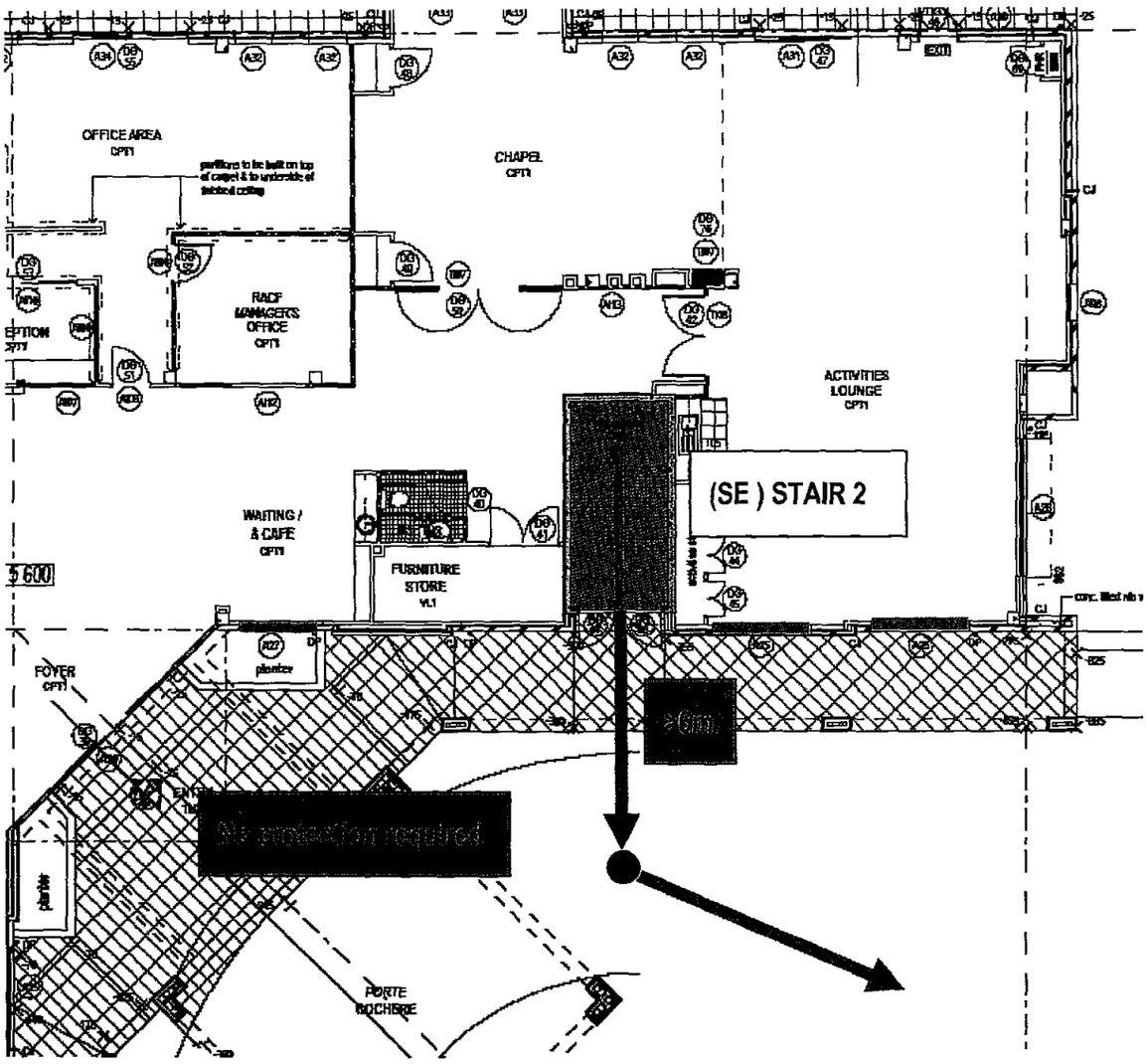


Figure 4 Discharge from (SE) STAIR 2

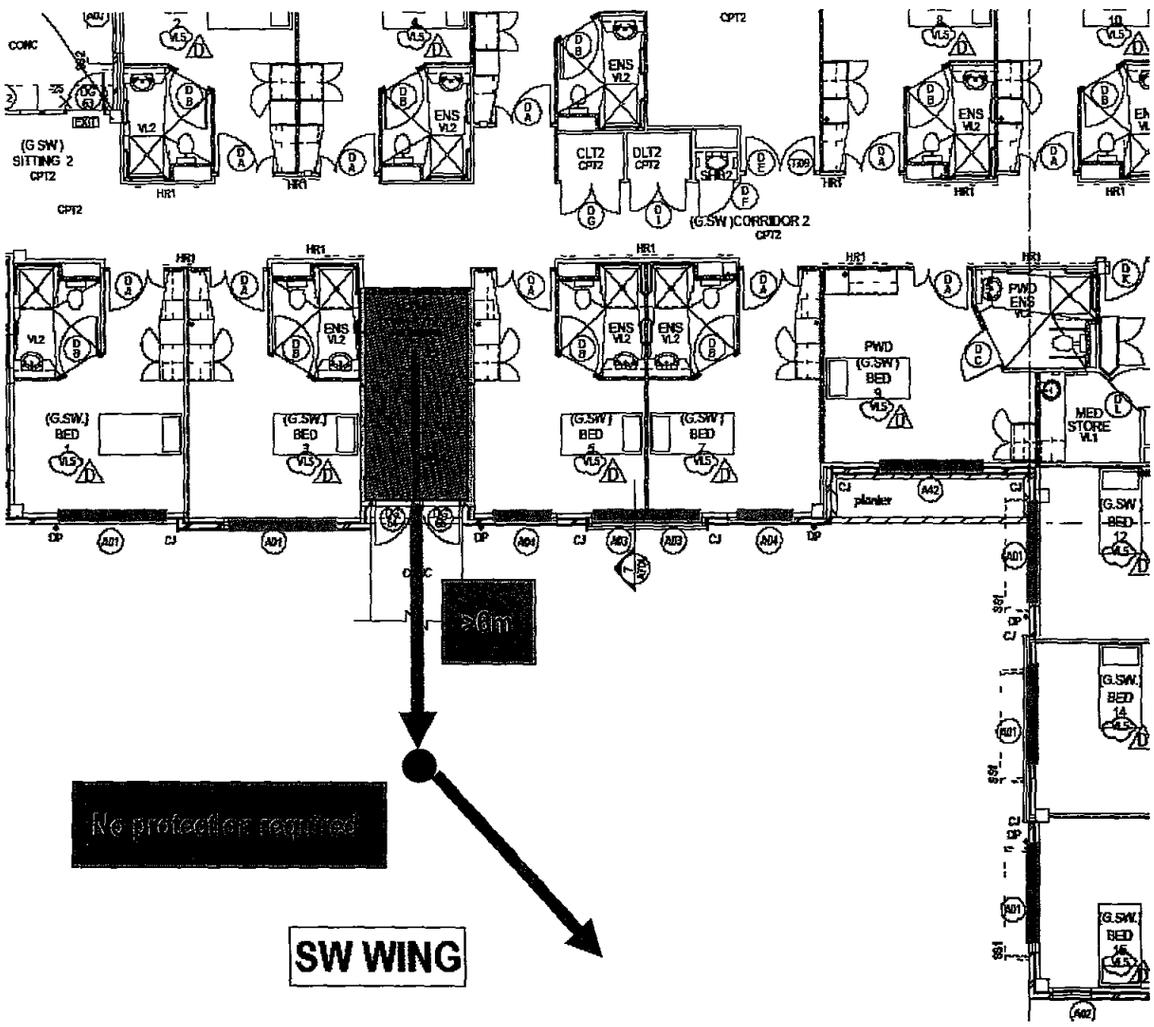


Figure 5 Discharge from (SE) STAIR 2

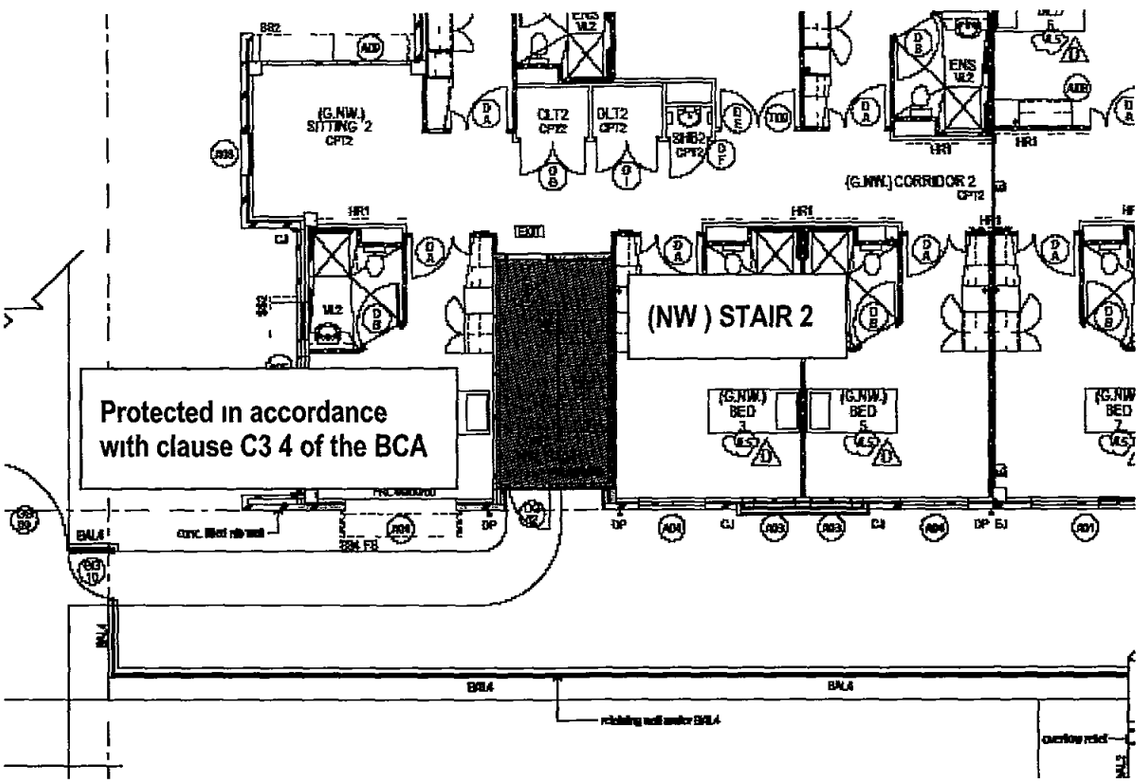


Figure 6 Discharge from (NW) STAIR 2

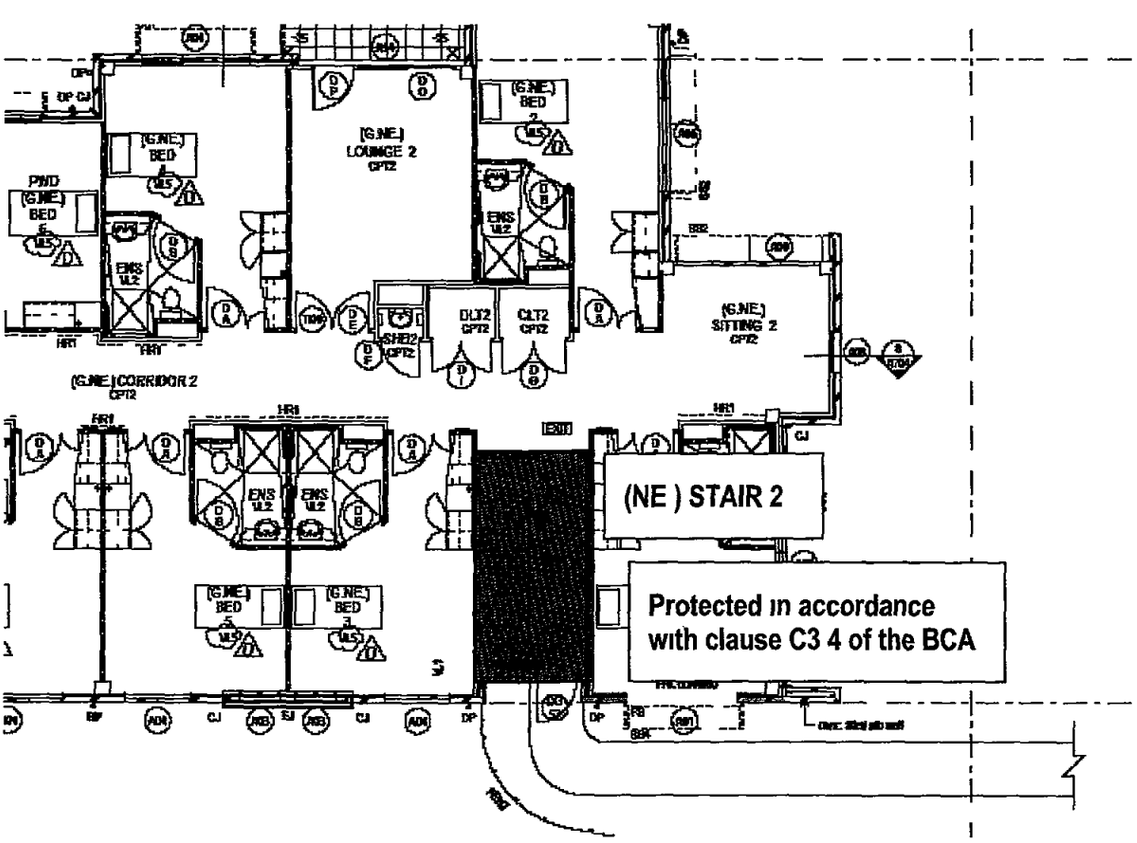


Figure 7 Discharge from (NE) STAIR 2

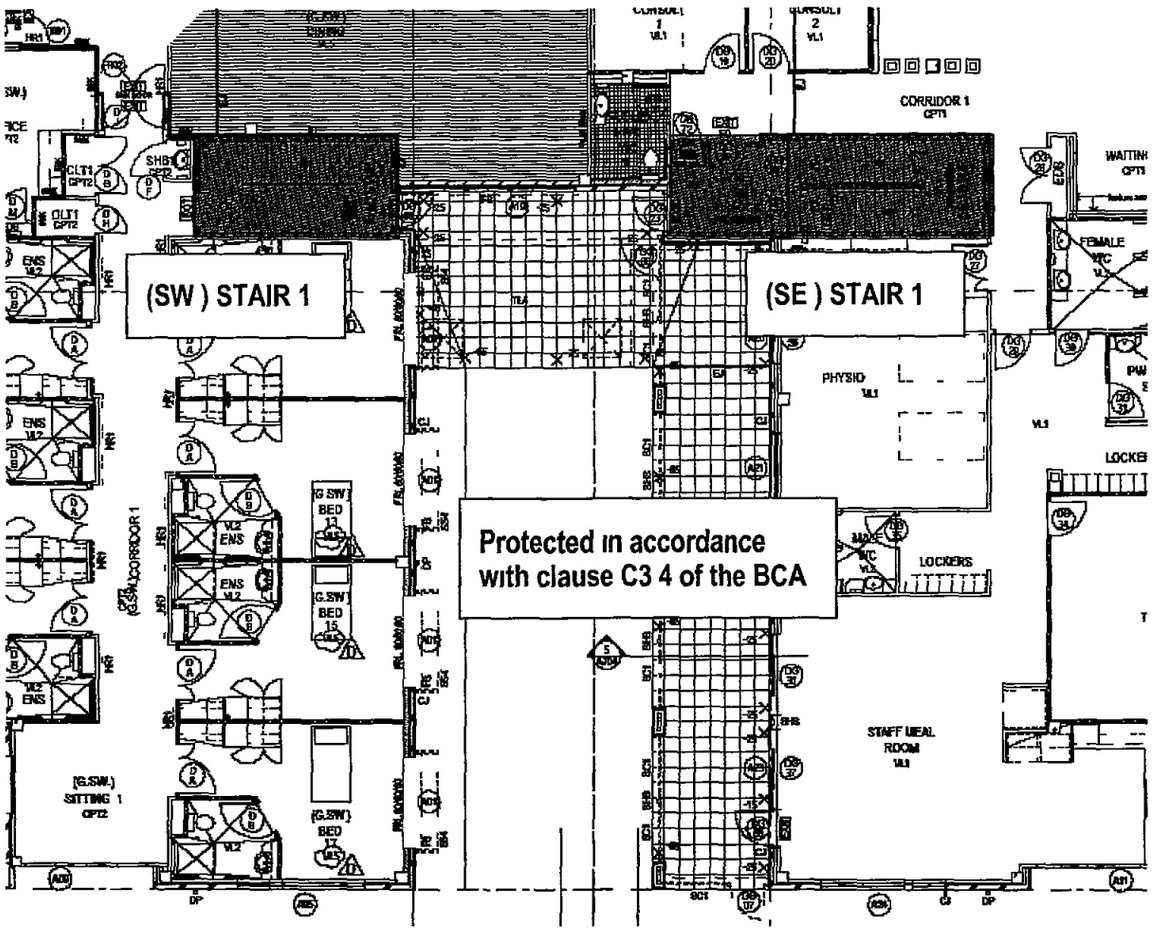


Figure 8 Discharge (SW) STAIR 1 and (SE) STAIR 1

5 5 Evacuation provisions

10 Travel distances within the building must comply with clauses D1 4 and D1 5 of the BCA

11 All exits and paths of travel to exits must be in accordance with clause D1 6 of the BCA

12 All exits are to be constructed with materials in accordance with part D2 of the BCA

5 6 Smoke detection and alarm

13 A detection system must be installed throughout ground floor and level 1 of the building in accordance with clause 4 of specification E2 2a of the BCA

