Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	10 June 2021
Design Review No	16665

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10327119	**Contact**	[redacted]

Property Information			
Street Number	9	**Legal Description**	
Street Name	St Marks Road		
Town/Suburb	Remuera	**City/Region**	Auckland
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted], Cross Fire
Fire Report Title	Fire Safety Design Southern Cross Hospitals Auckland Surgical Centre Ward Corridor A Upgrade
Fire Report Date	21/04/2021
Version	B
Identifier	2959

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)	112(2)	x	x

Building Characteristics			
Footprint	1901 m^2	**Fire Alarm Type**	Type 7 – Ground Type 6 – Basement/Level 1
Building Height	Not stated	**No. Floors – Above**	2
Escape Height	3.6 m	**No. Floors – Below**	1

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Carpark	Basement	VP	26	C/AS2
Plant & Store	Basement	WB	2	C/AS2
Offices	Ground	WB	37	C/AS2
Theatres & Recovery	Ground	SI	20	C/AS2
Ward	Ground	SI	21	C/AS2
Offices	Level 1	WB	47	C/AS2
Staffroom	Level 1	WB	9	C/AS2

Description of the Proposed Works

This consent application relates to the volunteer passive fire upgrade works proposed to an existing three storey hospital building, followed by a full S112 review throughout.

Fire and Emergency acknowledges the proposed fire safety system upgrade will result in improvements to attributes of the building that relate to means of escape from fire, and a gap/full assessment is not required to be undertaken as per Section 112 (2) of the Building Act.

However, Fire and Emergency has some concerns relating to the gap assessment submitted, including, but not limited to:

a. Fire drawing Fsk000 indicates that the ground floor includes "Theatre" and "Recovery" areas, which are specifically excluded from the scope of C/AS2, as per C/AS2 paragraph 1.1.5. Further, the presence of the atrium voids also places this building out of the scope of C/AS2, as per C/AS2 paragraph 1.2.2. Fire and Emergency questions the suitability of assessing the compliance of the whole building using C/AS2.

b. The fire report does not demonstrate full compliance of the fire rating in the unaltered area, in particular, the ground floor Theatre and Recovery areas, as well as a large void connecting the basement, ground and first floor which is not indicated to have any fire rating.

c. Emergency lighting coverage throughout the building is unclear.

As the scope of this building consent is to be assessed under Section 112(2) of the Building Act, Fire and Emergency offers no formal comments in relation to these concerns, acknowledging that the proposed works consist of voluntary passive fire upgrades only.

Should any fitout/alteration be proposed to the building in the future, this building consent application should be considered as a partial building assessment rather than full assessment, requiring a gap/full assessment of future upgrades following appropriate compliance methodology (i.e. alternative solution).

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

d. Provision of the means of escape from fire.

e. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 17. Therefore the level of information provided for assessment is a "gap assessment". There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

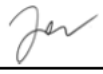
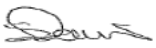
On assessment of the plans and documentation supplied, Fire and Emergency has no formal advice or comment to offer under Section 47 on this particular application.

Please also refer to the "*Description of the Proposed Works*" for further details.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Jewel Zhu**		9 June 2021
Checked by:	**Etienne Hermouet**		10 June 2021
Approved by:	**Simon Davis**		10 June 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Architectural drawings - Klein	16/04/2021	3.1249	Various
Fire drawings - Xfire	21/04/2021	2959	B

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	28 February 2020
Design Review No	14489

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10298149	**Contact**	[redacted]

Property Information			
Street Number	132	**Legal Description**	
Street Name	Shakespeare Road		
Town/Suburb	Takapuna	**City/Region**	Auckland
Owner/Registered Proprietor	Waitemata District Health Board		
Premises / Company Name	North Shore Hospital		

Design Details	
Architect	Chow:Hill
Fire Engineer	[redacted], WSP
Fire Report Title	WDHB, North Shore Hospital, Diagnostic Breast Services Fire Engineering Report CONFIDENTIAL
Fire Report Date	25/10/2019
Version	
Identifier	1-43910.01

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	485 m^2 (fitout area only)	**Fire Alarm Type**	Type 7
Building Height	Not specified	**No. Floors – Above**	13
Escape Height	0 m (fitout area only)	**No. Floors – Below**	1

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
DBS fitout	G	CA	72	C/VM2

Description of the Proposed Works

This building consent application relates to the alteration works to accommodate a new Diagnostic Breast Services fitout on a portion of the Ground Floor of the existing North Shore Hospital.

Fire and Emergency does not agree with the pre-travel time of 30 seconds used in Section 4.4.1.4 of the fire report, when considering the function and use of the tenancy. However as there is a significant safety margin between ASET and RSET, no further comment is made in this regard.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 20. Therefore, the level of information provided for assessment is a full assessment.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Extent of Assessment

Fire report Table 1-2 presents the overall building score in line with MBIE guidance[1] of 20, which indicates that a full assessment will be required. However, the applicant has limited the assessment to the DBS tenancy, and states that the base building report has already considered other parts of the building.

Whilst Fire and Emergency acknowledges that a FEB for the base building was produced in 2014 (Project number 239466 by Aurecon), the final base building report was never provided to Fire and Emergency for review. Hence the level of compliance of the existing building cannot be verified.

Fire and Emergency notes that the DBS fitout only covers half of the firecell, based on the 2014 FEB. The fire report is silent on the use and occupant numbers on the eastern half of the firecell, and it cannot be verified if the remainder of the firecell is still used as consulting suites. As a fire in the DBS fitout can affect the remainder of the firecell, the fire assessment should address the entire firecell. This includes but is not limited to the occupant load, occupant characteristics of the adjoining spaces, pre-travel and travel times.

Fire and Emergency advises the BCA to require the applicant to revise the extent of assessment to demonstrate that proposed fitout works comply with the Building Code to the extent required in the Building Act.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

1.2 Doors Along Fire Walls

Fire report Section 3.3.5 states that the two egress doors from the DBS unit are powered open, and hence will either be (1) automatically opening and remaining open, or (2) being readily pushed to the outward open position in the event of an emergency.

Fire and Emergency notes that the two egress doors are with the north and west firewalls, and would be required to be automatically closing in the event of a fire, in order to maintain the DBS tenancy (and associated eastern space) as a separate firecell. Option (1) documented in the fire report will not facilitate the required fire separation.

In addition, architectural drawing A.02.62 indicates that these doors are automatic and provided with motion sensors. It is unclear how these motion sensors can differentiate between occupants and smoke, or if the doors would open when smoke is sensed, which negates the benefits of fire separation between the spaces.

Fire and Emergency advises the BCA to require the applicant to amend the design or assessment as required to demonstrate that the fire separation will perform as intended to comply with NZBC clauses C3.1 and 4.2.

1.3 Fire Matrix

Fire report Section 10 presents a fire matrix for the building, noting that not all features are within the DBS tenancy. Fire and Emergency comments as follows:

a. The fire matrix notes that with a single smoke detector activation, only a local alert is provided. As no zoning diagram has been provided, it is unclear if this local alert would encompass the entire DBS firecell (including the associates eastern spaces). This potentially impacts on the RSET assessment as it was based on the assumption that a single smoke detector would trigger the entire tenancy to evacuate.

b. If the local alert does not encompass the full firecell as per comment (a) above, the fire matrix states that there is a 5-minute investigation time, or another smoke detector or sprinkler is required to commence building-wide alert. Neither of these features have been considered in the determination of RSET.

Fire and Emergency advises the BCA to require the applicant to confirm the features applicable to the DBS tenancy and to incorporate the features in the determination of RSET, in order to demonstrate that the means of escape provisions comply with the Building Code.

1.4 Robustness Check

Fire report Section 5.2.5 presents that the robustness check is not necessary as sprinklers and automatic fire alarm systems are sufficiently reliable. Fire and Emergency notes that the auto-doors being part of the fire separation, may fail, and the impact on this on the safety of occupants from adjacent areas should be considered.

Fire and Emergency advises the BCA to require the applicant to provide a Robustness Check assessment, as required in C/VM2 to demonstrate that the building complies with NZBC clauses C3.9 and C4.5.

1.5 Internal Surface Finishes

Fire report Section 6.2.1 presents that the wall and ceiling linings are required to be either Group Number 1 or 2. However architectural drawing A.02.81 indicates some areas with plywood lining (labelled as PLY) with paint finish. As plywood generally only achieves a Group Number 3, it is unclear if the lining complies with the exceptions permitted in C/VM2 paragraph 4.7.

Fire and Emergency advises the BCA to require the applicant to confirm that the extent of plywood used complies with the Building Code or otherwise amend the design to demonstrate compliance with the Building Code.

1.6 Completeness of documentation

The plans and specifications provided to Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

b. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

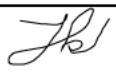
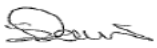
c. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems that require specific installation or commissioning inspections during the Construction Monitoring phase.

d. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Adeline Teo**		19 February 2020
Checked by:	**JK Park**		24 February 2020
Approved by:	**Simon Davis**		27 February 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
WSP fire drawing FES - 01	25 October 2019	1-43910.01	-
ChowHill architectural drawings A.00.01 – A.02.92	Multiple	17304	Multiple

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	23 September 2020
Design Review No	15409

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10305501-2	**Contact**	[redacted]

Property Information			
Street Number	55-75	**Legal Description**	
Street Name	Lincoln Road		
Town/Suburb	Henderson	**City/Region**	Auckland
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Warren and Mahoney
Fire Engineer	[redacted], WSP
Fire Report Title	Fire Engineering Report Issued to Waitematā District Health Board (WDHB) For Redevelopment of the Specialist Care Baby Unit (SCBU) At Waitakere Hospital
Fire Report Date	02/07/.2020
Version	
Identifier	1-43932

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~800m^2 (SCBU only)	**Fire Alarm Type**	Type 7
Building Height	5.7m	**No. Floors – Above**	Ground
Escape Height	0m	**No. Floors – Below**	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Spacial care baby unit (SCBU)	Ground	SI	18 patients + staff and parents	Alt Sol

Description of the Proposed Works

It is proposed to extend the existing special care baby unit (SCBU) as Waitakere Hospital to increase the number of patient spaces from 15 to 18. The unit is designed for the care of infants who need some additional care but do not need intensive care (infants requiring intensive care are cared for elsewhere).

The project involves demolition of part of the existing SCBU. A new larger SCBU building is to be built partially over the existing SCBU footprint.

The fire design is to include a Type 7 fire safety system which is an extension of the system serving the rest of the hospital building. Smoke control is also provided to some of the spaces.

Evacuation of the patients to an internal place of safety is to be carried out by staff. It is proposed to have adequate staff available at all times so that no staff member (or parent) will need to re-enter the firecell containing the fire to assist an occupant to escape.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Modelling of smoke control system

The B-RISK output in Appendix B of the fire report indicates that challenging fires 1 and 2 (Firecells 2 and 3 respectively) include smoke control in the fire modelling.

The smoke control vent has been modelled using a ceiling vent which is opened on the fire alarm activation. Fire and Emergency notes that a discharge coefficient of 0.6 has been applied to the ceiling vents in B-RISK. This is a B-RISK default input. It is not clear from the fire report how this aligns with the specifications of the roof vents proposed.

Fire and Emergency advises the BCA to require the applicant provide additional information supporting the fire modelling provided for Firecells 2 and 3 in order to demonstrate compliance with the performance requirements of the Building Code.

1.2 Challenging fire 4 (Firecell 4)

The B-RISK output in Appendix B of the fire report indicates the output for challenging fire 4a and 4b. Fire and Emergency notes that;

a. **Window breakage** – CF4b considers window breakage to occur; only under this circumstance does the assessment pass. Windows are unlikely to break so extensively in a sprinklered occupancy. This assumption compromises the validity of the fire model output.

b. **Smoke control** – CF4a appears to contain smoke control (a low-level vent and a ceiling vent) that are not mentioned elsewhere in the design.

c. **Smoke separations** – The model does not consider the failure of smoke separations. The FEB documents indicates that the walls around the rooms are designed to achieve an acoustic rating and will inherently achieve a fire rating, however if the walls are not specified as fire rated, they will not have the required fire stops to achieve the assumed inherent fire rating.

d. **RSET** - The RSET time for this space is not clear from the fire report. Firecell 4 does not appear to fit into the managed evacuation that is proposed for the other firecells in the SCBU. In determining RSET, some consideration should be given to the sleeping occupancy and that the occupants may be delayed by preparing the infant for escape.

Noting the above Fire and Emergency considers that the ASET/RSET assessment provided for Firecell 4 is not suitable to demonstrate the compliance of Firecell with the means of escape requirements of the Building Code.

Fire and Emergency advises the BCA to require the applicant to address the above items and amend the means of escape assessment for Firecell 4 accordingly to demonstrate compliance with the performance requirements of the Building Code.

1.3 Coordination

Fire and Emergency notes the following coordination concerns from the documentation provided;

a. **Missing hold-open devices** -The fire protection drawings show only some of the hold open devices indicated as required on the fire report drawings. This includes but may not be limited to doors D0.39, D0.41, D0.42, D0.44 and D0.53.

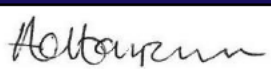
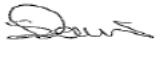
Additional door actuators - Architectural drawings show D0.49 is specified to have swing door operator (SDO). The function of the SDO for D0.49 is unclear from the architectural drawing set. However, it does not appear to be required in the fire design and it is important that it is not interfaced with the alarm panel in error.

This door is not intended to open automatically on fire and should not do so; this would allow smoke to travel into the neighbouring firecell which is on the evacuation route from a separate evacuation zone.

Fire and Emergency advises the BCA to require the applicant to provide confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Amy Harpur**		17 September 2020
Checked by:	**Etienne Hermouet**		22 September 2020
Approved by:	**Simon Davis**		23 September 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire report drawing set - WSP Opus	02 July 2020	1-43932.00	3
Architectural drawing set – Warren and Mahoney	24 July 2020	7780	C
Electrical drawings E-00-103 to E-00-105 – WSP Opus	24 July 2020	1-43932.00	1
Fire protection drawing set – WSP Opus	24 July 2020	1-43932.00	1

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	16 February 2021
Design Review No	16079

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10320512	**Contact**	[redacted]

Property Information			
Street Number	98	**Legal Description**	
Street Name	Mountain Road		
Town/Suburb	Epsom	**City/Region**	Auckland
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted], Cross Fire
Fire Report Title	Fire Safety Design MERCY ASCOT, STELLA MARIS DEMOLITION 98 MOUNTAIN RD EPSOM
Fire Report Date	08/12/2020
Version	A
Identifier	3320-02

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Unknown	**Fire Alarm Type**	Type 7
Building Height	Unknown	**No. Floors – Above**	Unknown
Escape Height	Unknown	**No. Floors – Below**	Unknown

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Stella Maris	All	Mixed	Unknown	n/a

Description of the Proposed Works

This consent refers to the demolition of an existing building and construction of a temporary corridor.