5 7 Fire suppression systems

14 A sprinkler system in accordance with the requirements of specification E1 5 of the BCA and AS 2118 4 and 6-1995 must be provided throughout the building

6. Alternative solution 1 – Reduction in FRL

6 1 Introduction

According to table C1 1 of the BCA a class 9 building with a rise in storeys of two is required to be of type B construction However, under clause C1 5 of the BCA a two storey class 9c aged care building that is protected throughout with a sprinkler system complying with specification E1 5 may be of type C construction provided that the compartment sizes comply with the limitations specified by clause C2 2

The proposed design includes class 5/9b and class 7a uses and the concession in clause C1 5 of the BCA is therefore not applicable It is proposed to reduce the FRL to be consistent with the requirements of a building of type C construction – generally requiring a 90 minutes fire rating in lieu of a 120 minutes fire rating

This assessment was undertaken to demonstrate that the design complies with performance requirements CP1 and CP2 of the BCA by showing that the proposed design is at least equivalent to a DTS compliant design

6 2 Methodology

The assessment undertaken for the building was a qualitative comparative assessment involving the following sub-systems

- Sub-system C – Fire spread and impact and control
- Sub-system D – Fire detection, warning and suppression
- Sub-system E – Occupant evacuation and control
- Sub-system F – Fire services intervention

6 3 Intent of the BCA

To assess whether the design complies with performance requirements CP1 and CP2 of the BCA, the intent of clause C1 1 must be understood The Guide to the BCA[4] says that the intent of clause C1 1 is 'to establish the minimum fire-resisting construction required for class 2-9 buildings ' The guide expands further that 'table C1 1 explains that the required type of construction of a building depends on risk levels as indicated by the class of building and the building's height as indicated by the rise in storeys

The class of building is a measure of the building's likely

- use,
- fire load,
- population, and
- mobility of the occupants, such as whether they are sleeping or alert '

The height (rise in storeys) of the building is relevant as a measure of likely evacuation times and evacuation difficulty '

The guide also notes that other factors may need to be considered such as the maximum fire compartment size

[4] *Guide to the BCA 2007* Australian Building Codes Board Australia 2007

The Guide to the BCA[5] says that the intent of clause C1 5 is 'to grant concessions for low-rise Class 2 and Class 3 buildings provided with a good means of egress and sprinkler protected Class 9c aged care buildings ' The guide expands further that 'the concession for Class 9c buildings recognises the benefits of sprinkler systems and differences between Types A, B and C construction It must be remembered that the Class 9c building must comply with all the other BCA provisions, including the floor area limitations contained in Table C2 2'

6 4 Acceptance criteria

The assessment is to show that the hazard associated with the proposed design is no greater than for a two storey class 9c building which would be allowed to be constructed out of type C construction This is to be demonstrating by assessing the following

- Carpark is adequately separated from levels above and is not expected to affect the performance of the levels above This is to be demonstrated by showing that the carpark is separated to a degree at least equivalent to that required for a Type B construction
- The hazard associated with the ground and first floor is no higher than for a two storey aged care building The use, the fire load, the population and the mobility of the occupants is to be considered

6 5 Impact of sprinklers

6 5 1 Sprinkler reliability

Research conducted in Australia estimates the reliability of automatic sprinklers to be approximately 95%[6 7]

6 5 2 Impact of sprinklers on fire spread

Full-scale experimental measurements demonstrated that sprinklers provide superior protection to compartmentation in reducing the hazards [8] Sprinklers provide a higher level of life safety and property protection than an idealised compartment system because sprinklers address the fire hazard more fundamentally 'Sprinklers limit the fire spread and when successfully activated and prevent fully developed flashover fires, compartmentation limits the fires effect Sprinklers protect, to a degree, the room of fire origin and those people in the room not intimately involved in the fire, compartmentation does not protect the room of origin'

The successful activation of the sprinklers can therefore be considered to control or extinguish the fire, limiting the spread of fire to the area of fire origin and mitigate the risk of fire spread to adjoining fire compartments

6 5 3 Impact of sprinklers on fire intensity

In the absence of directly relevant data, it is generally assumed that the successful activation of sprinklers has the following impact on compartment temperatures during a fire[9 10 11]

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[5] *Guide to the BCA 2007* Australian Building Codes Board Australia 2007
[6] *Fire Safety Engineering Guidelines – Edition 2001* Australian Building Codes Board Australia November 2001
[7] Bukowski R W et Al *Estimates of the Operational Reliability of Fire Protection Systems* International Conference on Fire Research and Engineering US 1999
[8] Madrzykowski D *The Reduction in Fire Hazard in Corridors and Areas Adjoining Corridors Provided by Sprinklers NISTIR 4631 NIST Gaithersburg MD 20899 July 1991*
[9] England J P Young S A Hui M C & Kurban N *Guide for the Design of Fire Resistant Barriers and Structures* Warrington Fire Research (Aust) Pty Ltd & Building Control Commission Victoria August 2000
[10] *Design of Sprinklered Shopping Centre Buildings* published by OneSteel – Market Mills

- The average temperatures outside the immediate area of operation of the sprinkler system are below 100°C This is due to water's high latent heat of vaporisation limiting the temperature of the combustion products to the boiling point of water
- The temperatures in the localised area above the fire are stated to be somewhat higher than the mean compartment temperature but are still unlikely to exceed 200°C except in the immediate vicinity of the flames

England [12] et al also acknowledges that such temperatures are unlikely to have any significant impact on the structural performance of most common building materials such as concrete, steel, timber and masonry Consequently, the assessment demonstrates that the structure is capable of resisting the effects of a sprinkler controlled fire

6 6 Carpark

The carpark is proposed to be fire-separated by a construction achieving a 90 minute fire-rating The BCA clearly acknowledges the relatively low fire hazard associated with a sprinkler protected carpark by allowing certain concessions Clause 4 2 of specification C1 1 of the BCA allows a carpark in a type B building to be constructed by a construction achieving a 60 minute fire-rating if the carpark is protected with a sprinkler system in accordance with specification E1 5 of the BCA The carpark must also be a separate building or form a part of a building separated from the remainder of the building by a fire-wall The concession clause allows for a reduction from 120 minute fire-rating to 60 minute fire-rating

The carpark in the subject building is located at the basement level and is proposed to be fire separated from the levels above by a construction achieving a 90 minute fire-rating and the building is proposed to be sprinkler protected throughout in accordance with specification E1 5 of the BCA The 90 minute fire-rating and the provision of a sprinkler system is considered to be at least equivalent to a DTS compliant design where a sprinkler protected carpark portion of the building is separated by a 60 minute fire wall

6 7 Class 5 and 9b portion

Ground floor and level 1 consists of class 9c aged care A portion of the building – the ground floor south-east wing – has been classified as a class 5/9b portion The area is proposed to be fire separated from the remainder of the building with a 90 minute fire-rating It is to be shown that the fire hazard associated with the ground floor and the first floor is no higher than for a two storey class 9c building

6 7 1 Use and occupant characteristics

All areas of the building except the south-east wing of the ground floor is classified as class 9c - refer to Figure 9 The area is classified as class 5 However, the occupants in this area are to be visitors, staff and residents – ie the same as for the areas of the building classified as class 9c The area forms the main entrance of the building and contains a foyer, offices, staff areas, chapel and activities lounge The use of this area is associated with the administration of the aged care and the recreation of the residents of the class 9c portions of the building This area is only open to the public on invitation to special events This is consistent with use that may be considered ancillary to an aged care However as this use is concentrated within one area it has been given a separate classification

[11] *Technical Memoranda TM19 1995 – Relationship for smoke control calculations* CIBSE UK 1995
[12] England J P Young S A Hui M C & Kurban N *Guide for the Design of Fire Resistant Barriers and Structures* Warrington Fire Research (Aust) Pty Ltd & Building Control Commission Victoria August 2000

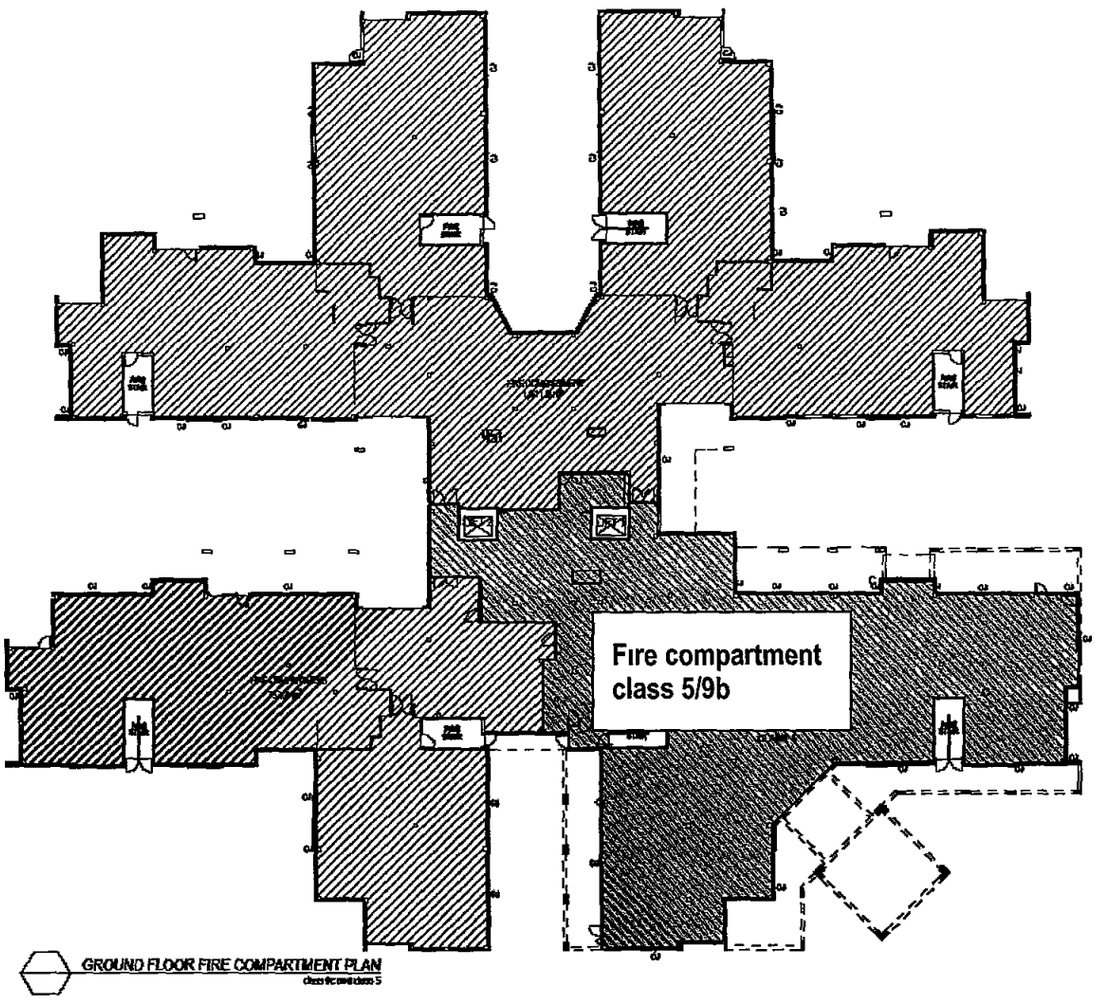


Figure 9 Ground floor – fire compartment class 5/9b

6 7 2 Fire load

The class 5 portion of the building is not considered to have a higher fire-load than the class 9c portions of the building The fuel load within the waiting room and foyer is expected to be low with a limited amount of chairs, couches and the like The area is not expected to have a significant amount of storage of combustible materials and the chapel are assumed to be provided with chairs, couches and the like – ie similar fire-load as for the 9c portion with furniture, beds and other combustibles

It is considered that the concession allowing reduction of type of construction of a two storey aged care is mainly associated with the fact that aged care buildings are required to be sprinkler protected The building is to be provided with a sprinkler system throughout in accordance with specification E1 5 of the BCA The benefits of a sprinkler system are discussed within 6 5 1

6 7 3 Population and mobility

The mobility of occupants and the population will impact on the time required for safe evacuation and for fire brigades to undertake search and rescue As discussed the characteristics of occupants in the portion classified as class 5/9b is expected to be the same as for the class 9c portion

The entire class 5/9b portion of the building forms its own fire and smoke compartments with an approximate area of 975m^2 Due to the classification the area is not required to be divided into smoke compartments not greater than 500m^2 as required for the 9c portions of the building The requirement for smoke compartmentation for aged care building is to allow for horizontal evacuation of occupants to a relative place of safety

It should be noted that even though the smoke compartment is approximate 975m^2 a significant portion of the area is for staff only and not proposed to be occupied by residents that needs assistance in case of evacuation

Aged care buildings often require staged evacuation due to occupant's need of assistance Even though the class 5/9b area of the building is not divided into smaller smoke compartments the area is provided with a number of exits leading directly to the outside plus a number of exits into another smoke/fire compartment – refer to Figure 10 Exits leading directly to the outside versus exits into another smoke compartment are considered to achieve an equivalent level of safety for occupants– as occupants can be moved horizontally to a safe area without vertical movement down stairs

Due to the use and the compartments size of the class 5/9b portion it may be occupied by a higher number of occupants compared to the 9c portions of the building However, the occupants in the class 5/9b portion are considered to be relatively mobile compared to the occupants in the 9c portions of the building where occupants may be asleep or in bed awaiting assistance The class 5/9b portion is also considered to be occupied with a higher number of staff due to the office area and staff meal room that most likely are able to assist residents in a case of evacuation

It should be noted that the 9c portions of the building will require staged evacuation from level 1 with horizontal movement of occupants between smoke zone and if required evacuation of occupants down stairs

The evacuation provisions for the class 5/9b portion of the building is considered to be equivalent to the 9c portions of the building due to the occupant characteristics in the area and the benefits of direct egress to the outside

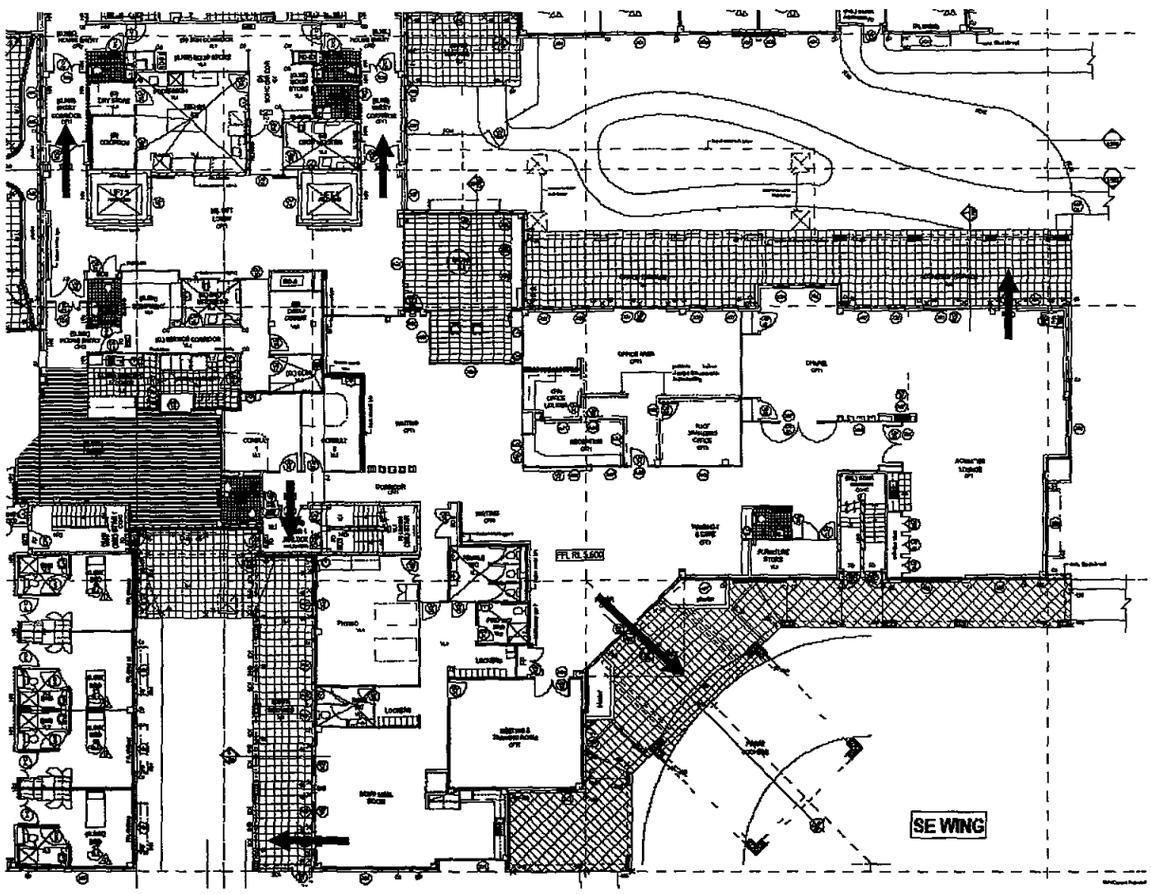


Figure 10 Exits from the class 5/9b area

6 8 Fire brigade intervention

The temperatures described above for a sprinkler controlled fire are below the tenability limits for attending fire-fighters [22] – heat radiation of 3kW/m² and convected heat of 120°C at 1 5m above floor level – except in the localised area of the fire The provision of a sprinkler system within the building is considered to significantly improve conditions for fire brigade intervention by controlling fire spread and maintaining low compartment temperatures It has been demonstrated that the fire hazards associated with the building are not higher than for a building which would be allowed to be constructed out of type C construction and as such fire brigade intervention is also facilitated to the same degree