The building to be demolished is interconnected to other buildings as part of the Mercy Hospital complex. This is stage 1 of 2, which only includes the demolition of the existing building.

It is noted that the fire report indicates that the building is being assessed under two separate stages; stage 1 which covers the demolition works and stage 2 which includes the extension and Section 112 assessment of the entire building. Fire and Emergency considers that, as the building is planned to be assessed as part of the S112 assessment, this consent report may be acceptable to include only the demolition works. However, the S112 assessment must include any building that is linked and that is used as part of the evacuation routes or evacuation strategy.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. FIREFIGHTING NEEDS

1.1 Fire separations between sprinklered and unsprinklered areas

The fire report indicates that a temporary fire separation is to be installed between the existing (to be retained) and the areas to be demolished. It is noted that the fire report specifies 60min FRR as the required rating for the new (temporary) fire separations.

Fire and Emergency has the following comments:

a. As the sprinkler system is to be decommissioned in some areas during the partial demolition, the unaltered and still in use building is required to be protected from the unsprinklered adjacent areas.

b. NZS4541:2020 paragraph 2.5.2.2 requires adjoining buildings to be fire separated by no less than 120min FRR when one of the buildings is not sprinklered protected.

c. The extent to which the sprinkler system will comply with the standard during the demolition works is unclear.

Fire and Emergency advises the BCA to require the applicant to revise the fire safety design and amend as required to incorporate a 120min FRR in between the demolition and areas to be retained as required by the sprinkler standard in order to demonstrate compliance with the Building Code.

1.2 Fire hydrant and hose run distance coverage

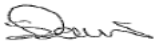
The fire report indicates that the proposed works do no alter the existing fire hydrant coverage.

Fire and Emergency considers that, as a significant part of the building is being altered (demolished) and the works affect some of the access/egress, a clear confirmation (markups of all areas) from the designer must be included into the consent documentation showing that all areas of the building are still compliant as they were before the alterations (demolition only) for the coverage of fire hydrants and fire hose run distances.

Fire and Emergency advises the BCA to require the applicant to provide further information to demonstrate that the proposed works do not affect the hydrant coverage in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Eduardo Maciel**		10 February 2021
Checked by:	**Etienne Hermouet**		15 February 2021
Approved by:	**Simon Davis**		16 February 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire drawings – Cross Fire	08/12/2020	3320	A
Architectural drawings – Klein Ltd	16/10/2020	3.1282	E

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	08 April 2021
Design Review No	16365

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10319667-2	**Contact**	[redacted]

Property Information			
Street Number	100	**Legal Description**	
Street Name	Hospital Road		
Town/Suburb	Middlemore Hospital	**City/Region**	Auckland
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted] Cosgroves Ltd
Fire Report Title	CMH – Middlemore Hospital Scott Building – Cath Lab and Renal Extension Fire Safety Strategy Report
Fire Report Date	12/02/2021
Version	B
Identifier	CA19100

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	2,700m^2	**Fire Alarm Type**	Type 7
Building Height	Unknown	**No. Floors – Above**	6
Escape Height	Unknown	**No. Floors – Below**	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Dialysis/Renal area	GL	SI	131	Alternative solution
SDU & CCU	L1	SI	59	Alternative solution
Cathlabs	L1	SI	39	Alternative solution

Description of the Proposed Works

This consent refers to the alterations and additions to an existing hospital building (Scott building). The extension will accommodate a new dialysis area. Overall, the alterations impact on different areas that include staff only areas and procedure.

The existing Type 7 sprinklers and alarm system is to be extended along with emergency lighting and exit signage.

Fire and Emergency notes that while the designer engaged in the Fire Engineering Brief (FEB) process, the discussion was not concluded and a number of issues raised were not addressed.

The latest FEB correspondence has been attached at the end of this memo for the BCA's information. Noting that the responses from the 17th March 2021 have not been discussed further as the fire report had already been submitted for consent by this point. The lack of further discussion should not be taken as an

indication of agreement. Where relevant, outstanding FEB comments have been raised again as part of this memo.

Overall, Fire and Emergency considers that the design is not sufficiently robust in terms of both the scope of the assessment and the parameters selected to demonstrate that upon completion of the proposed works, the building would comply with the Building Code to the extent required by Section 112 of the Building Act.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular, if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 21. Therefore, the level of information provided for assessment is a full assessment.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE - GENERAL

1.1 Extent of assessment

Section 112 of the Building Act requires the consent application to demonstrate that the building (as opposed to the area undergoing alterations) to comply "as nearly as reasonably practicable" (ANARP) with the requirements of the Building Code relating to means of egress from fire. In order to meet this threshold, it is necessary to assess the full extent of the building to identify any gaps.

Fire and Emergency acknowledges that in certain situations, a more limited assessment may be suitable. MBIE has provided guidance on the level of information required, which identifies situations where a partial assessment may be suitable. However, Fire and Emergency refers to the fire report which indicates that:

a. The building was built in stages over a 16 years period

b. There are other alteration projects being considered and it is unclear whether these may impact on the current project (or vice versa)

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

c. There is no overarching base building assessment

These provide further reasons to assess the building beyond the area of works, as there is currently no clear understanding of the level of fire safety.

Notwithstanding, the MBIE guidance indicates that for this project, a full assessment is required. During the FEB process, the fire designer proposed a limited assessment only considering the areas undergoing alterations and indicated that the extent of the assessment was being reviewed by Auckland Council and that this would be resolved at consent stage. However, the fire report does not provide any confirmation that Auckland Council agreed to the fire safety assessment only focusing on the areas where the works are being proposed.

Additionally, it is noted that during the meeting at Auckland Council on 3rd December 2020, there were discussions to include the firecells adjacent to the areas where works are being proposed and, any other firecell that may use the firecells being altered as part of their evacuation strategy (evacuation to the outside or horizontal evacuation) was the minimum extent to be provided in the fire safety assessment.

Fire and Emergency considers that the limited assessment provided has not been adequately justified and that it is not sufficient in the context of the building, particularly as a full assessment is required by the Building Act.

Fire and Emergency advises the BCA to require the applicant to revise the fire safety assessment to include the remainder of the building or, at the very least all areas impacted by the project in order to meet the threshold set by the Building Act.

1.2 Design approach

The proposed approach is an alternative solution, based on the C/VM2 principles. Fire and Emergency supports the use of an alternative solution for this building as other prescriptive methodologies would not adequately capture the challenges associated with the design. However, in many instances, the alternative solution presented appears limited to selecting more favourable parameters and reducing conservatisms, without adding any margin of safety to reflect the uncertainty. This is further discussed in more details in the comments below.

Further, the alternative solution does not address the specific challenges that the design presents. For example, the designer has elected to make extensive use of smoke separation, instead of the fire separation that would normally be required for this type of building. During the FEB discussions, this was justified as being part of the alternative solution. However, no aspect of the design assessment adequately tests the suitability of the smoke separation. For comparison, C/VM2 would require the smoke separation to be challenged by ignoring the effect of sprinklers, to confirm that it can adequately protect the egress routes for the duration of the evacuation, however no such assessment has been included in the design.

Fire and Emergency does not consider the design to be sufficiently robust as the alternative solution presented does not provide confidence that the fire safety of the building have been adequately assessed.

Fire and Emergency advises the BCA to require the applicant to revise the design methodology and adequately address the specific challenges of the building in order to provide a robust demonstration that the design will comply with the Building Code to the extent required by the Building Act.

1.3 Quality of information provided

The fire report contains multiple aspects which raise concerns over the designer's understanding of the building and the level of information on which the design was based. Among other things, these include:

a. Notes on the fire drawings suggesting that the location of fire separation is indicative and should be checked on site. As this is part of a consent document and the location of fire separation is one of the key assumptions that support the design (evacuation zones dictating the number of occupants affected by various fire scenarios and model boundaries), it is simply unacceptable not to have confirmed this information.

b. Occupancy allocation and staff ratio rely on a letter from the client which suggests that at least some of the numbers are made up (refer Appendix L and comment 2.2 below).

c. There are multiple references to outdated documents that have been superseded (sometimes multiple times) and are used to select input parameters.

These combine to paint a concerning picture of a design that is simply not sufficiently robust for the intended purpose.

Fire and Emergency advises the BCA to require the applicant to update the consent documentation to address the concerns raised above.

Given the nature of the concerns raised above, Fire and Emergency considers that the information provided as part of this consent application is not adequate to support the decision to grant a Building Consent and therefore advises the BCA to refuse this consent. While further comments appear unnecessary in the light of the above, the items below are provided as a non-exhaustive list of additional concerns identified during the review.

2. MEANS OF ESCAPE – FURTHER ITEMS

2.1 Components of the evacuation times

Section 6.9 of the fire report indicates that there is sufficient information regarding training, evacuation procedures, history of evacuation times to justify the assumptions made in the fire safety design. However, no information regarding these has been provided to Fire and Emergency or included into the fire safety design submitted for this review.

Appendix H of the fire report includes communication between the fire designer and the client, dated 9 December 2020 (page 160 of the PDF file), where the designer states *"Note **we will need the updated evacuation scheme to be consistent with the parameters below**, otherwise **this will compromise our fire design**."*

This suggests that the results of the modelling and egress assessment were used in reverse-calculations to inform the target evacuation times for the different areas of the building. The confirmation provided by the DHB does not include any indication of the sequence of actions required to evacuate and the timeframe the DHB considers appropriate for these actions and to complete the evacuation.

Fire and Emergency notes that this approach does not take into consideration the actual capabilities and limitations of the staff and their training. Further, the fire safety design assumes that all staff members

and patients will be able to achieve all the tasks and activities relevant to the evacuation, in the times set by the fire report instead of basing the fire safety design on the actual training and capabilities of the staff and the worst case scenario of patient's mobility.

Based on the above, Fire and Emergency considers that the fire report has not provided sufficient information to demonstrate that the assumptions that underpin the evacuation calculation are adequate.

Fire and Emergency advises the BCA to require the applicant to revise the fire safety design and amend as required to:

a. **Incorporate actual evacuation values related to this building's staff members into the egress calculations, and**

b. **Provide robust justification for any evacuation value proposed, and**

c. **Amend the fire safety calculations and modelling to reflect updated parameters;**

in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

2.2 Occupancy

Section 3 of the fire report provides the total occupancy numbers for each area of the building, there are also tables with patients/staff ratios, while appendix L provides confirmation from the client.

Whilst Fire and Emergency acknowledges that the client has provided information on how the occupants will be distributed, their characteristics (i.e. level of assistance required) and the times required to evacuate each area, it is noted that some of the tables have notes indicating that some values may be *"pure speculation"* or *"a best guess"*. Therefore, it is unclear on what basis the occupancy numbers have been derived and whether these represent a credible worst-case scenario.

Fire and Emergency considers that the values provided to justify the patients/staff ratios, locations and distribution of occupants must consider the worst-case scenarios. If the fire safety design is based on less stringent data, the design will not be robust enough if a fire emergency occcur's.

Fire and Emergency advises the BCA to require the applicant to provide robust clarification that the values used in the fire safety assessment are realistic and represent the credible worst-case scenario in order to demonstrate that the building complies with the requirements of the Building Code.

2.3 Egress calculations

Appendices I and L of the fire report include the egress calculations and supporting assumptions.

Fire and Emergency has identified a number of comments regarding the egress calculations, including but not limited to:

a. The fire report does not include a "cause and effect" matrix for the alarm system and the evacuation procedures. Fire and Emergency notes that without a comprehensive matrix, it is unclear how other areas of the building will react to a fire detection. For example, if an adjacent firecell will be required to evacuate or to stay in place.

   Therefore, Fire and Emergency cannot confirm that the fire safety design has captured all the possible scenarios with the actual number of people that may be required to evacuate (to move).

   The above noting that during the FEB discussions, it was confirmed that the matrix would be provided.

b. During the FEB discussions, an investigation time of 300s was reduced to 60s under the justification that the investigation procedure is based on the expected time for staff members to confirm a fire instead of using a fire alarm configuration.

Whilst Fire and Emergency acknowledges that the investigation time should be based on staff capabilities, the fire report has not provided any supporting evidence or justification for the proposed value of 60s.

Fire and Emergency considers that, unless the value of 60s is robustly justified, the worst-case scenario should be considered.

c. During the FEB discussions, Fire and Emergency requested a timeline with the times for different activities during the evacuation such as time to prepare patients (different areas of the building), travel speed for patients on wheelchairs (assisted and un-assisted), times to negotiate fire doors sets (single or double with self-closers) when staff are pushing wheelchairs, standard and new beds. This was requested to derive a credible evacuation time. However, this information was not provided as part of the fire report.

   Without this information, the suggested evacuation times (also refer comment 2.1) appear entirely unsubstantiated and may not be adequate.

d. The fire report provides references to different literature in regard to walking speed to account for occupants walking through smoke. However, the SFPE handbook 5th edition pages 2514 – 2515 indicates that for engineering purposes and design, it should be assumed that people do not move through smoke. It also indicates that, people moving through smoke is scenario-specific. The amount of smoke is a big factor to whether occupants decide to move through smoke or not. Fire report has not provided an assessment of the amount of smoke within each firecell and with this the likelihood of occupants deciding not to move into an area filled with smoke.

   Fire and Emergency is concerned that the above may result in some of the occupants (patients and/or staff members) failing to evacuate.

e. It is noted that the evacuation calculations use, as a base for comparison, the 120s in the C/VM2 for staff members to aid with evacuation of patients. Fire and Emergency indicated during the FEB stage that using this value was inadequate as it does not have any technical nor experimental evidence to support it, see comment 1.5 j) of the FEB log.

Based on the above, Fire and Emergency considers that the egress calculations, as presented in the fire report, do not include fundamental elements that may have an impact on the overall evacuation time and, consequently, the safety of all occupants within the building. Therefore, it has not fully demonstrated that the proposed design complies with the C Clauses of the Building Code.

Fire and Emergency advises the BCA to require the applicant to revise the fire report and amend as required to provide egress calculations that reflect the staff team and patient's capabilities and limitations in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

2.4 Modelling

Appendix I of the fire report provides the modelling report and the ASET/RSET calculations.