6 9 Conclusion

The assessment undertaken for the proposed design demonstrates that the proposed design is equivalent to a DTS compliant design due to the benefits of sprinkler system, the use of the building and the 90 minute fire-rating The proposed design of the building is therefore considered to achieve compliance with performance requirements CP1 and CP2 of the BCA, subject to compliance with the fire safety measures given in section 5

[22] Australian Fire Authorities Council *Fire Brigade Intervention Model V2 2* October 2004

6 10 Compliance with the performance requirements

A summary of the assessment showing compliance with the relevant performance requirements of the BCA is listed as follows

CP1 A building must have elements which will to the degree necessary maintain structural stability during a fire appropriate to—

CP2 A building must have elements which will to the degree necessary avoid the spread of fire—
to exits, and
to sole occupancy units and public corridors and
between buildings, and
in a building
(b) Avoidance of the spread of fire referred to in (a) must be appropriate to—

Criteria	Compliance
(i) the function or use of the building, and	The project is a two storey aged care building The south-east wing of building also contains administration and assembly areas
(ii) the fire load and	The fire load in class 9c is equivalent to a DTS compliant design Sprinkler is provided in throughout the building to limit fire intensity
(iii) the potential fire intensity, and	The successful activation of the sprinkler system is expected to limit the potential fire intensity and maintained the average compartment temperatures below approximately 100°C
(iv) the fire hazard, and	The assessment has demonstrated that the building will be provided with an at least equivalent level of active and passive fire protection as a building complying with the DTS provisions of the BCA
(v) the number of storeys in the building, and	The building has a rise in storeys of two
(vi) its proximity to other property and	Separation distances to adjoining building comply with DTS provisions of the BCA
(vii) any active fire safety systems installed in the building, and	The building is protected with a sprinkler system in accordance to specification E1 5 throughout and provided with a smoke detection system in accordance with clause 4 of specification E2 2a of the BCA
(viii) the size of any fire compartment, and	The size of the fire compartments is to comply with the provisions of the BCA
(ix) fire brigade intervention and	The assessment has demonstrated that the fire hazards associated with the building are not higher than for a building which would be allowed to be constructed out of type C construction and as such fire brigade intervention is also facilitated to the same degree
(x) other elements they support, and	Structural elements within the building are expected to retain their loadbearing capability in the event of a sprinkler controlled fire The class 7a and 5/9b portions are separated from the class 9c providing a level of redundancy in case of sprinkler failure being equivalent to DTs complaint design
(xi) the evacuation time	The reduced FRL to a 90 minute fire-rating is not expected to affect the evacuation time Class 5/9b portion is provided with direct egress to the outside

7. Alternative solution 2 – Protection of openings

7 1 Introduction

According to clause D1 7 of the BCA if a path of travel from the point of discharge of a fire isolated exit necessitates passing within 6m of any part of an opening of the same building measured horizontally at right angles requires openings to be protected in accordance with clause C3 4 of the BCA

The proposed design includes openings in the external wall within 6m of an external path of travel that are not proposed to be protected for stairs (NW) STAIR 1 and (NE) STAIR 1 Other openings are to be protected as required under the DTS provisions of the BCA

This alternative solution aims to demonstrate that the building design provides occupants with a safe means of evacuation to the degree necessary to comply with performance requirements CP2 and DP5 of the BCA

7 2 Methodology

The assessment undertaken for the building was a qualitative absolute assessment involving the following sub-systems

- Sub-system C – Fire spread and impact and control
- Sub-system D – Fire detection, warning and suppression
- Sub-system E – Occupant evacuation and control

7.3 Intent of the BCA

To assess whether the design complies with performance requirements CP2 and DP5 of the BCA, the intent of clause D1 7 must be understood The Guide to the BCA [23] says that the intent of clause D1 7 is 'to enable occupants to safely enter a fire-isolated exit which discharges to a safe location '

7 4 Assessment

7 4 1 Paths of travel away from fire affected wing

The two stairs (NW) STAIR 1 and (NE) STAIR 1 do both discharge into the northern courtyard – refer to Figure 11 The NW wing and NE wing are separate smoke compartments It is considered that the risk that occupants will be exposed to untenable levels of radiation from openings in these wings to their path of travel is negated by the ability to move away from the fire affected wing

Whilst it is a likely scenario that a bedroom on the ground floor at the point of discharge could be on fire and venting to the outside, it is unlikely that either two bedrooms on either side of northern courtyard are on fire concurrently from inception or that a fire would develop significantly enough in one of the wings to spread to adjoining wing prior to the alarm being raised and occupants evacuating the building For the fire to spread from one of the wings to the other means that the fire must break through two smoke separations – refer to Figure 12 The requirement for protection of openings is the same for a sprinklered and non-sprinklered building A sprinkler system is provided throughout the building As discussed in section 6 5 1 the risk of fire spread beyond the area of fire origin is low and occupants are therefore not expected to be exposed to a fire in any other portion of the building

[23] *Guide to the BCA 2007* Australian Building Codes Board Australia 2007

The risk of fires in a bedroom in NW wing and a bedroom in NW wing on either side of the courtyard at the same time is considered to be minimal

Based on the discussion above occupants can discharge from either (NW) STAIR 1 or (NE) STAIR 1 and walk a horizontal distance of more than 6m - measured at right angle – away from the fire affected wing before turning and passing openings at a distance of more than 6m from openings in the external wall of the fire affected wing The distance between the external walls is approximately 9m The proposed design is therefore considered to provide an adequate level of protection