Fire and Emergency has identified a number of comments regarding the egress calculations, including but not limited to:

a. During the FEB discussions, Fire and Emergency indicated that using a medium growth fire for scenarios CF1, CF5, CF6, CF7 and RC1 was considered inappropriate as there was not sufficient justification. However, the fire report shows that CF5 and RC1 were modelled using the medium growth fire.

   The fire report refers to the SFPE Handbook 5th edition, the DD9999 and PD7974 documents to justify the fire growth proposed. However, the following is noted:

i. There is no specific reference nor clear indication on how the calculations were obtained based on the SFPE Handbook and,

ii. DD9999 is an outdated draft version of the standard which has been superseded (twice) since its publication. Notwithstanding, both the original draft and the current BS 9999 (table 2) indicate that medical care (occupancy type D) is outside the scope of the document and the fire safety design should be following other guidance and,

iii. The PD7974-1:2003 table 3 and tables in appendix A in the 2019 revision do not include any fire growths for hospitals.

iv. The SFPE Handbook page 857 indicates that the values for the work stations are less than the ones provided in the NIST tests. It is stated that this may be due to the arrangement of the fuel and its configuration. Therefore, unless it is demonstrated that the same arrangement and configuration is used as per the test, the most conservative values should be used (i.e. from NIST tests).

Therefore, Fire and Emergency considers that the use medium growth fires for CF5 and RC1 is inappropriate as indicated during the FEB stage.

b. Further, while Fire and Emergency acknowledges that a medium fire growth rate may be appropriate for the patient areas, given the lack of fire separation around support functions such as stores, waste and others, a more conservative fast fire should also be used for challenging fires CF2 and CF3 (also see point d below).

c. The fire report indicates that tenability within some rooms was not assessed during the fire safety assessment. The rooms that were not assessed were selected as per the CF scenario of the C/VM2.

Fire and Emergency considers that due to the high vulnerability of the occupants (patients) and as the fire design is assessed as an alternative solution methodology, the fire report should provide a full assessment of tenability, for all spaces, along the egress routes and locations where occupants may be located either at the beginning of the evacuation or as a result of the evacuation (i.e. patients placed in adjacent firecells/smokecells).

d. During the FEB discussions (comment 1.13 of the FEB log), Fire and Emergency raised the concern of not having some of the maintenance and storage cupboards fire separated from the rest of the building (i.e. egress corridors). It was advised that if those were to remain non-fire separated, a challenging fire was required to be located in the area to assess the impact.

However, it is noted that the fire report does not provide any type of assessment on the scenario of a fire within one of the cupboards.

Fire and Emergency is concerned that this scenario has been ignored as there are locations where occupants may have the only means of escape blocked (i.e. occupants within Cath lab 1 and 2 and after the fire curtain is deployed.

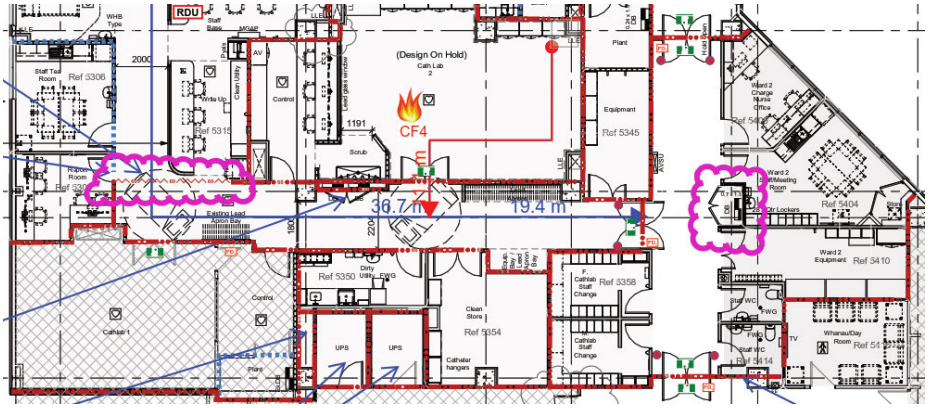


Figure 1 Cath lab 1 and 2 - extracted from fire drawing FSK09

Based on the comments above, Fire and Emergency considers that the some of the models and their results do not provide accurate nor conservative results and therefore, we cannot confirm that the proposed design complies with the C Clauses of the Building Code.

Fire and emergency advises the BCA to require the applicant to revise the fire safety design and amend the modelling as required to:

a. **Incorporate the challenging fires in locations where, if a fire starts, it may compromise the evacuation of the occupants, and**

b. **To provide robust justification on the proposed input data for the computer models, and**

c. **If no robust justification is provided, to amend the input data as required;**

All of the above in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

2.5 Robustness Check (RC) scenario

The fire report indicates that the RC scenario is applied to the fire safety design as required by C/VM2, this means that the robustness check is limited to specific scenarios.

During the FEB discussions, Fire and Emergency stated that the RC scenario should be included regardless of the number of people at risk as this design is based on an alternative design methodology and it is not expected to follow C/VM2 in full. Rather the demonstration of compliance should follow the Building Code requirements, particularly C4.5 which requires the design to consider the likelihood and consequence of failure of any fire safety system.

On this basis, Fire and Emergency strongly considers that the fire curtain located within the Cath Lab area (Cath Lab recovery room) should be included as part of the robustness check scenario to ensure that, in case of failure, all occupants in the area and any adjacent area, will be able to escape safely. There are many variables and many scenarios in which the fire curtain may fail to deploy or may be obstructed while deploying.

As the fire report has not included the fire curtain as part of the RC scenario, Fire and emergency cannot confirm that the proposed design complies with the C Clauses of the Building Code.

Fire and Emergency advises the BCA to require the applicant to revise the fire report and amend as required to incorporate the fire curtain into the robustness check and ensure that, in case of failure, occupants will be able to escape safely as required by the Building Code.

2.6 Fire curtain

Table 6 of the fire report indicates that, as part of the CF3 scenario, the fire curtain between the Cath Lab recovery room and the Cath Lab 1 and 2 corridor is set to remain open for 180s (60s for staff to respond + 60s investigation time + 30s deployment time = 150s).

It is unclear how the remaining 30s (180s proposed - 150s = 30s) are introduced into the total time.

Additionally, the fire report does not provide any further information on what if the staff members take longer than 60s to investigate, how is the delayed operation of the curtain is to be programed into the fire alarm system and how the delay of the fire curtain operation may affect the smoke spread and decision making for occupants and staff members (i.e. if they see an opening that could be used as an egress route and before reaching it, it closes).

Fire and Emergency considers that, as there is no sufficient information around the proposed fire curtain and its installation, it is not possible to confirm that the fire safety design complies with the requirements of the Building Code.

Fire and Emergency advises the BCA to require the applicant to provide a robust assessment of the fire curtain and its setup and any scenarios that may result from the proposed setup (delayed actuation) in order to demonstrate that the design complies with the Building Code to the extent required by the Building Act.

2.7 Sliding doors

The fire drawings show that sliding doors are being proposed to different areas. The fire designer indicated during the FEB stage that sliding doors are to be interfaced with the alarm system to close upon local smoke detector and to close on self-weight with similar time frame.

Fire and Emergency notes that it is not clear whether occupants will be able to open them for egress.

As there is no clear information on how the sliding doors are going to be set up and no assessment on the implications on the evacuation of patients from that areas that are evacuating on their own, Fire and Emergency cannot confirm that the proposed design complies with the requirements of the Building Code.

Fire and emergency advises the BCA to require the applicant to provide further information and a robust assessment to confirm that the sliding doors and their set up will not have a negative impact on the evacuation of the occupants ion order to demonstrate compliance with the Building Code.

2.8 Completeness of Documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of proposed external wall cladding, including evidence that the specified product(s) will not exceed the acceptable peak rate of heat release and total heat released as specified in the fire report.

d. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

e. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

f. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

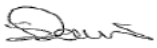
g. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

The fire report indicates that property protection has not been addressed in this design (other than as required by the building code). This may impact on the insurability of the completed building, and may affect the ability of Fire and Emergency New Zealand to successfully extinguish a fire and thus reduce property loss.

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Eduardo Maciel**		01 April 2021
Checked by:	**Etienne Hermouet**		7 April 2021
Approved by:	**Simon Davis**		8 April 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire drawings – Cosgroves	27/01/2021	CA19100	I
Architectural drawings – Klein Ltd	12/02/2021	3.1268	C
Emergency lighting – Cosgroves	12/02/2021	CA19100	-

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	03 June 2021
Design Review No	16661

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10327998	**Contact**	[redacted]

Property Information			
Street Number	100	**Legal Description**	
Street Name	Hospital Road		
Town/Suburb	Middlemore Hospital	**City/Region**	Auckland
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	Middlemore NNU Expansion Fire Engineering Report
Fire Report Date	31/05/2021
Version	A
Identifier	5137587

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~ 750 m² (altered areas)	Fire Alarm Type	Type 7
Building Height	Not specified	No. Floors – Above	5
Escape Height	Not specified	No. Floors – Below	0

Population Characteristics and Design Methodology*					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Cot spaces, Parent Lounge, Interview Room, Staff Base	1	SI	46 (16 infants)	Performance -based Design
2	Cot spaces	1	SI	26 (12 infants)	

* Limited to the areas being altered

Description of the Proposed Works

This building consent application relates to the internal alteration of Level 1 northwest corner of an existing 5-storey clinical services building (named the Harvey Grey building), to increase the accommodation within the neo-natal Level 2 cot space, from 20 infants, to 28 infants. As part of this works, the neo-natal Level 2 cot space will be divided into two firecells.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 17. Therefore, the level of information provided for assessment is a gap assessment. We understand that Auckland Council has agreed to defer the Section 112 base building review for this Building Consent due to the urgency of the works, and that it would be reviewed at the next project for this building.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 High-Level Care Infants

During the FEB phase, the design had assumed that there will be a maximum of 6 high-level care infants, which forms the assumption used in the assessment. Fire and Emergency considers that confirmation from the operator that the number of high-level care infants can been limited to 6, and any relevant management processes to ensure this is maintained shall be provided, as part of the Building Consent documentation.

In addition, FER Table 4 appears to consider that all infants in Neonatal Level 2 Cot Space as requiring high-level care. It is unclear if this is inconsistent terminology, hence Fire and Emergency considers that a clarification is necessary to demonstrate that the RSET/ ASET assessments are still valid.

Fire and Emergency advises the BCA to require the applicant to provide additional information and clarification to demonstrate that the building complies with the Building Code to the extent required by the Building Act.

1.2 BRISK output Challenging Fire 1

Section 6.4.1 of the fire report indicates that tenability for Challenging Fire 1 is measured along the means of escape (Room 1 to Room 5). The BRISK output in Appendix C of the fire report shows FEDco was measured only in Room 5 for the duration of RSET (Challenging Fire 1 was located in Room 1).

Therefore, while the results shown in the graph included in fire report drawing BR-4013 appear to show FEDco measured in more than one space (noting the change in the slope of the graph); it is not possible to verify the suitability of the results reported in the graph based on the results in the BRISK output.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Fire and Emergency advises the BCA to require the applicant to provide a revised BRISK output to show that tenability has been assessed along the escape route as stated in the body of the fire report to support the conclusion that ASET>RSET for this challenging fire scenario.

1.3 Design Coordination

Fire and Emergency notes the following discrepancies in design documentation:

a. Fire plan BR-2010 indicates that the double door between the firecells of Neonatal Level 2 Cot Space is proposed to be a double-swing fire door to facilitate evacuation of babies by cots between the firecells. However, the door schedule in A-351 indicates a single-acting door (D1300.1).

b. Fire plan BR-2010 indicates that the windows in the parents lounge and new interview room are to be fire rated to FRR -/30/-. These windows (W.1310.1 and W.1306.1) are listed in architectural drawing A-300 as being existing windows being relocated. It is unclear that these existing windows have a fire-rating.

Please note that the above is not an exhaustive list of design coordination issues, and the designer should confirm that design coordination for these and all other design elements has been undertaken.

Fire and Emergency advises the BCA to require the applicant to clarify and amend as necessary the items listed above, and to ensure that the design has been coordinated to ensure that at the completion of the building works, the building will comply with the Building Code to the extent required by the Building Act.

1.4 Completeness of Documentation

The plans and specifications provided to Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

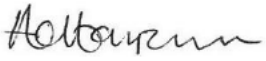
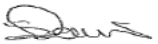
Fire and Emergency advises the BCA to ensure that the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Fire and Emergency New Zealand Recommendations

The fire assessments documented in the fire report have indicated that visibility is likely to become challenging in the early stages of the fire and before the firecell is fully evacuated. Whilst visibility is not directly required to be considered under the Building Code (due to the provision of sprinklers), Fire and Emergency considers that poor visibility may hamper the efforts of staff to evacuate the infants from the firecell. Fire and Emergency recommends that improved emergency lighting levels and/or low-level emergency lighting be considered to help staff way-find in situations where visibility may be challenging.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Adeline Teo**		2 June 2021
Checked by:	**Amy Harpur**		3 June 2021
Approved by:	**Simon Davis**		3 June 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire plans - Beca	31 May 2021	5137587	A
Architectural plans - Klein	12 April 2021	3.1295	3
Fire protection plans - Beca	2 March 2021	5137587	1
Mechanical plans - Beca	2 March 2021	5137587	1

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	17 June 2021
Design Review No	16680

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10319667-2	**Contact**	[redacted]

Property Information			
Street Number	100	**Legal Description**	
Street Name	Hospital Road		
Town/Suburb	Middlemore Hospital	**City/Region**	Auckland
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted], Cosgroves Ltd
Fire Report Title	CMH – Middlemore Hospital Scott Building – Cath Lab and Renal Extension Fire Safety Report
Fire Report Date	28/05/2021
Version	E
Identifier	CA19100

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~2,400m^2	Fire Alarm Type	Type 7
Building Height	Unknown	No. Floors – Above	6
Escape Height	Unknown	No. Floors – Below	n/a

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Dialysis/Renal area	GL	SI	131	Alternative solution
SDU & CCU	L1	SI	59	Alternative solution
Cath labs	L1	SI	39	

Description of the Proposed Works

This consent refers to the alterations and additions to an existing hospital building (Scott building). The extension will accommodate a new dialysis area. Overall, the alterations impact on different areas that include staff only areas and procedure spaces. The existing Type 7 sprinklers and alarm system is to be extended along with emergency lighting and exit signage.

A previous iteration of the design was submitted for consent earlier in 2021 and reviewed by Fire and Emergency. Comments raised during this earlier review were documented in memorandum 16365, dated 8 April 2021. Where relevant, comments (or part of) identified during the earlier review have been included in this review. Fire and Emergency acknowledges that the latest design features changes which positively impact on the level of safety and ability to evacuate the building in the event of a fire. This includes the addition of external egress doors as well as fire separation around storerooms. Notwithstanding, a number of concerns remain, particularly around the modelling undertaken and the assumptions and parameters used to support the assessment. These are outlined in the comments below.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular, if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 20. Therefore, the level of information provided for assessment is a full assessment. There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Extent of assessment

In the course of previous conversation (both during the FEB process and in the April 2021 review), Fire and Emergency has consistently advised that in line with the Building Act, Section 112, a full assessment of the building was expected.

The updated fire report includes additional considerations and arguments in support of a partial assessment only.

Fire and Emergency notes that, the additional information notwithstanding, the fire report still offers no clarity over aspects of the design including, but not limited to (as per Table 8, gap assessment):

a. The extent and location of existing fire separations (also indicated in sketches stating that this is to be checked on site)

b. The extent to which existing surface finishes comply with the requirements of the Building Code

c. The existing configuration and performance of the HVAC system

d. The presence or otherwise of foamed plastic materials

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Further, the fire report refers to assessments of the building carried out in 2001 and 2004, stating that no material changes have taken place since to support the position that a full assessment is not required. The Building Code was modified in 2012 and compliance with previous requirements that are no longer applicable does not automatically ensure compliance with the current requirements.

Fire and Emergency remains of the opinion that the partial assessment provided is not sufficient to meet the threshold set by the Building Act but notes that ultimately, the decision rests with the BCA.

Fire and Emergency advises the BCA to satisfy itself that the extent of assessment provided is sufficient to support the proposition that *the building* complies with the Building Code to the extent required with the Building Act, or to require the applicant to provide a more comprehensive assessment.

1.2 RSET/ASET assessment

Table 18 of the fire report shows the results for the RSET/ASET assessment. The table of contents indicate that the Appendix I includes the modelling report and ASET/RSET calculations.

Fire and Emergency have the following comments:

a. The fire report indicates that a 5min investigation period is included into the fire alarm setup, after which time a general evacuation will be triggered. However, the RSET calculations indicate that only a 2min investigation period has been included into the calculations. The fire report does not provide a justification not to use the entire 5min as the system has been setup.

b. Based on the information provided in Appendix L, it is noted that some staff members will arrive a relatively long time after the fire has started (over 5min). There are also scenarios where the patients outnumber the staff members, requiring staff members to re-enter a space (sometimes multiple times) to complete the evacuation.

   However, the fire report has not provided an assessment of the conditions within the space to ensure that it is safe for anyone (without protective equipment) to enter the space to perform specific activities and then find their way out safely.

c. Whilst the fire report proposes to use a reduced walking speed based on information provided in the SFPE handbook, the same SFPE handbook 5th edition pages 2514 – 2515 indicates that "***for engineering purposes and design, it should be assumed that people do not move through smoke"***. It also indicates that, people moving through smoke is scenario-specific and further states that "***The amount of smoke is a big factor to whether occupants decide to move through smoke or not"***.

   The fire safety design appears to assume that all occupants (including both patients self-evacuating and staff members assisting patients) will make the decision to travel through smoke filled areas, regardless of the amount of smoke (albeit at a reduced speed). As the fire report has not provided an assessment of the conditions within each space, it is unclear whether occupants or staff members will be in a position to make that decision.

Based on the above, Fire and Emergency considers that, as there is insufficient information to confirm that the RSET, as shown in the fire report, represents the actual required time for all occupants within the building to evacuate to a safe place, the fire report has not demonstrated that the proposed design complies with the Building Code.

Fire and Emergency advises the BCA to require the applicant to robustly justify the evacuation assessment in order to establish how the proposed design meets the requirements of the Building Code to the extent required by the Building Act.

1.3 Modelling assumptions

Fire and Emergency has identified a number of comments regarding the egress calculations, including but not limited to:

a. During the FEB discussions, Fire and Emergency indicated that using a medium growth fire for scenarios CF1, CF2, CF3, CF4, CF5, CF6, CF7 and RC1 was considered inappropriate as there was not sufficient justification. However, the fire report shows that CF2, CF3, CF4, CF5 and RC1 were modelled using the medium growth fire.

   The fire report refers to the SFPE Handbook 5th edition, the BS9999 and PD7974 documents to justify the fire growth proposed. However, the following is noted:

   i. There is no specific reference nor clear indication on how the calculations were obtained based on the SFPE Handbook and,

   ii. The SFPE Handbook page 857 indicates that the values for the workstations are less than the ones provided in the NIST tests. It is stated that this may be due to the arrangement of the fuel and its configuration. Therefore, unless it is demonstrated that the same arrangement and configuration is used as per the test, the most conservative values should be used (i.e. from NIST tests).

   iii. The current BS 9999 (table 2) indicates that medical care (occupancy type D) is outside the scope of the document and the fire safety design should be following other guidance and,

   iv. PD7974-1:2003 table 3 and tables in appendix A in the 2019 revision do not include any fire growths for hospitals.

   Therefore, Fire and Emergency considers that the use medium growth fires for CF2, CF3, CF4, CF5 and RC1 is inappropriate as indicated during the FEB stage.

b. The fire report proposes an increase of 20% to the fire growths. However, the fire report has not provided any technical justification nor reference to support this figure.

c. Furthermore, while Fire and Emergency acknowledges that a medium fire growth rate may be appropriate for the patient areas, given the lack of fire separation around support functions (such as waste collection points), a more conservative fast fire should also be used for challenging fires CF2 and CF3.

Based on the comments above, Fire and Emergency considers that the some of the models and their results do not provide accurate nor conservative results and therefore, we cannot confirm that the proposed design complies with the C Clauses of the Building Code.

Fire and emergency advises the BCA to require the applicant to revise the fire safety design and amend the modelling as required to: provide robust justification on the proposed input data for the computer models, and incorporate challenging fires in locations where, if a fire starts, it may compromise the evacuation of the occupants in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

1.4 Modelling results

The information provided for review includes the results the modelling undertaken for various challenging fire scenarios. While these have not been reviewed in detail, the following comments have been identified:

a. Fires reach ventilation limit early in the simulation and are subsequently allowed to decrease in size (Heat Release Rate), therefore the expectation that the fire remains at a constant output for the duration of the simulation is not met.

b. The assessment of tenability for some of the simulations is based on assigning a specific egress path to the occupants but this does not appear to reflect the worst-case scenario identified in the RSET breakdown (modelling report).

c. A significant area of leakage is allocated to "room 3" which represents the main corridor space. However, based on the fire report and sketches provided, that space is entirely defined by fire rated or smoke rated construction, with the only exception being a small portion of external wall.

d. The modelling does not account for the effect of the HVAC system, however section 5.1.7 of the fire report indicates that the system is intended to continue operating (possibly with an increased capacity) in fire mode.

It is unclear whether the points above would impact the outcome of the simulations sufficiently to affect the RSET vs ASET assessment, however these should be addressed to provide confidence in the adequacy of the modelling.

Fire and Emergency advises the BCA to require the applicant to revise the modelling undertaken as required in order to ensure it aligns with the expected approach and can be consider reliable to support the demonstration of compliance with the Building Code.

1.5 Assessment of smoke separation – CF1

Challenging fire 1 (CF1) is specifically intended to demonstrate that the use of smoke separation only is suitable around certain spaces.

The modelling relies on assessing the temperature of the hot layer throughout the simulation to determine whether it exceeds an assumed failure temperature of 200°C, which is deemed to represent the temperature at which the smoke separation would fail.

Fire and Emergency observes that:

a. The failure temperature of 200°C is a simplified assumption originating in C/VM2 but has not robust basis.

b. Given the points raised above (refer comment MERGEFORMAT 1.4), the smoke layer temperature as predicted

by the modelling is not a reliable value, as the fire is not allowed to remain at the expected output.

c. Notwithstanding the above, C/VM2, paragraph 4.9 expressly requires the suitability of smoke separation to be assessed without the benefit of sprinklers. This was previously identified by Fire and Emergency both during FEB discussions and in the previous consent review but has not been addressed.

Fire and Emergency advises the BCA to require the applicant to revise the design and provide adequate demonstration that smoke separation is sufficient to demonstrate compliance with the Building Code.

1.6 Evacuation of beds 19-22

As part of the changes implemented in the updated design, the areas accommodating beds 23 to 26 has been provided with a new door directly to outside. This allows the patients to be evacuated directly to outside while the smoke separation between the bed area and corridor protects them from a fire in another part of the building.

Although beds 19 to 22 are in the same situation, no additional door has been proposed to serve these four beds. It is unclear on what basis those are considered to be different.

An RSET assessment has been carried out for these four beds, based on challenging fire scenario 5 (CF5), representing a fire in the corridor outside the bed area. This is based on the expectation that occupants will be required to evacuate via the corridor.

Fire and Emergency notes that the RSET assessment assumed only three dependent patients in beds whereas the area includes four beds. It is not clear why the space is not assumed to be fully occupied. It is also noted that the number of staff assumed to be available to assist is comparatively higher than in other areas, suggesting that the staff number has been adjusted to ensure all three patients can be evacuated in a single stage. Given the relatively small space and physical constraints both within the space itself (single sliding door) and immediately outside (small section of corridor), it appears unrealistic to assume that all patients can be evacuated concurrently as congestion will necessarily slow the process down.

While the addition of a door to outside would appear to be a logical resolution (in the same way a door was added to the neighbouring area for beds 23-26), if the design is kept as currently shown, a more robust assessment of RSET will be necessary to demonstrate that the patients in beds 19-22 can be safely evacuated.

Fire and Emergency advises the BCA to require the applicant to re-assess the evacuation of beds 19-22, or to provide alternative means of egress in order to demonstrate compliance with the Building Code.

1.7 Evacuation of beds 1-18

The breakdown of RSET calculation in the modelling report suggests that assumptions were applied to the calculation of RSET for the main dialysis renal area accommodating beds 1 to 18.

In particular, the assumptions relate to the number of patients that are considered to require assistance to evacuate. It is noted that at most, only three patients are considered to require bed evacuation. In another scenario, all patients are considered to require wheelchair evacuation. The basis for these assumptions is not immediately clear as it is only supported by a statement in section 5.1.2 of the modelling report that “there would be up to 3 patients who would be bed-bound and moved by staff in their beds”.

However, it is not clear whether the assumption relates to the entire unit or each area individually. It is also unclear how this will be monitored so that ongoing compliance will be achieved (i.e. how the occupancy will be managed so that no more than three dependent patients are present simultaneously).

Fire and Emergency advises the BCA to require the applicant to provide further information to support the assumptions around occupant ability or to re-assess the design using a more conservative approach in order to demonstrate compliance with the Building Code.

1.8 Robustness check scenario

The fire report indicates that a robustness check scenario where one of the smoke dampers fail is the only scenario being included. The fire report also indicates that management procedures and other elements are to be included to ensure that the fire curtain (within the Cath lab area) will not be obstructed.

Whilst Fire and Emergency acknowledges that management procedures are to be put in place and these are crucial in the day to day operation of the area, a robustness check must be included into the fire safety assessment as there are many elements within the fire curtain and the systems that control it that may fail.

In addition to the above, the fire report indicates that a pressurization system will operate within the Cath lab area, the fire report has not provided any information on how the fire curtain may be affected by the pressurization system and how will it be ensured that the curtain deploys as intended.

Finally, Clause C4.5 of the Building Code requires *"Means of escape to a place of safety in buildings must be designed and constructed with regard to the likelihood and consequence of failure of any fire safety systems."*. Therefore, Fire and Emergency considers that the fire curtain must be included into the Robustness Check and a full assessment of the impact of a failed deployment should be included into the consent documentation.

Fire and Emergency advises the BCA to require the applicant to revise the fire safety design and amend as required to incorporate the robustness check assessment for the fire curtain in order to demonstrate compliance with the Building Code.

1.9 Fire curtain

Fire and Emergency notes that, in the previous design it was intended to have an investigation period during the fire curtain deployment which caused the curtain to have a delay on the activation and deployment. However, references to this investigation period have been removed.

It is unclear if the fire curtain is intended to operate in a different strategy (i.e. no investigation period) or if the information regarding the investigation period has been omitted.

Fire and Emergency notes that, if the deployment strategy has changed, then the new strategy must be clearly indicated as it has an impact on the safety of the occupants within that area. However, if the deployment strategy remains as indicated in the fire report revision C, then the full comment from the DR memo 16365 should be considered (original comment copied below for information):

Table 6 of the fire report indicates that, as part of the CF3 scenario, the fire curtain between the Cath Lab recovery room and the Cath Lab 1 and 2 corridor is set to remain open for 180s (60s for staff to respond + 60s investigation time + 30s deployment time = 150s).

It is unclear how the remaining 30s (180s proposed - 150s = 30s) are introduced into the total time.

Additionally, the fire report does not provide any further information on what if the staff members take longer than 60s to investigate, how is the delayed operation of the curtain is to be programmed into the fire alarm system and how the delay of the fire curtain operation may affect the smoke spread and decision making for occupants and staff members (i.e. if they see an opening that could be used as an egress route and before reaching it, it closes).

Fire and Emergency considers that, as there is no sufficient information around the proposed fire curtain and its installation, it is not possible to confirm that the fire safety design complies with the requirements of the Building Code.

Fire and Emergency advises the BCA to require the applicant to provide robust justification and clear information on how the fire curtain is to operate and to provide further information, as indicated above, in order to demonstrate compliance with the Building Code.

1.10 Hermetic sliding doors

The fire drawings show that sliding doors are being proposed to different areas. The fire designer indicated during the FEB stage that sliding doors are to be interfaced with the alarm system to close upon local smoke detector and to close on self-weight with similar time frame.

Fire and Emergency notes that it is not clear whether occupants will be able to open them for egress.

As there is no clear information on how the sliding doors are going to be set up and no assessment on the implications on the evacuation of patients from that areas that are evacuating on their own, Fire and Emergency cannot confirm that the proposed design complies with the requirements of the Building Code.