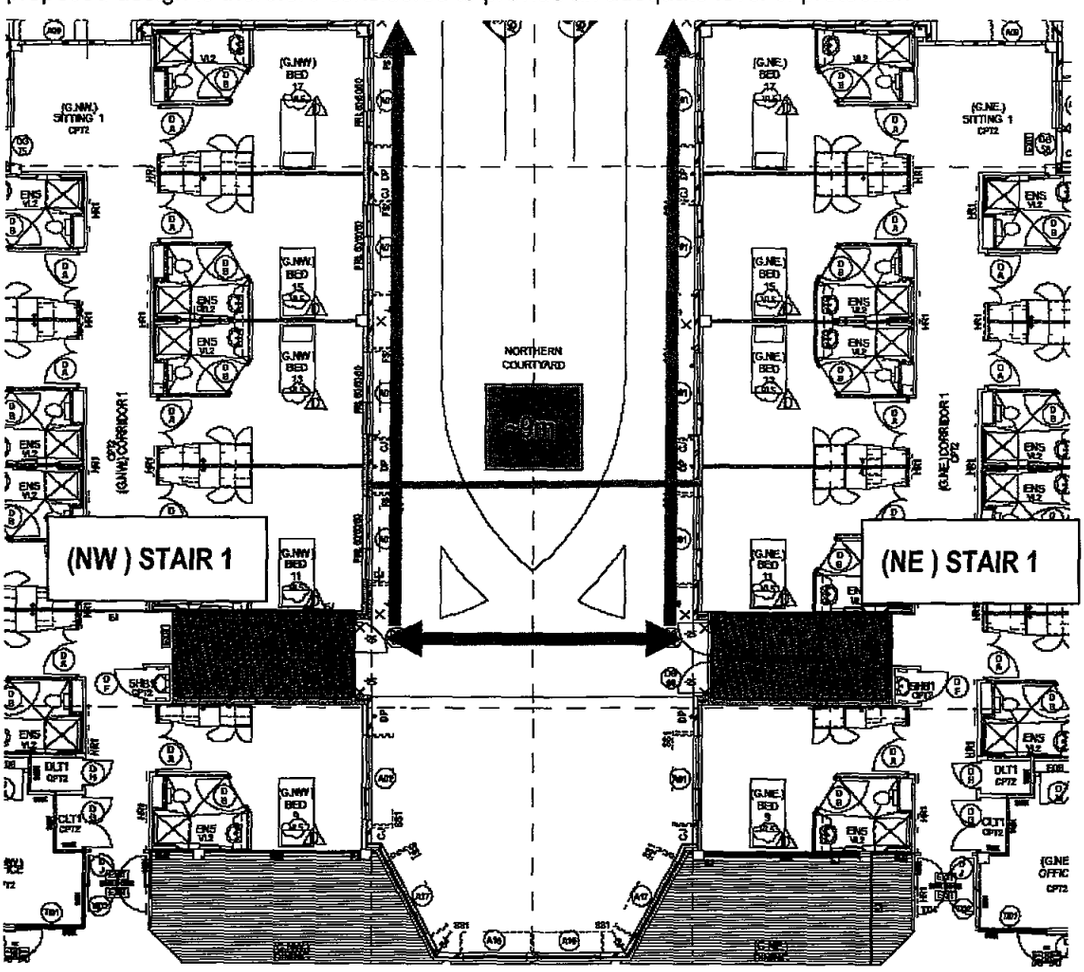


Figure 11 Discharge into the northern courtyard

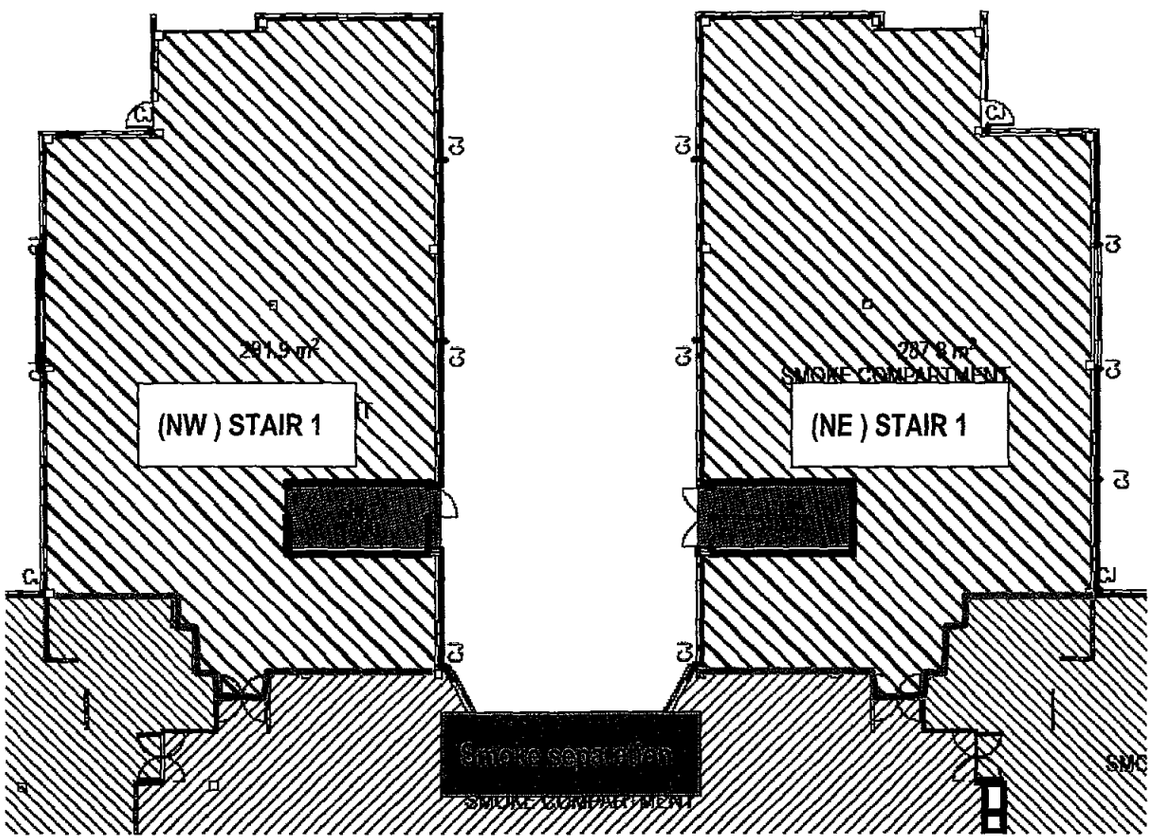


Figure 12 Smoke separation – ground floor

7 5 Conclusion

The assessment undertaken for the proposed design demonstrates that that through the provision of alternative paths of travel at the point of discharge from the fire-isolated stairs (NW) STAIR 1, (NE) STAIR 1 and (SE) STAIR 2 , occupants are able to evacuate safely from the buildings to open space connected with a public road without protecting openings in the external wall The proposed design of the building is therefore considered to achieve compliance with performance requirements CP2 and DP 5 of the BCA, subject to compliance with the fire safety measures given in section 5

7 6 Compliance with the performance requirements

A summary of the assessment showing compliance with the relevant performance requirements of the BCA is listed as follows

CP2 A building must have elements which will, to the degree necessary avoid the spread of fire—
to exits and
to sole occupancy units and public corridors and
between buildings and
in a building
(b) Avoidance of the spread of fire referred to in (a) must be appropriate to—

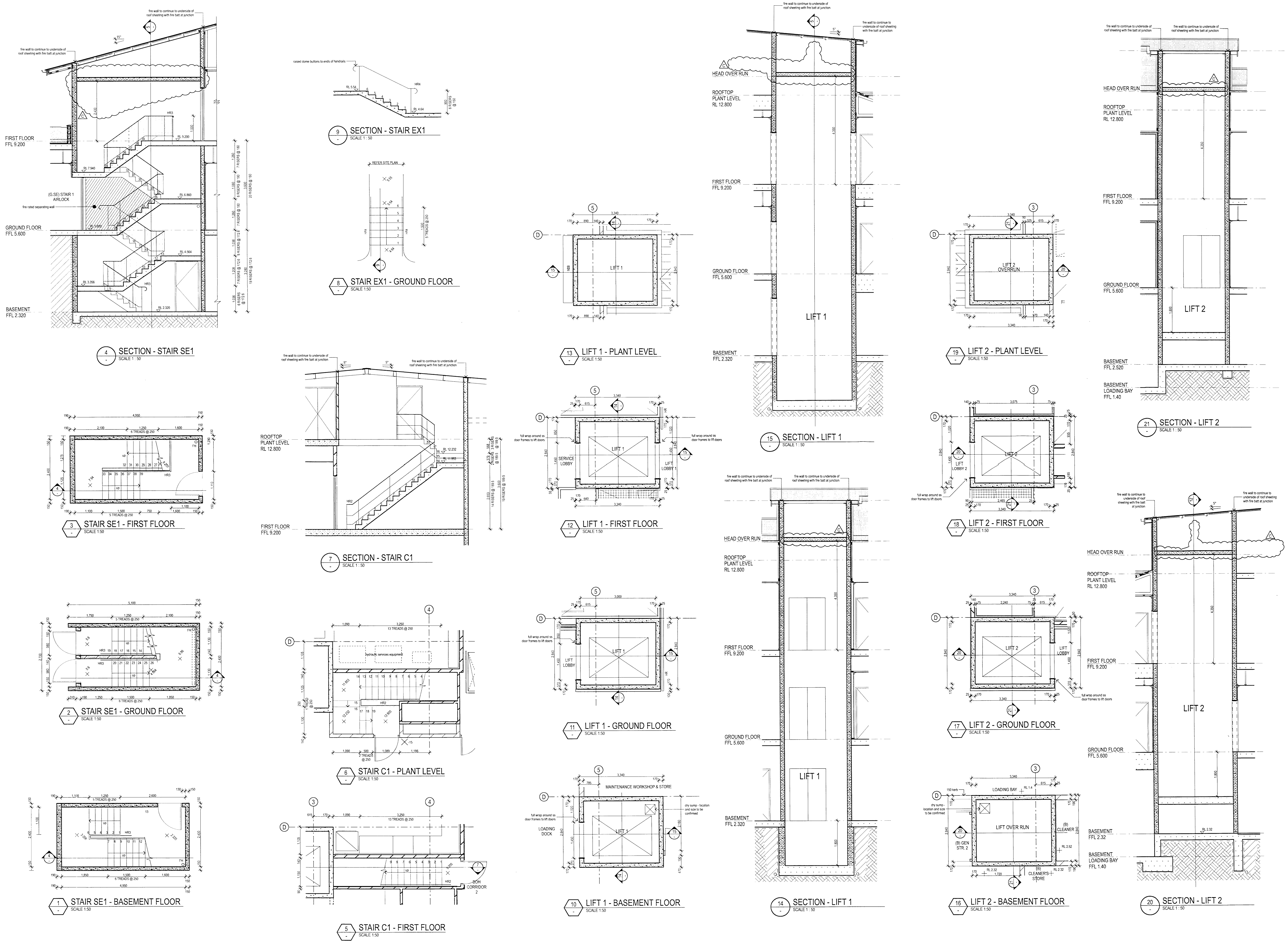
Criteria	Compliance
(i) the function or use of the building and	The project is a two storey aged care building The south east wing of building also contains administration and assembly areas
(ii) the fire load and	The provision of alternative paths of travel at the discharge point is considered to prevent occupants from having to evacuate within 6m of any fire affected bedroom The design of the discharge locations is therefore considered to protect occupants to the degree necessary
(iii) the potential fire intensity and	
(iv) the fire hazard, and	A fully developed fire within one of the bedrooms adjacent to the discharge point of the fire isolated exits serving the building
(v) the number of storeys in the building and	The building has a rise in storeys of two
(vi) its proximity to other property, and	The distance to adjacent property does comply with the provisions of the BCA
(vii) any active fire safety systems installed in the building and	The building is protected with a sprinkler system in accordance to specification E1 5 throughout and provided with a smoke detection system in accordance with clause 4 of specification E2 2a of the BCA
(viii) the size of any fire compartment, and	The size of the fire compartments is to comply with the provisions of the BCA
(ix) fire brigade intervention and	The location of openings in the building is not considered to impact upon fire brigade intervention
(x) other elements they support, and	Supporting elements are not considered to be affected by the openings within the building
(xi) the evacuation time	The evacuation time is considered to be consistent with that of a typical low-rise aged care building