Fire and emergency advises the BCA to require the applicant to provide further information and a robust assessment to confirm that the sliding doors and their set up will not have a negative impact on the evacuation of the occupants ion order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Eduardo Maciel**		15 June 2021
Checked by:	**Etienne Hermouet**		16 June 2021
Approved by:	**Paul Richards**		17 June 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire drawings - Cosgroves	28 May 2021	CA19100	E
Architectural drawings – Klein Ltd	12 May 2021	3.1268	B

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	13 September 2021
Design Review No	17139

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Auckland Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCO10333847-2	**Contact**	[redacted]

Property Information			
Street Number	2	**Legal Description**	
Street Name	Park Road		
Town/Suburb	Grafton	**City/Region**	Auckland
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Jasmax ltd
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	P7378 ADHB Central Plant and tunnel Fire Engineering Report
Fire Report Date	03/09/2021
Version	B
Identifier	5136904-939001827-31039

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	A04 ~ 930m² + tunnel area	Fire Alarm Type	A04 = Type 6 + supp smoke det Tunnel = Type 7
Building Height	A04 = 23m	No. Floors – Above	6
Escape Height	A04 <17m	No. Floors – Below	1

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Tunnel	BF	WB	30	Alternative Solution
A04 basement	BF	WB	6	Alternative Solution
A04 Ground	GF	WB	28	Alternative Solution
A04 Level 1	L1	WB	16	Alternative Solution
A04 Level 2	L2	WB	39	Alternative Solution
A04 Level 3	L3	WB	140	Alternative Solution
A04 Level 4	L4	WB	87	Alternative Solution
A04 Level 5	L5	WB	6	Alternative Solution

Description of the Proposed Works

This consent refers to the construction of a new services building that will contain offices in the top 2 floors. Attached to this building a tunnel for services is to be constructed as part of this consent as well.

The services building (A04) is to be provided with a Type 6 with supplementary smoke detection. The office levels are provided with two means of escape and the service levels with a single means of escape

The tunnel is to be provided with a Type 7 system. The tunnel is to be fire separate4d into three firecells for firefighting safety.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Fire rating to external stairs

The executive summary indicates that safe path stairs, external stairs and internal mezzanine stairs do not require structural fire ratings. In the case of the external stair, this is based on the adjacent walls being rated to protect the external egress route.

The fire drawing appended to the fire report does not reflect this (sketch “A40 long section 3 – Fire Engineering Layout”) as it does not indicate any fire rating to either the wall adjacent to the stair on level 5 or the ceiling / roof of level 3 directly below the location of the stair.

Based on the information provided in the consent documentation, it is unclear whether the stair which is indicated as an external egress stair is sufficiently protected.

Fire and Emergency advises the BCA to require the applicant to revise the design documentation to confirm that the external egress stairs are provided with adequate passive fire protection in order to allow all occupants to escape safely and to demonstrate compliance with the Building Code.

1.2 Completeness of Documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of proposed external wall cladding, including evidence that the specified product(s) will not exceed the acceptable peak rate of heat release and total heat released as specified in the fire report.

d. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

e. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

f. The location of proposed emergency lighting shown clearly on the drawings.

g. Confirmation of the Compliance Schedule entries and indicative maintenance, management and operational requirements in respect of fire safety-related systems (as specified in Practice Note 22, Appendix C).

h. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

2. FIREFIGHTING NEEDS

2.1 Fire Alarm Panel, hydrant and sprinkler inlets

The fire report indicates that a new fire alarm system (Type 4), sprinkler system and hydrant systems are being proposed to be installed under this consent.

Fire and Emergency notes that NZS 4512:2010 paragraph 403.1 requires the location of multi-zone fire alarm panel to be approved and NZS 4541:2020 paragraph 6.10.2 fire sprinkler inlets shall be provided in a location approved by the Fire Brigade and, consequently, under s8(4) of the Fire and Emergency New Zealand Act 2017, by Fire and Emergency New Zealand, if this approval does not accompany the consent documentation, then any location proposed cannot be considered as a final location.

Fire and Emergency advises the BCA requires the applicant to demonstrate that the proposed location has been agreed with Fire and Emergency.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Eduardo Maciel**		8 September 2021
Checked by:	**Etienne Hermouet**		13 September 2021
Approved by:	**Simon Davis**		13 September 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire drawings - Beca	27/07/2021	5136904	0B
Architectural drawings - Jasmax	29/04/2021	P7378	0

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	09 October 2020
Design Review No	15505

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Buller District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC200213	**Contact**	[redacted]

Property Information			
Street Number	45-46	**Legal Description**	-
Street Name	Cobden Street		
Town/Suburb	Westport	**City/Region**	Buller District
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Warren and Mahoney
Fire Engineer	[redacted], GHD Olsson Fire & Risk Consulting Engineers
Fire Report Title	Fire Compliance Report Buller Health 45-46B Cobden Street Westport
Fire Report Date	05/12/2019
Version	1
Identifier	12507545

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	x	x
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	2325m^2	**Fire Alarm Type**	7
Building Height	8.5m	**No. Floors – Above**	1
Escape Height	0m	**No. Floors – Below**	0

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Birthing Room	Ground	SI	5	C/AS2
2	Sleeping Rooms	Ground	SI	26	C/AS2
3	Remiander of Building	Ground	CA	300	C/AS2

Description of the Proposed Works

The proposed works include the construction of a new single-storey medical care building containing consulting rooms, dental facilities, treatment rooms, palliative care, a birthing suite and supporting sleeping rooms.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Assessment Methodology

The Synopsis section of the fire report states that the design philosophy follows Acceptable Solution C/AS2 for compliance. However, Section 1 of the fire report states that the occupants of the birthing room are unable to self-evacuate. For this reason, the birthing room is fire separated from all other spaces and provided with a horizontal safe path with egress direct to the outside from there.

Fire and Emergency notes that delivery rooms are specifically stated to be outside the scope of Acceptable Solution per C/AS2, 1.1.2 (c) as evacuation from delivery room is expected to be delayed due to nature of its usage. Patients may be subject to sedation or epidurals during difficult birth and require assistance to evacuate. Other project of the same nature suggests that in worst case it could take up to 30 minutes to prepare patients and move them out.

A lower level of mobility of occupants/patients within the post-natal rooms/recovery rooms can also be expected due to the following:

- Patients that have undergone caesarean section are not likely to be able to self-evacuate.
- Patient just gone through labour may be exhausted and require assistance to evacuate.
- Patient may have suffered complications (e.g. severe blood lost and/or subsequent stitches) may be extremely uncomfortable and may have reduced mobility.
- New-born babies usually stay with their mother in the post-natal rooms. In an emergency situation, patients may need to evacuate holding their new born, which will slow down their evacuation.

Therefore, the design of the building is outside the scope of C/AS2 and an alternative design methodology should be used.

Fire and Emergency advises the BCA to require the occupant to revise the design use a suitable alternative methodology in order to demonstrate compliance to the Building Code.

Notwithstanding the above, the following advice are provided based on its compliance to C/AS2 requirements.

2. MEANS OF ESCAPE

2.1 Procedure/Treatment Room

Table 2 of the fire report indicates provision of procedure and treatment rooms (G038, G040, G042 & G043) within the building, and that fire drawing FER103 classified the occupancy within these spaces as “working/office” rather than “care”.

The report is silent on if there will be procedures/treatment using sedation, which will be classified as Risk Group SI per Table 1.1 of C/AS2 and that fire separation will be required for these spaces per Paragraph 4.6.13 of C/AS2.

Fire and Emergency advises the BCA to require the applicant to clarify if there will be any procedure/treatment involving sedation, and if necessary, to provide the required fire separation in order to demonstrate compliance to the Building Code.

2.2 Direct Support Function

C/AS2 Paragraph 4.6.3 permits direct support function to take place within group sleeping area. However, Fire and Emergency notes that a direct support function is defined by the Acceptable Solutions as ‘*open areas of low risk and fire load*’.

The proposed staff rooms that are located within the group sleeping firecell appear enclosed and may contain higher fire load such as sofa etc. These space does not meet the definition for direct support function and is required to be fire separated.

Fire and Emergency advises the BCA to require the applicant to revise the design and provide the required fire separation to the staff areas in order to demonstrate compliance to the Building Code.

2.3 Fire Doors

Section 3 of the Scope of Work and Section 4.5 of the fire report states the specific door requirements including fire rating for doors. Fire and Emergency notes that all the fire doors are listed without insulation, which do not comply with Table 4.2 of C/AS2 where a minimum of 30 minutes insulation is required for Risk Group SI. This oversight has also been carried on to the Architectural schedule.

Fire and Emergency advises the BCA to require the applicant to revise the design to provide the required insulation for all SI fire doors in order to demonstrate compliance to the Building Code.

2.4 Completeness of Documentation

The plans and specifications provided to Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C)

that require specific installation or commissioning inspections during the Construction Monitoring phase.

d. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

3. FIREFIGHTING NEEDS

3.1 Horizontal Fire Spread for Sleeping Firecells

While the proposed building is located remote from the site boundaries, the site drawing shows there are other buildings located on the same site with unclear separation distance and timeframe to be demolished. As the proposed building contains sleeping occupancy, assessment on horizontal fire spread to notional boundary is required per paragraph 5.2 of C/AS2. The fire report is silent on this aspect.

Fire and Emergency advises the BCA to require the applicant to clarify the timeframe for proposed adjacent building demolition and if required, to provide the horizontal fire spread assessment for sleeping firecells in order to demonstrate compliance to the Building Code.

3.2 Firefighting Facilities

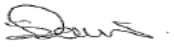
The fire report indicates that fire alarm system and sprinkler are proposed to be installed throughout the building. The fire drawing shows the proposed location of the fire alarm panel and sprinkler inlet but does not indicate that these locations have been approved by Fire and Emergency NZ. Therefore, the fire report has not demonstrated how the fire design complies with paragraph 6.2.1 of the acceptable solutions.

Fire and Emergency notes that NZS 4512:2010, Paragraph 403.1 requires the location of multi-zone fire alarms to be approved by Fire and Emergency NZ, and that NZS 4541:2020, Paragraph 6.10.2 requires the location of sprinkler inlet to be approved by the fire brigade. If these approvals do not accompany the consent documentation, then any location proposed cannot be considered as a final location.

Fire and Emergency advises that the BCA requires the applicant to demonstrate that the proposed locations have been agreed with Fire and Emergency.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Stephen Reeves**		7 October 2020
Checked by:	**Angela Chen**		9 October 2020
Approved by:	**Simon Davis**		9 October 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
GHD Fire Drawings	05/12/2019	12507454	1
Warren & Mahoney Architect Drawings	15/05/2019	8880	E

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	14 September 2020
Design Review No	15363

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Christchurch City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCN/2020/9089	**Contact**	Building Consent Administrator

Property Information			
Street Number		**Legal Description**	-
Street Name	Annex Road		
Town/Suburb	South Middleton	**City/Region**	Christchurch
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted], Cosgroves Ltd
Fire Report Title	Hillmorton Hospital SMHS Annex Road Christchurch Fire Safety Strategy Report
Fire Report Date	19/08/2020
Version	B
Identifier	CC18238

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	IFSC – 4,550 m^2 HCN – 1,760 m^2	**Fire Alarm Type**	Type 7
Building Height	IFSC – 10.5 m HCN – 8.7 m	**No. Floors – Above**	2
Escape Height	IFSC – 4.5 m HCN – 3.4 m	**No. Floors – Below**	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Integrated Family Services Building (IFSC)	G	SI	293	Alternative Solution
	1	WB	104	
High & Complex Needs Building (HCN)	G	SI	86	
	Intermediate	WB	5	

Description of the Proposed Works

This consent application concerns the construction of two, new buildings– which is identified as 'High and Complex Needs'(HCN) and 'Integrated Family Services Centre'(IFSC) - at CDHB Hillmorton, Christchurch as well as alterations to the existing 'Energy Centre complex'.

Section 1.1 of the fire report states that *the 'High and Complex Needs' building is single storey with an intermediate floor plant room and caters for high security and youth services and the 'Integrated Family Services Centre' building includes an upper level containing staff workspaces, staff amenities and plant.*

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Exit Opening to Landscaped Area –

The fire plan FSK03 and FSK05 shows the locations of exit signs and egress routes from the IFSC and the HCN building.

However, Fire and Emergency observes from the landscaping plans IGL_2.40.03, IGL_2.40.04, and IGL_1.10.00 that the exit doors from sleeping firecells and egress doors from the HCN building open on to a landscaping area as shown in the figures below and cannot verify whether a pathway from this door to a safe place has been provided.

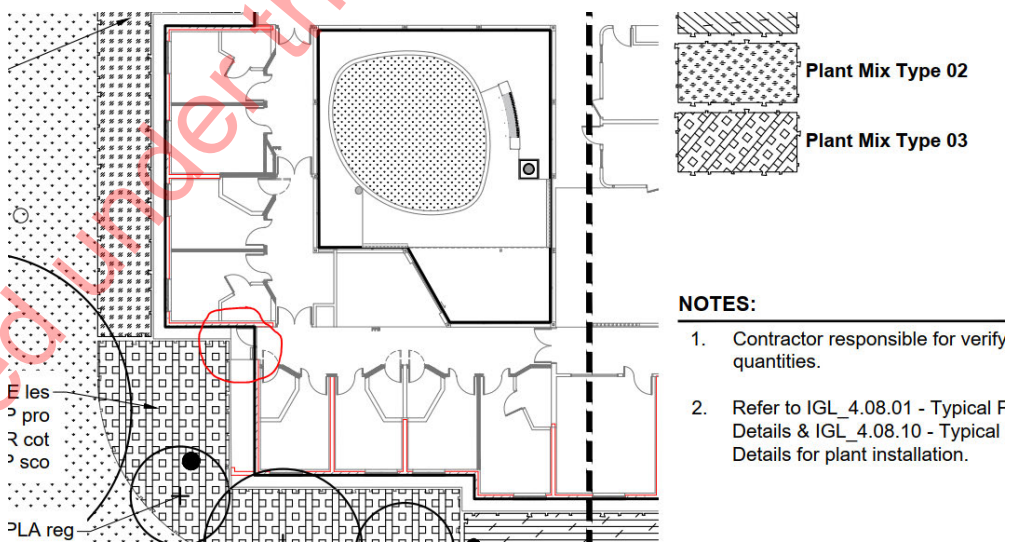


Figure 1 - Egress door from the Youth sleeping firecell(IFSC) - Extracted from the landscape plan IGL2.40.03

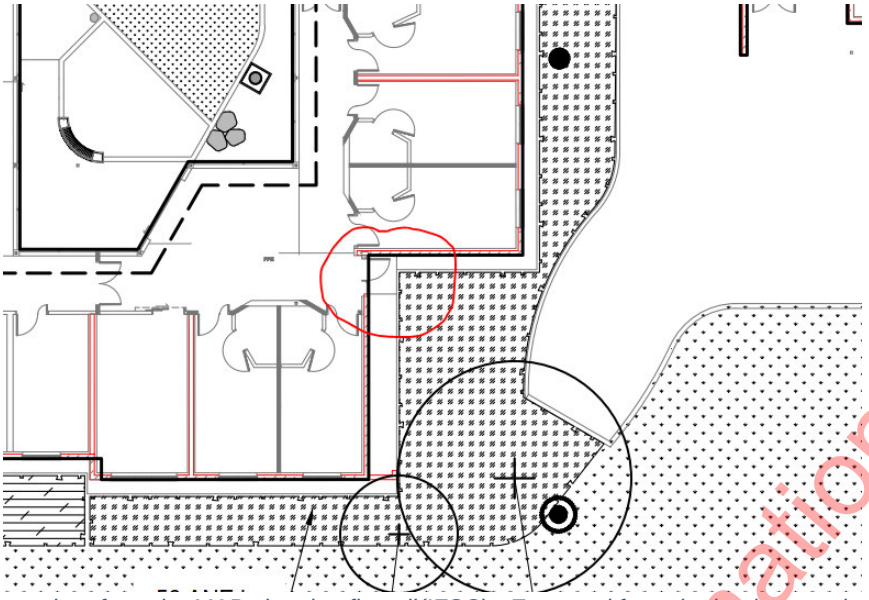


Figure 2 - Egress door from the M&B sleeping firecell(IFSC) - Extracted from the landscape plan IGL_2.40.04

Figure 3 - Egress doors from the HCN building - extracted from the landscape plan IGL_1.10.00

Fire and Emergency notes that the documentation cannot demonstrate that these external escape routes will comply with Clauses D1 and F6 of the Building Code.

Fire and Emergency advises that the BCA requires the applicant to address the issues relating to the external escape route in order to demonstrate compliance with the Building Code.

1.2 Egress Doors from courtyards

Section 4.5.6 of the fire report states that *manual sliding doors can only be used as designated escape routes if they serve an occupant load not exceeding 20 people and doors in rooms with an occupant load no greater than 50 people may have doors opening inwards.*

Fire and Emergency observes from the architectural plans that the courtyards of the IFSC building are served by sliding doors and cannot verify from the architectural plan A-3015 that those sliding doors are automatic sliding doors with fail safe functions.

Fire and Emergency notes that manual sliding doors are not permitted to be part of the means of escape when they are used by more than 20 people as per C/VM2, paragraph 3.2.6.

Fire and Emergency advises that the BCA requires the applicant to clarify the occupant load of each courtyard of the IFSC and the HCN building and, if it is necessary, address the provision of a means of escape door and the exit signages from courtyards in order to demonstrate compliance with the Building code.

1.3 Upper Floor Spaces

The fire drawings include several sections through the HCN and ISCN buildings. Fire and Emergency notes the following points:

a. For the HCN building, these drawings show the wall near gridline Y is to be a fire separation, but the wall between gridlines W and X is not shown to be a fire separation. It is unclear if this is a drawing error or a deliberate design intent. Should the upper floor not be fully fire separated then it should be treated as an intermediate floor and the fire report is silent on this aspect of the design. This is shown in Figure 4 below.

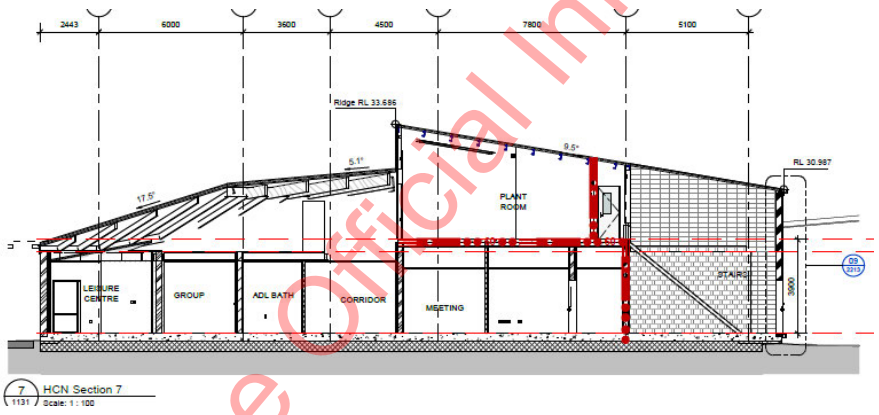


Figure 4 – Fire separations surrounding upper floor - extracted from the fire drawing FSK14

b. For the ISCN building, these sections show a mixture of fire separations, smoke separations or no separation at all (refer FSK-19 and 20). Again, it is unclear if this is a drawing error or a deliberate design intent.

Appendix C of the fire report includes only a single calculation to determine the required fire ratings of these spaces, and this is inconsistent with the requirements of C/VM2 paragraph 2.4.3.

Fire and Emergency advises the BCA to require the applicant to clarify if the upper floor space is a separate firecell or an intermediate floor and revise the fire rating calculations as required to consider this space in a consistent manner.

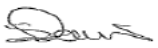
Fire and Emergency Recommendations

Fire and Emergency observes from the fire protection drawings that the sprinkler main crosses a number of fire separations that are expected to form separate evacuation zones within the two buildings. We recommend that the sprinkler drawings be reviewed with consideration of the zoning of the building to ensure that the fire engineering objectives can be achieved as the current design may not be able to support the zoning required by the fire engineering design. We note that reliance on the buildings smoke detection system for determining the location of the fire may not be enough in spaces that are not provided with smoke detection.

Fire and Emergency recommends that the fire protection drawings be reviewed to ensure consistency with the zoning requirements of the fire engineering design.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		9 September 2020
Checked by:	**Paul Richards**		12 September 2020
Approved by:	**Simon Davis**		14 September 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Cosgroves, Fire Plans (Consent set)	19/08/2020	CC18238	B
Cosgroves, Fire Fotection Plans (Consent set)	04/08/2020	CC18238-E	C
Klein Ltd, Architectural Plans (Consent set)	05/08/2020	3.1213	F
BECA, Electrical Plans (Consent set)	21/08/2020	-	0

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	10 February 2021
Design Review No	16058

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Christchurch City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCN/2021/180	**Contact**	Building Consent Administrator

Property Information			
Street Number	-	**Legal Description**	Hillmorton Hospital
Street Name	Annex Road		
Town/Suburb	South Middleton	**City/Region**	Christchurch
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Ruamoko Solutions
Fire Engineer	[redacted], Powell Fenwick Consultants Ltd
Fire Report Title	Fire Statement HILLMORTON HOSPITAL FOOD SERVICES BUILDING
Fire Report Date	29/07/2020
Version	A
Identifier	200910/F

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not Stated	**Fire Alarm Type**	6
Building Height	Not Stated	**No. Floors – Above**	2
Escape Height	Not Stated	**No. Floors – Below**	1

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Food Service	B & G	WB	50	C/AS 2

Description of the Proposed Works

This consent application concerns an existing, single storey food service building with a basement and upper floor plant room undergoing a seismic strengthening work.

Architectural plans have not been provided. Therefore, Fire and Emergency cannot confirm that the requirements of the fire design suggested have been reflected on the other disciplines' drawings and cannot verify the life safety requirement indicted in the fire report (i.e. travel distance, egress routes, locations of exits and so on). The review in this memo is based on the plans provided.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

No overall building score in line with MBIE guidance[1] has been provided.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Extent of Assessment

The consent documentation indicates that Section 112 of the Building Act is intended to be used in order to demonstrate compliance with the Building Code. The designer has not demonstrated that the extent of assessment provided is appropriate for this consent as no overall MBIE score or similar has been provided.

While the fire report has report has provided some information regarding existing fire safety features such as fire separations, the extent of compliance of this fire safety features is unclear. Fire and Emergency considers that FER does not contain sufficient information to support the review, such as fire drawings clearly indicating the existing fire safety features, travel distances and building usage. Fire safety features such as existing fire separations should be clearly indicated on the fire drawings and any associated drawings so they can be fire stopped and maintained appropriately.

Based on the above, Fire and Emergency considers that compliance of the means of escape requirements with the Building Code has not been demonstrated.

Fire and Emergency advises that the BCA requires the applicant to either:

a. robustly justify the extent of assessment provided, or

b. provide additional information regarding the existing fire safety features and their achieved level of compliance, to inform the outcome of any ANARP assessment,

in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

1.2 Smoke Lobby – Basement

Fire and Emergency observes from the basement emergency lighting layout plan that the basement is serves by a single means of escape and the egress stair to the ground floor is not proceeded by a smoke lobby.

The fire report has not addressed the means of escape requirements from the basement. For example, a safe path serving basement is required to be proceeded by a smoke lobby in accordance with C/AS2, paragraph 3.5.1.

Fire and Emergency advises that the BCA requires the applicant to address the issues related to the means of egress provisions identified above in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		3 February 2021
Checked by:	**Omar Abu-Hijleh**		5 February 2021
Approved by:	**Simon Davis**		10 February 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Powell Fenwick, Emergenc Ligting Plans (Consent set)	28/08/2020	200910/E	A
Ruamoko Solutions, Structural plans (Consent set)	21/07/2020	1933	2

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	16 February 2021
Design Review No	16073

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Christchurch City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCN/2020/12111	**Contact**	Building Consent Administrator

Property Information			
Street Number	2	**Legal Description**	
Street Name	Riccarton Avenue		
Town/Suburb	Central	**City/Region**	Christchurch
Owner/Registered Proprietor	Canterbury District Health Board		
Premises / Company Name	Christchurch Hospital		

Design Details	
Architect	Ikon Architects
Fire Engineer	[redacted], GHD
Fire Report Title	Canterbury District Health Board CDHB Campus-Wide Fire Engineering Fire Engineering Report - Christchurch Women's Hospital Foyer
Fire Report Date	14/12/2020
Version	0
Identifier	12531907

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	**Fire Alarm Type**	Type 7
Building Height	Not stated	**No. Floors – Above**	6
Escape Height	Not stated	**No. Floors – Below**	1

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Lobby	G	SI	Not stated	C/AS2

Description of the Proposed Works

This application for consent concerns proposed passive fire remediation to the Christchurch Women's Hospital ground floor foyer. The proposed work includes provision of new fire wall to stair, new fire curtain and new fire window associated with the ground floor lobby, and provision of the associated passive fire stopping. Purpose of the work is to provide complete fire separation to the stair per the intent of the original fire engineering design.

The original fire design for the Christchurch Women's Hospital is not provided in the consent package nor was it sighted by Fire and Emergency previously, hence we are not able to verify intent of the original design. Fire and Emergency's review is therefore limited by information received.

The level of information provided in the fire report is similar to a statement of change report, while no building risk score is provided in support of this approach, considering nature of the work proposed is rather limited and provides an "upgrade" to the building fire design, no comment is made in regard to the extent of review. Subject to BCA's decision, the project could potentially be considered under S112 (2) of the Building Act.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has not provided an overall building score in line with MBIE guidance[1]

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Compliance Route

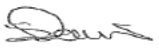
While Section 1.3 of the fire report acknowledges that the hospital would require an Alternative Solution compliance pathway, it is assumed that C/AS2 is an appropriate benchmark for determining fire resistance ratings for vertical safe paths and fire separations. No detail justification for the assumption nor evidence of BCA's agreement on the proposed compliance path is provided in the consent package.

Fire and Emergency advises the BCA to satisfy itself that the proposed compliance route for the proposed fire remediation work is appropriate and sufficient to address the safety requirement of Hospital.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		5 February 2021
Checked by:	**Paul Richards**		12 February 2021
Approved by:	**Simon Davis**		16 February 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix A Fire Drawing	14/12/2020	-	0
Architectural drawing set	18/12/2020	2136	01

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	16 March 2021
Design Review No	16250

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Christchurch City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCN/2021/1137	**Contact**	Building Consent Administrator

Property Information			
Street Number	2	**Legal Description**	
Street Name	Riccarton Road		
Town/Suburb	-	**City/Region**	Christchurch
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Ikon Architects
Fire Engineer	[redacted], GHD
Fire Report Title	Canterbury District Health Board (CDHB) City Campus - Parkside Building - Blocks A & B Fire Engineering Report
Fire Report Date	February 2021
Version	0
Identifier	12531907

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	**Fire Alarm Type**	Type 7
Building Height	Not stated	**No. Floors – Above**	5
Escape Height	Not stated	**No. Floors – Below**	-

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Parkside Block A & B	LG – L3	SI	436	Alternative Solution

Description of the Proposed Works

This application for consent concerns proposed passive fire upgrade (remediation of fire stopping defects) to Block A of the Parkside Building on the Christchurch Hospital site. The proposed work has been prioritised based on NFPA101A Risk Assessment approach. Note that while the fire report states it covers both Block A and Block B of the Parkside Building, the consent application form and supporting document, e.g. provided mark-up in Appendix B, reflects work for Building A of the Parkside Building only.

The Parkside building is an existing five level building with a lower ground level and three levels above the ground floor. The building is subdivided into a number of firecells and this includes ward spaces, as well as consulting spaces and recovery areas. Currently the ICU is located within this portion of the building however due to the opening of the new Hagley building, the level of care required for patients will reduce as they are migrated over to the new building.

As stated in Section 1.3 of the fire report, the previous submitted FEBs and the associated stakeholder comments have not been closed out. The reference to "approved FEB" throughout the fire report is incorrect.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements will apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has not provided an overall building score in line with MBIE guidance[1]

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Lower Ground Assessment

Table 3 and Table 4 of the fire report included the risk assessment result for Lower Ground, however, the proposed reference design is not provided in Appendix B. Furthermore, no zone usage and occupancy assessment provided for the floor in Appendix C. The assessment level for Lower Ground floor is therefore unclear and requires clarification.

Fire and Emergency advises the BCA to require the applicant to provide clarification and supporting information for the Lower Ground assessment, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

1.2 Benchmark/Reference Design

Appendix E of the fire report presented the outcome of assessment following C/VM2 framework for Zone PRK-1-04. However, no analysis of the balance of the building to determine the reference design has been undertaken. In that context of the wider design philosophy the reference design for other zones of this building was required to be assessed against C/AS2 as outlined in Appendix C of the FEB document. In effect the fire design relies on a single challenging fire for the entire block.

It is noted that the proposed design scenario is the ICU unit where staff / patient ratio is higher than other parts of the hospital.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Fire and Emergency advises the BCA to require the applicant to provide details of the reference design in order to support the proposed building assessment and demonstrate compliance to the Building Code to the extent required by the Building Act.