DP5 To protect evacuating occupants from a fire in the building exits must be fire isolated, to the degree necessary appropriate to—

Criteria	Compliance
(a) the number of storeys connected by the exits, and	Three
(b) the fire safety system installed in the building and	The building is protected with a sprinkler system in accordance to specification E1 5 throughout and provided with a smoke detection system in accordance with clause 4 of specification E2 2a of the BCA
(c) the function or use of the building and	The project is a two storey aged care building (class 9c) including office and assembly areas (class 5/9b) and carparking (class 7a)
(d) the number of storeys passed through by the exits, and	Three
(e) fire brigade intervention	The location of openings in the building is not considered to impact upon fire brigade intervention

Appendix A Drawings and information

Drawing title	Dwg no	Date	Drawn
Site plan	A102	28/11/07	Merrin & Cranston
Fire & smoke compartmentation plans	A103	28/11/07	Merrin & Cranston
Basement floor plan	A201	28/11/07	Merrin & Cranston
Ground floor plan	A202	06/02/08	Merrin & Cranston
First floor plan	A203	06/02/08	Merrin & Cranston
Roof plan and plant slab diagram	A204	28/11/07	Merrin & Cranston
Elevations	A501	15/10/07	Merrin & Cranston



Revision	Date	Details	Checked
C	23/09/08	CONCRETE LIDS TO STAIRS	DJ
B	15/10/07	TENDER ADDENDUM 2	GB
A	13/09/07	TENDER ISSUE	GB

REVISION DETAILS

PROJECT CAD MANAGER: GRANT CAMERON

STATUS
CONSTRUCTION

NORTH

PROPRIETOR
ANGLICAN RETIREMENT VILLAGES

PROJECT
WARRIEWOOD VALLEY 119 BED RACF (STAGE 2A)

Merrin & Cranston
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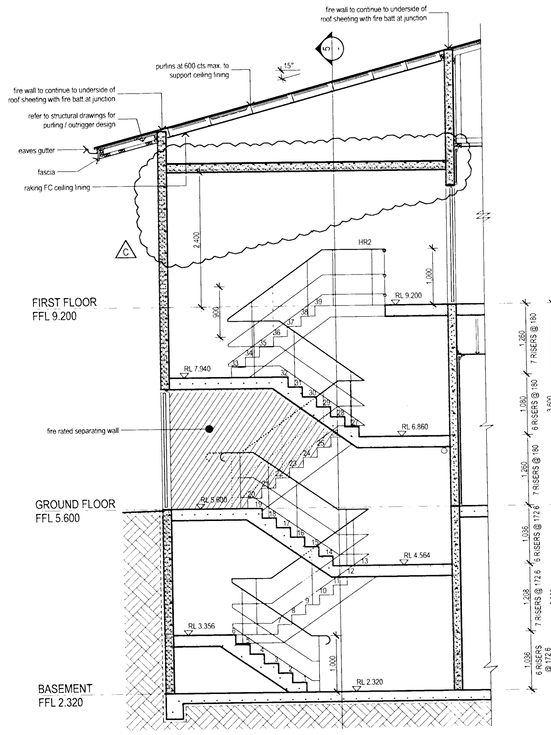
Nominated Architect:
Dwayne Nielsen Qld 2450, NSW 5907 ABN 60 010 242 878

TITLE
STAIR & LIFT PLANS & SECTIONS

SCALE 1 : 50 at A0 | REVISION DATE 23/09/08
PROJECT No. A191 | SHEET No. A702 | REVISION C

Data:Current Projects:A191 Warriewood Valley RV:01 Drawing Documents:02 Layout Books:A191 Layout Master 11.pln 23/09/08



NOTES:

1. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS
2. VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION
3. IF IN DOUBT PLEASE ASK!!
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4 SECTION - STAIR NE1
SCALE 1 : 50

5 SECTION - STAIR NE1
SCALE 1 : 50

12 SECTION - STAIR NW1
SCALE 1 : 50
STAIR NW2 ROTATED & MIRRORED; NE2 ROTATED.

11 STAIR NW1 - FIRST FLOOR
SCALE 1:50
STAIR NW2 ROTATED & MIRRORED; NE2 ROTATED.

9 SECTION - STAIR SW2
SCALE 1 : 50

16 SECTION - STAIR SE2
SCALE 1 : 50

3 STAIR NE1 - FIRST FLOOR
SCALE 1:50

12 SECTION - STAIR SW1
SCALE 1 : 50

10 STAIR NW1 - GROUND FLOOR
SCALE 1:50
STAIR NW2 ROTATED & MIRRORED; NE2 ROTATED.

8 STAIR SW2 - FIRST FLOOR
SCALE 1:50

15 STAIR SE2 - FIRST FLOOR
SCALE 1:50

2 STAIR NE1 - GROUND FLOOR
SCALE 1:50

11 STAIR SW1 - FIRST FLOOR
SCALE 1:50

7 STAIR SW2 - GROUND FLOOR
SCALE 1:50

14 STAIR SE2 - GROUND FLOOR
SCALE 1:50

1 STAIR NE1 - BASEMENT FLOOR
SCALE 1:50

10 STAIR SW1 - GROUND FLOOR
SCALE 1:50

6 STAIR SW2 - BASEMENT FLOOR
SCALE 1:50

13 STAIR SE2 - BASEMENT FLOOR
SCALE 1:50

Revision	Date	Details	Checked
C	05/09/08	CONCRETE LIDS TO STAIRS	DJ
B	15/10/07	TENDER ADDENDUM 2	GB
A	13/09/07	TENDER ISSUE	GB

REVISION DETAILS

PROJECT CAD MANAGER: GRANT CAMERON

STATUS
CONSTRUCTION

NORTH

PROPRIETOR
ANGLICAN RETIREMENT VILLAGES

PROJECT
WARRIEWOOD VALLEY
119 BED RACF (STAGE 2A)

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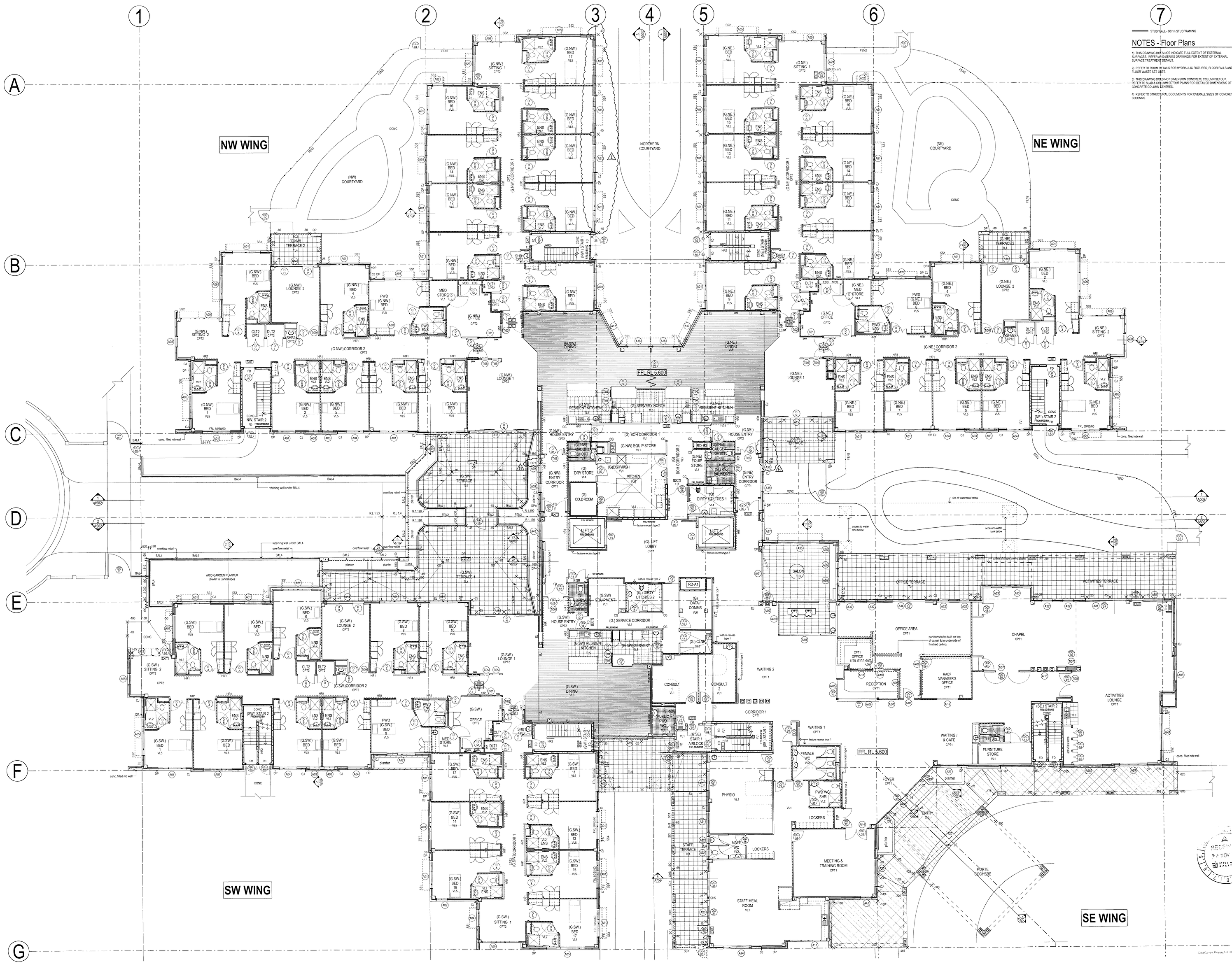
TITLE
STAIR PLANS & SECTIONS