1.3 ASET / RSET Assessment

Section D1 of the fire report presents the proposed ASET/RSET assessment for the challenging fire scenario in the selected design scenario. However, its noted that the modelling files have not been provided for review. Fire and Emergency notes the following:

a. The text suggests that the entire zone has been modelled as a single compartment. If this is correct, Fire and Emergency questions the validity of the proposed approach, typically the fire origin bedroom is to be considered as the zone of fire origin with spaces outside modelled separately as area outside zone of fire origin.

b. The fire report states that smoke detectors operate at 27 and 29 seconds depending on the ceiling height. Fire and Emergency observes that this building operates on a double knock smoke detection and therefore the design is required to consider the activation time of the second smoke detector which may not even be in the room of origin.

c. No consideration of alarm verification by staff is included in the RSET analysis as required by C/VM2.

Both the ASET and RSET are required to be amended.

Fire and Emergency advises the BCA to require the applicant to amend the ASET/RSET Assessment to reflect the actual zone layout, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

1.4 Unaddressed FEB Comments

The consent documentation includes a copy of the Collated Stakeholder Review QA log where responses to comments made by Fire and Emergency at FEB stage were provided with some items stated being closed.

No response was ever received by Fire and Emergency till receipt of consent by Council and that the stated comment close date is earlier than the issue date for revision 1 of our comments (18 December 2020). According to our records all of the comments raised in revision 1 of the FEB are outstanding.

In the context of an alternative solution design, the following comments raised during FEB stage are considered unaddressed:

a. Section D1.4 of the fire report states the zone has a total of 12 patients assisted by 3 teams of 2 staff, which means staff will have to re- enter the fire affected spaces to evacuate patients. The increased risks associated with this has not been taken into account in the proposed assessment.

b. The impact of low visibility on occupant movement rates has not been considered in the proposed assessment.

Fire and Emergency advises the BCA to require the applicant to amend the fire report to address the above issues, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

1.5 Inconsistent Documentation – Smoke Control

Appendix D of the fire report details the Fire Risk Assessment calculations where proposed fire separation upgrade work is a critical part of smoke control. Appendix B drawings summarised “fire separation with FRR of 60/60/60 including doors with -/60/-sm FRR with a self-closer” as part of the Reference Design.

This requirement is however not included in the Section 8 Conclusion of the fire report being part of the proposed work.

Fire and Emergency advises the BCA to require the applicant to amend the fire report to provide the same design requirement, or to redo the fire risk assessment according to the proposed design, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

1.6 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. The location of proposed emergency lighting shown clearly on the drawings.

d. The location of proposed exit signage shown clearly on the drawings.

e. Confirmation of the Compliance Schedule entries and indicative maintenance, management and operational requirements in respect of fire safety-related systems (as specified in Practice Note 22, Appendix C).

Fire and Emergency advises the BCA to ensure the applicant to provide the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		9 March 2021
Checked by:	**Paul Richards**		15 March 2021
Approved by:	**Simon Davis**		16 March 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix B Fire Drawings	-	12531907	1
IKON Architectural drawing set	24/02/2021	2158	01

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	03 May 2021
Design Review No	16482

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Christchurch City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCN/2021/2680	**Contact**	Building Consent Administrator

Property Information			
Street Number	132-138	**Legal Description**	St Georges Hospital
Street Name	Heaton Street		
Town/Suburb	Merivale	**City/Region**	Christchurch
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Totem Studio Architects Ltd
Fire Engineer	[redacted], Powell Fenwick Consultants Ltd
Fire Report Title	Fire Engineering Report CANCER CARE BUNKER EXTENSION ST. GEORGES HOSPITAL
Fire Report Date	02/03/2021
Version	A
Identifier	200749/F

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)	75	X	X

Building Characteristics			
Footprint	Not stated	**Fire Alarm Type**	Type 7
Building Height	Not stated	**No. Floors – Above**	1
Escape Height	Not stated	**No. Floors – Below**	1

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Entire bunker	G	SI	10	C/VM2?

Description of the Proposed Works

This application for consent concerns construction of cancer care bunker 3 linked to, but fire separated from, the existing hospital reception at the St Georges Hospital site. The proposed bunker building consists of a single storey housing the linear accelerators with fire separated subfloor space. The basement contains base isolators and some service reticulation. The existing Type 7 sprinkler and smoke detection system is to be extended throughout the building extension.

This consent does not include the fit-out of the new bunker.

Fire and Emergency had previously reviewed building consent BCN/2014/8365 for the existing bunkers under DR 7031.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has not provided an overall building score in line with MBIE guidance[1]

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Notification Time

Section 4.9 of the fire report summarises the input parameters into the RSET analysis. The detection time is based on the smoke detection activation and a default 30 second notification time is used based on the value in C/VM2.

As this building does include staff investigation following a single smoke detector activation, the base building assessment, in lieu of quantifying the investigation time, used activation of the sprinkler system along with the 30 second verification time and did not include any additional time for staff investigation as described in C/VM2 paragraph 3.2.2 (refer Section 7.9.3 of the FEB report for Stage 3, St Georges Hospital)

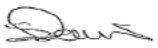
As the current design was intended to be an extension of the original FEB and design philosophy, it should follow the same assessment methodology. The current approach relies on the smoke detectors for the detection time and does not consider any staff investigation and therefore is not consistent with the approach taken for the balance of the hospital complex or the approved evacuation scheme. Given the limited margin between ASET and RSET this may be significant.

Fire and Emergency advises the BCA to require the applicant to revise the design assessment to be in line with the balance of the building and the approved evacuation scheme and, if required, revise the design to address any issues arising from that change in order to demonstrate compliance with the Building Code.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		28 April 2021
Checked by:	**Paul Richards**		3 May 2021
Approved by:	**Simon Davis**		3 May 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix B Fire Drawings	2 Mar 2021	200749	A
Architectural drawing set	14/04/2021	-	-

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	15 July 2021
Design Review No	16828

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Christchurch City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCN/2021/4928	**Contact**	Building Consent Administrator

Property Information			
Street Number	150	**Legal Description**	
Street Name	Heaton Street		
Town/Suburb	Merivale	**City/Region**	Christchurch
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Wilson & Hill Architects Ltd
Fire Engineer	[redacted], Powell Fenwick Consultants Ltd
Fire Report Title	Fire Statement Heaton Street Consulting Rooms 1 Base Build St Georges Hospital
Fire Report Date	18/06/2021
Version	A
Identifier	201032/F

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112		
Change of Use	115		
Waiver	67	X	X
Other (specify)	75 & 77	X	X

Building Characteristics			
Footprint	1140m^2	Fire Alarm Type	Type 7
Building Height	Not stated	No. Floors – Above	2
Escape Height	3.8m	No. Floors – Below	

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Medical consulting	GF	SI	120	C/AS2
2	Medical consulting	1F	SI	135	C/AS2

Description of the Proposed Works

This application for consent concerns construction of a new two level medical consulting building and associated carpark on St Georges Hospital site. This consent is stated to cover the base build work only, fit-outs for the tenancies are to be separate consent.

The fire report states that the building will contain procedure rooms that may include some mild sedation (e.g. for dental surgery) but no allowance for General Anaesthetic.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Timber Ceiling Feature in Main Lobby

Section 4.2.1 of the fire report states that the internal surface finishes within the safe path stairs are to achieve a maximum of Group 2 performance when assessed to ISO 5660 or ISO 9705. However architectural drawing A-112 shows a timber decorative feature on the underside of both the walkway and the upper level ceiling. As the fire report is silent on this construction detail, it is unclear how it achieves the requirements of the fire report and the Building Code.

Fire and Emergency advises the BCA to require the applicant to revise the design and design documentation as required in order to demonstrate compliance of the internal surface finishes within the building meet the performance requirements of the Building Code.

1.2 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

b. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

c. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

Fire and Emergency advises the BCA to ensure the applicant to provide the information listed above in order to demonstrate compliance with the Building Code.

2. FIREFIGHTING NEEDS

2.1 External Fire Spread - Waiver to Building Code

Section 5.1 of the fire report states the building is built over a number of titles, hence the intention to tie them together under Section 75 and 77 of the Building Act, and, in addition, a waiver will be applied in respect to external fire spread to the western and southern boundaries based on proposed memorandum of encumbrance.

No evidence of these applications is included in the consent package. Given the site layout, Fire and Emergency has no concerns relating to the proposal. It is noted that the decision rests with the BCA, who should ensure that the relevant legal arrangements are in place.

Fire and Emergency advises that the BCA satisfies itself that the appropriate legal framework is provided to support the fire design with respect to external fire spread in order to achieve compliance with the Building Act.

2.2 Firefighting Facilities

The fire report indicates that a new Type 7 fire alarm and sprinkler system is to be installed under this consent, although drawings has specified the proposed location of the fire alarm panel and sprinkler inlet, there is no supporting evidence that the locations have been agreed with Fire and Emergency. Without this supporting evidence, compliance with NZS4512 & NZS4541 (and hence with C/AS2 paragraph 6.2.1) has not been established.

Fire and Emergency advises the BCA to require the applicant to demonstrate that the proposed locations have been agreed with Fire and Emergency.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		8 July 2021
Checked by:	**Paul Richards**		15 July 2021
Approved by:	**Simon Davis**		15 July 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix B Fire Safety Features Drawings F1 – F3	18 Jun 2021	201032	F
Architectural drawing set	21/06/2021	799	H

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	25 August 2021
Design Review No	17061

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Christchurch City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BCN/2021/6224	**Contact**	Building Consent Administrator

Property Information			
Street Number	132-138	**Legal Description**	St Georges Hospital
Street Name	Heaton Street		
Town/Suburb	Merivale	**City/Region**	Christchurch
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Totem Studio Architects Ltd
Fire Engineer	[redacted], Powell Fenwick Consultants Ltd
Fire Report Title	Fire Engineering Report CANCER CARE BUNKER EXTENSION FOR ST. GEORGES HOSPITAL
Fire Report Date	14/07/2021
Version	D
Identifier	200749/F

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	320m² (extension only)	Fire Alarm Type	Type 7
Building Height	7.3m	No. Floors – Above	1+ Mezz
Escape Height	3.6m	No. Floors – Below	1

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Cancer care bunker	1	SI	10 in extension only	Alternative solution

Description of the Proposed Works

This consent relates to the construction of a new linear accelerator bunker at St Georges hospital. This is to service the adjacent cancer treatment centre. As the original portion of the cancer care bunker was constructed in 2014, this assessment has been limited to the extension only.

The fire report is, in essence, an 'alternative solution' based on the requirements of C/VM2.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. As evacuation to an external place of safety is proposed, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 RSET Calculation

Section 4.9 of the fire report calculates the RSET time based on the activation of a single smoke detector and the default 30 seconds alarm verification time in C/VM2. The fire report refers to C/VM2 paragraph 3.2.2 to justify the use of this figure.

Fire and Emergency observes that the full text of C/VM2 paragraph 3.2.2 states:

> *For non-standard evacuation strategies (for example, management investigating sole activation), take account of the extended notification time.*

Fire and Emergency observes that the balance of the work undertaken in 2014 for this hospital included consideration of staff investigation via basing the detection time on the sprinkler activation time rather than the smoke detection time. Therefore, the current consent appears to be inconsistent with the evacuation procedures and the balance of the hospital design. Given the narrow margin between ASET and RSET this may have a significant impact on the demonstration of compliance.

Fire and Emergency advises the BCA to require the applicant to revise the ASET vs RSET assessment and the design as required to be consistent with the approved evacuation scheme in order to demonstrate compliance with the Building Code.

1.2 Internal Surface Finishes

Section 4.7 of the fire report identifies the internal surface finishes applicable to the building extension. This identifies a maximum group number of 2 for walls and ceilings throughout the building. The fire report refers to the architectural documentation for the specifies surfaces. Fire and Emergency notes the following points:

a. Wall type F01 is shown to include a 180mm dado rail. While this could may be decorative trim, given the wall height of 2700mm, a 180mm high rail will exceed 5% of the wall area and therefore does not fall under exemption (d).

b. Wall type F04 as shown on architectural drawing A1.08 is stated to be 12mm Timber veneer panel. It is unclear how this meets the group number requirements.

c. The fire report is silent on the requirements applicable to flooring as identified in the IS scenario of C/VM2.

Fire and Emergency advises the BCA to require the applicant to revise the design and design documentation as required to demonstrate compliance with the Building Code.

1.3 Completeness of Documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

b. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises the BCA to ensure that the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

2. FIREFIGHTING NEEDS

2.1 Mezzanine floor plant room

Section 4.8 of the fire report states that the under the FO scenario the mezzanine floor plantroom floor achieves a fire rating of 60/-/-. Fire and Emergency notes the following points:

a. The fire report is silent on how the stairs (which provide the sole means of access to this plantroom) are to be fire rated. The FO scenario of C/VM2 requires intermediate floors to achieve a FRR of at least 30/30/-. While the structural adequacy is achieved, the fire report does not specify any integrity rating for this floor structure.

b. It is unclear how the structural adequacy is achieved, while some of the walls below this floor are concrete structure, a significant proportion of this supporting structure is not concrete, and the fire drawings show no fire rated structure.

Fire and Emergency advises the BCA to require the applicant to clarify how the fire rating requirements of the FO scenario have been satisfied for the mezzanine floor and access stairs in order to demonstrate compliance with the Building Code.

2.2 Fire Service Hose Run Distances

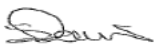
Fire drawing F1 shows the hose run distances for the ground floor space. However, the fire drawings do not show the extent of compliance of the new mezzanine floor plant room, noting that this space would require hose runs running around the rear of the building before coming back to the stairs and then up to the plant room.

In addition, as no drawings are shown for the plant rooms serving the existing bunkers, it is unclear if the proposed building extension impact on the compliance of hose run distances in these spaces as well.

Fire and Emergency advises the BCA to require the applicant do demonstrate fire service hose runs for the plant rooms achieves compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Paul Richards**		19 August 2021
Checked by:	**Angela Chen**		25 August 2021
Approved by:	**Simon Davis**		25 August 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Electrical drawings (Powell Fenwick)	27.07.21	200749	A
Architectraural drawings (Totem Studio Architects)	29.07.21	-0	2
Fire drawings (Powell Fenwick)	28.07.21	200749/F/1	A

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	22 January 2021
Design Review No	15960

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Kaipara District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC200650	**Contact**	[redacted]

Property Information			
Street Number	73	**Legal Description**	-
Street Name	Awakino Road		
Town/Suburb	-	**City/Region**	Dargaville
Owner/Registered Proprietor	NORTHLAND DISTRICT HEALTH BOARD		
Premises / Company Name			

Design Details	
Architect	Hawthorn Geddes Engineers & Architects Ltd
Fire Engineer	[redacted], Hawthorn Geddes Engineers & Architects Ltd
Fire Report Title	FIRE SAFETY COMPLIANCE REPORT FOR INTERNAL RECONFIGURATION OF DARGAVILLE MEDICAL CENTRE WAITING AND RECEPTION AREAS FOR NORTHLAND DISTRICT HEALTH BOARD / DARGAVILLE MEDICAL CENTRE AT 73 AWAKINO ROAD, DARGAVILLE
Fire Report Date	09/12/2020
Version	B1
Identifier	12086

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	**Fire Alarm Type**	Type 4 (medical centre only)
Building Height	Not stated	**No. Floors – Above**	Ground
Escape Height	~0m	**No. Floors – Below**	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Medical centre	Ground	SI/CA	132	C/AS2

Description of the Proposed Works

It is proposed to reconfigure the existing waiting area within the medical centre.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Extent of compliance of the whole building – fire separations

The consent documentation includes a gap assessment to demonstrate the fire compliance of the whole building on an "as near as reasonably practicable" (ANARP) basis. The gap assessment has been carried out against C/AS2.