STEVE WATSON & PARTNERS
05/307/06
Construction Certificate
Steve Watson

SCALE 1 : 50 @ A0 REVISION DATE 05/09/08

PROJECT No.	SHEET No.	REVISION
A191	A701	C

Nathan:Users:nathancampling:Desktop:A191 Layout Master 11.pln 5/09/08



STUD WALL - 90mm STUDFRAMING

NOTES - Floor Plans

1) THIS DRAWING DOES NOT INDICATE FULL EXTENT OF EXTERNAL SURFACES. REFER A100 SERIES DRAWINGS FOR EXTENT OF EXTERNAL SURFACE TREATMENT DETAILS.

2) REFER TO ROOM DETAILS FOR HYDRAULIC FIXTURES, FLOOR FALLS AND FLOOR WASTE SET OUTS.

3) THIS DRAWING DOES NOT DIMENSION CONCRETE COLUMN SETOUT. ~~REFER TO SLAB & COLUMN SETOUT PLANS FOR DETAILED DIMENSIONS~~ OF CONCRETE COLUMN CENTRES.

4) REFER TO STRUCTURAL DOCUMENTS FOR OVERALL SIZES OF CONCRETE COLUMNS.

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LEGEND - Floor Plan

AFL	ABOVE FLOOR LEVEL
AP#	ACCESS PANEL (type # - #)
BAL#	BALUSTRADE (type 1 - 2)
BOL	BOLLARD
BR	BUMP RAIL
BT	BUCKET TRAP
CG	CORNER GUARD
CGC	CORNER GUARD - CARPARK COLUMN PROTECTION
CGS	CORNER GUARD - STAINLESS STEEL
CJ	BRICK CONTROL JOINT - CONTINUOUS THROUGH BRICK SKINS
CLT	CLEAN LINEN TROLLEY STORE
DLT	DIRTY LINEN TROLLEY STORE
DP	DOWNPIPE
EDB	ELECTRICAL DISTRIBUTION BOARD
EJ	BUILDING EXPANSION JOINT - CONTINUOUS THROUGH FLOOR & WALL STRUCTURE, ALL LININGS, CORNICES & SKIRTINGS
EVG	EXHAUST VENT GUARD
FD	FIRE DOOR
FFL	FINISHED FLOOR LEVEL
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
FIP	FIRE INDICATOR PANEL
FW	FLOOR WASTE
GD	GRATED DRAIN
HR#	HANDRAIL (type 1 - 4)
MDB	MECHANICAL DISTRIBUTION BOARD
RD#	RISER DUCT (type 1 - 8)
RL	REDUCED LEVEL
SHB	STAFF HANDBASIN
SC#	SCREEN (type 1 - 4)
SHS	SQUARE HOLLOW SECTION
SDO	SPOON DRAIN OUTLET
SMK	SMOKE DOOR
SS#	SUNSHADE (type 1 - 3) Refer Details
U/S	UNDERSIDE
WS#	WHEEL STOP (Type 1 - 2)
25 ×	EXTERNAL FINISHED LEVEL RELATIVE TO FINISHED FLOOR LEVEL
(A01)	ALUMINIUM DOOR OR WINDOW TYPE - REFER TO DRAWN DOOR AND WINDOW ELEVATION SCHEDULE
(Ai01)	INTERNAL ALUMINIUM DOOR OR WINDOW TYPE - REFER TO DRAWN DOOR AND WINDOW ELEVATION SCHEDULE
(Ti01)	INTERNAL TIMBER DOOR OR WINDOW TYPE - REFER TO DRAWN DOOR AND WINDOW ELEVATION SCHEDULE
(D A)	TYPICAL DOOR LEAF NUMBER - REFER TO SPECIFICATION DOOR SCHEDULE
(DF 01)	SPECIFIC DOOR LEAF NUMBER - REFER TO SPECIFICATION DOOR SCHEDULE
(G 01)	GATE NUMBER - REFER TO SPECIFICATION DOOR SCHEDULE

LEGEND - Floor Finishes

CONC	CONCRETE FLOOR FINISH
CPT1	CARPET - Tiles (type 1)
CPT2	CARPET - "System 6" sheet, fully welded joints (type 2)
TL1	TILES - FLOOR 100x100 or similar (type 1)
TL2	TILES - FLOOR 300x600 or similar, external finish (type 2)
TL3	TILES - FLOOR 300x600 or similar, internal finish (type 3)
TL4	TILES - FLOOR 330x330 or similar, external finish (type 4)
TL5	TILES - FLOOR 330x330 or similar, internal finish (type 5)
VL1	VINYL - FLOOR Standard Sheet Vinyl (type 1)
VL2	VINYL - FLOOR Slip Resistant (type 2)
VL3	VINYL - FLOOR Safety Vinyl - R10 (type 3)
VL4	VINYL - FLOOR Safety Vinyl - R12 (type 4)
VL5	VINYL - FLOOR Feature Vinyl (type 5)
VL6	VINYL - FLOOR STATIC-RESISTANT VINYL (type 6)

LEGEND - Wall Types

FRL 90/90/90	FIRE WALL FRL - 90/90/90 (or as otherwise noted) - 190mm COREFILLED CONCRETE BLOCK
RD#	FIRE SHAFT WALL FRL - 90/90/90(or as otherwise noted) - 90mm CONCRETE BLOCK
FRL 90/90/90	FIRE WALL FRL 90/90/90 - 64mm STEEL STUD
SMK	SMOKE WALL - 90mm STUD
SMK	ACOUSTIC & SMOKE STUD WALL - 90mm STUD - RW45
	ACOUSTIC STUD WALL - 90mm STUD FRAMING - REFER ACOUSTIC WALL PLAN DETAILS
	ACOUSTIC RISER STUD WALL - 90mm STUD FRAMING - RW25
	FORMED INSITU CONCRETE WALL
	CONCRETE BLOCK WALL - 190mm
	CONCRETE BLOCK WALL - 140mm
	BRICK WALL - 110mm
	BRICK VENEER WALL - 250mm (110mm BRICK / 50mm CAVITY / 90mm STUD FRAMING)
	STUD WALL WITH BRICK SILL - 250mm (refer wall sections) (110mm BRICK / 50mm CAVITY / 90mm STUD FRAMING)
	STUD WALL - 90mm STUDFRAMING

Revision	Date	Details	Checked
I	18/11/08	FIRE SHUTTER AMMENDMENTS	NC
H	22/10/08	DOWNPIPE AMENDMENTS	DJ
G	15/10/08	DOWNPIPE AMENDMENTS	DJ
F	29/08/08	COORDINATION WITH STRUCTURAL AMENDMENTS	DJ
E	06/08/08	BCA REQUIREMENTS AND EXPANSION JOINTS AMNDS	DJ
D	06/02/08	CONSTRUCTION ISSUE	GB
C	28/11/07	POST TENDER ADDENDUM 1	GB
B	15/10/07	TENDER ADDENDUM 2	GB
A	13/09/07	TENDER ISSUE	GB

REVISION DETAILS

PROJECT CAD MANAGER: GRANT CAMERON

STATUS

CONSTRUCTION

NORTH

PROPRIETOR

ANGLICAN RETIREMENT VILLAGES

PROJECT

WARRIEWOOD VALLEY
119 BED RACF (STAGE 2A)

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Nominated Architect:
Dwayne Nielsen Qld 2450, NSW

TITLE

GROUND FL
[RL 5.6 U.N.O.]

SCALE

ata.Current Projects:A191 V