The gap assessment identifies the following significant C/AS2 non-compliances;

a. much of the building lacks the smoke detection and fire suppression required by C/AS2 for SI Risk Groups, and

b. the historical fire safety assessments clearly state that many of the existing fire separations either do not meet Building Code requirements, or have not been maintained to the point where it is now unclear if they will provide any FRR.

Given the significant differences between the existing building design and the requirements of C/AS2, it is difficult to come to a reliable conclusion from the gap assessment on the extent to which this building complies with the Building Code requirements. Fire and Emergency considers that C/AS2 is not an appropriate assessment methodology to demonstrate that the whole building will comply ANARP.

In the absence of suitable supporting quantitative assessment of the compliance of the means of escape design, Fire and Emergency has significant concerns about the level of safety afforded to the occupants by the existing/updated design.

Fire and Emergency advises the BCA to require the applicant to provide a more suitable assessment to demonstrate that the means of escape from whole building will meet the performance requirements of the Building Code to the extent required by the Building Act.

1.2 Zip screen doors

The fire strategy plan (sheet no 12086) indicates that there will be two zip screen doors within the revised waiting area. Zip screen doors shown in the clouds in figure 1 below

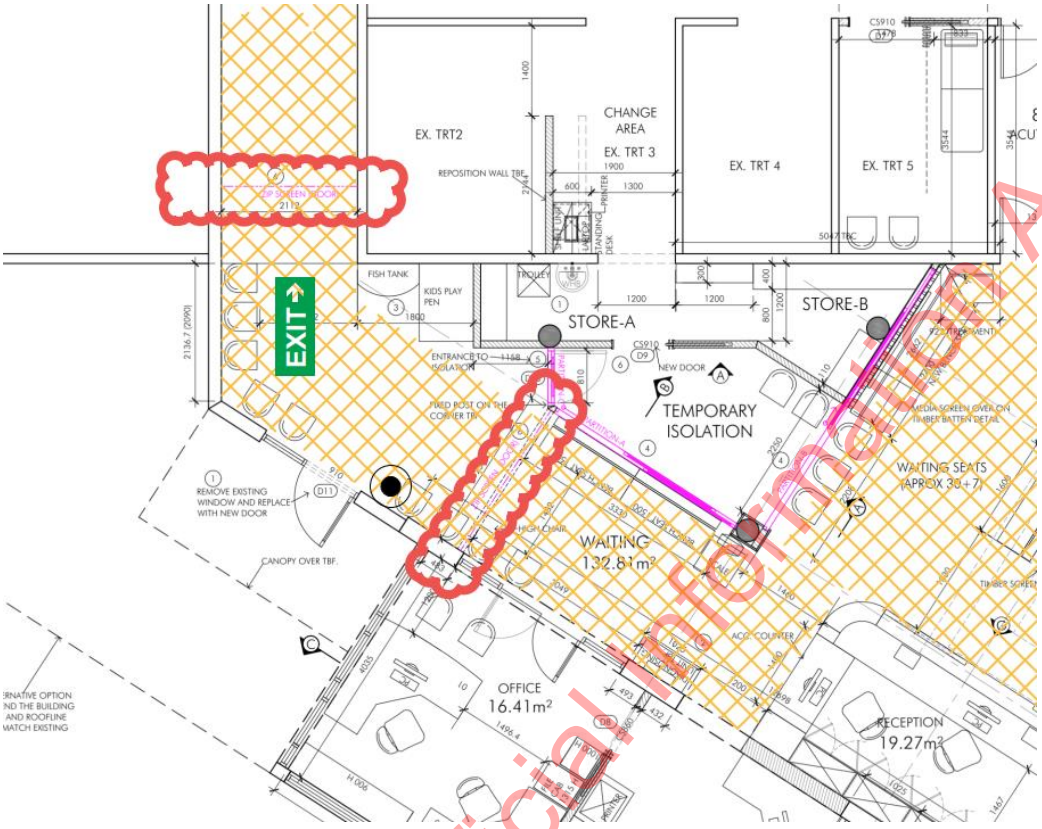


Figure 1: Excerpt from Fire Strategy Plan - showing location of zip screen doors (highlighted in clouds)

As the zip screen doors are located along a means of escape (the exit sign shown in the drawing directs occupants through the zip screen door), it should be established in the fire report how this construction meets the C/AS2, paragraph 3.15 requirements for doors located along escape routes. As new construction these doors should comply in full with any relevant Building Code requirements.

Fire and Emergency advises the BCA to require the applicant to demonstrate that any new doors along escape routes will meet the performance requirements of the Building Code.

Fire and Emergency New Zealand Recommendations

Delayed evacuation – evacuation scheme

The Hawthorn Geddes fire reports indicate that only the north wing of the building (containing the detox and maternity facilities) are sprinklered. Other areas are generally covered by Type 2 manual alarm. A progressive upgrade to provide smoke detection where works are being completed is proposed in the building-wide gap assessment and in the fire report for the medical centre.

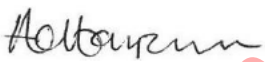
Fire and Emergency notes that the lack of sprinkler system throughout this building will impact the ability to gain an approved evacuation scheme for this building under Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018. Where a delayed evacuation strategy is adopted, it is expected that the sprinkler system be fully compliant with a relevant sprinkler Standard. This requires the entire building to be sprinklered.

Fire and Emergency recommends that the applicant take this into consideration in planning future upgrades of this building.

Disclaimer

The fire report indicates that property protection has not been addressed in this design (other than as required by the building code). This may impact on the insurability of the completed building, and may affect the ability of Fire and Emergency New Zealand to successfully extinguish a fire and thus reduce property loss.

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Amy Harpur**		18 January 2020
Checked by:	**Stephen Reeves**		21 January 2020
Approved by:	**Simon Davis**		22 January 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire report drawing set - Hawthorn Geddes	09 December 2020	12086	B1
Architectural drawing set – Hawthorn Geddes	10 December 2020	12086	B2

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	26 March 2020
Design Review No	14608

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Dunedin City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA-2020-401	**Contact**	Building Consent Administrator

Property Information			
Street Number	72	**Legal Description**	-
Street Name	Newington Avenue		
Town/Suburb	-	**City/Region**	Dunedin
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	McCoy and Wixon Architects
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	Mercy Hospital Level 2 Demolition Works - Fire Engineering Assessment for CPU Application
Fire Report Date	05/03/2020
Version	
Identifier	5399890

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)	CPU for Partial Demolition	x	x

Building Characteristics			
Footprint	Not specified	**Fire Alarm Type**	Type 7
Building Height	Not specified	**No. Floors – Above**	4
Escape Height	Not specified	**No. Floors – Below**	0

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Pre-admissions and offices	2	SI/WB	50	Not specified

Description of the Proposed Works

This CPU application relates to the use of the northern end of Level 2,maitaining pre-admission area, offices and store, while the remainder of Level 2 undergoes demolition works. The existing building has a Type 7 system, and the proposed works will cap off and isolate the sprinkler and fire alarm system, only within the demolition areas.

Fire and Emergency notes that the proposed Level 2 wards is planned to be submitted for Building Consent at the end of March 2020.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Fire and Emergency New Zealand Advice

Fire and Emergency has previously provided design review advice, for Level 2 alterations to accommodate the pre-admissions area (DR Memo 13474). The advice in the previous memo still applies and the BCA is advised to review and satisfy itself that the comments have been satisfactorily addressed.

1. MEANS OF ESCAPE

1.1 Fire Separation

The fire plans indicate that the both, Stairs 3 and 4, are required to be outside the demolition zone and usable in an emergency. Demolition work for Stair 3 is noted to be only carried out when Level 2 is not occupied.

Fire and Emergency notes the following regarding the proposed fire separations:

a. It is noted in the fire drawings that the separation between the construction area and the areas where no works are being carried out, is being proposed to be as non-combustible.

   Fire and Emergency notes that NZS4541 Sections 205.1 and 205.2 require sprinkler firecells to be fully fire separated from the non-sprinklered firecells by no less than 120min FRR. The above noting that NZS4541 does not provide any allowances for temporary or permanent constructions.

   Fire and Emergency is highly concern that, if a fire starts within the construction areas (non-sprinklered) and it is not controlled, by the time it reaches the sprinkled protected area, it will overrun the sprinkler system and it may spread through the rest of the building. This will put the occupants of the rest of the building at great risk of fire, smoke and untenable conditions.

b. Architectural drawing A401 indicates that the fire separation of Stair 3 does not extend to the roof of the building. From Note 14, the ceiling to the stair is proposed to be demolished, which connects Stair 3 to the demolition zone. Although the fire plans indicate a hoarding line constructed of non-combustible materials, this stair should be rectified to be compliant with the fire separation requirements of an exitway or the sprinkler standard, whichever is more onerous.

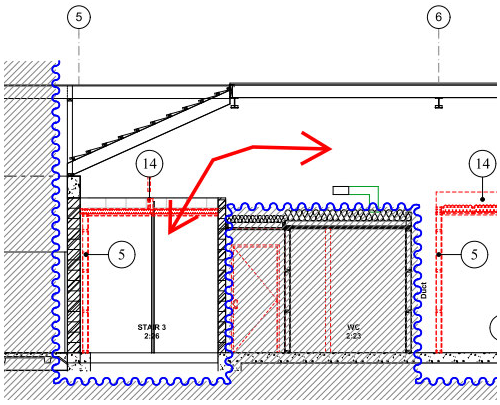


Figure 1 – Fire separation of Stair 3

c. Architectural drawing A401 indicates that the lobby wall which is part of Stair 4 will be demolished. As this wall is required to be fire-rated, it is unclear why the hoarding line is not fire-rated. In addition to being a designated egress route from the Level 2 demolition zone, Stair 4 also serves as a means of escape from the levels below, with Level 1 appearing to be a ward area with a more vulnerable population. Therefore, maintaining fire separation of this stair is necessary, particularly since a fire occurring within the demolition zone will not be sprinkler controlled.

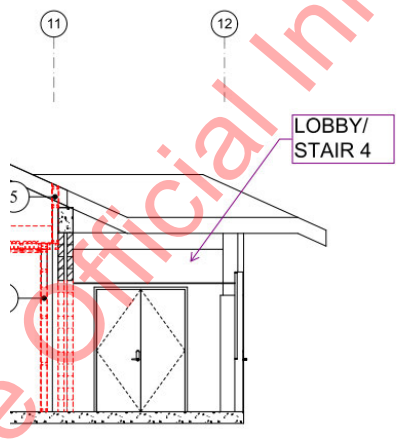


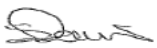
Figure 2 – Fire separation of Stair 4

The documentation provided does not indicate that the fire separation of the two exit stairs, which serves multiple levels of the building, will be maintained, and hence does not demonstrate compliance to the means of escape provisions of the Building Code.

Fire and Emergency advises the BCA to require the applicant to amend the documentation to demonstrate compliance with the means of escape requirements of the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Adeline Teo**		18 March 2020
Checked by:	**Eduardo Maciel**		24 March 2020
Approved by:	**Simon Davis**		26 March 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Beca fire plan FE-SK01 and FE-SK02	5 March 2020	5399890	A
McCoy Wixon architectural drawing set	9 March 2020	5641	B
Fire Protection Engineers plan FS3	6 March 2020	2625	B

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	21 April 2020
Design Review No	14703

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Dunedin City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA-2020-546	**Contact**	Building Consent Administrator

Property Information			
Street Number	72	**Legal Description**	
Street Name	Newington Avenue		
Town/Suburb	-	**City/Region**	Dunedin City
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	McCoy and Wixon Architects
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	Level 2 Wards Refurbishment Mercy Hospital Fire Engineering Report
Fire Report Date	26/03/2020
Version	0
Identifier	

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not specified	**Fire Alarm Type**	Type 7
Building Height	Not specified	**No. Floors – Above**	4
Escape Height	Not specified	**No. Floors – Below**	0

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Pre-administration and offices	2	WB	< 50	C/VM2
2	Bedrooms, nurse office	2	SI	10 patients, 4 - 7 staff	C/VM2
3	Bedrooms, training room	2	SI	10 patients, < 50 staff	C/VM2

Description of the Proposed Works

This building consent application relates to the proposed alterations of Level 2 of Mercy Hospital to accommodate ward areas. The building has a Type 7 system, which will be upgraded and altered to accommodate the fitout.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be “all out”, therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Dead End Open Path from Roof Space

Fire report Section 4.1.3 states that Scenario BE has been met as the longest roof plant space of each evacuation zone is less than 50 m.

Architectural drawings A209 and A210 indicates that the roof space has a single means of escape via the service stair above Stair 3, and that the dead end open path (DEOP) measured from the furthest point along the service walkway is approximately 113 m. The C/VM2 paragraphs 4.1 BE scenario, limits the DEOP to no more than 50m for areas and people who are familiar with the building.

As the alterations to the roof space are considered new works, the fire report has not demonstrated that the means of escape provisions within the roof space complies with the Building Code.

Fire and Emergency advises the BCA to require the applicant to demonstrate that the means of escape from the roof plant space complies with the Building Code.

1.2 Extent of Separation for the Firecell

Fire report Section 3.5 indicates that Scenario HS is not required to be assessed for internal alteration works. However, fire plan FE-K101 indicates that as part of the internal alterations, the clinical (ward) area is divided into 2 firecells along Gridlines 8 and 8a.

Fire and Emergency notes that there are bay windows along the western elevation that constitute unprotected openings between firecells. These are indicated in the mark-up in the figure below.

C/VM2 paragraph 4.5 requires horizontal fire spread to be addressed between firecells with sleeping occupancies. As architectural drawing A600 indicates that these windows are to be

replaced, an assessment of these windows is necessary and the design amended if required to prevent fire spread between the firecells.

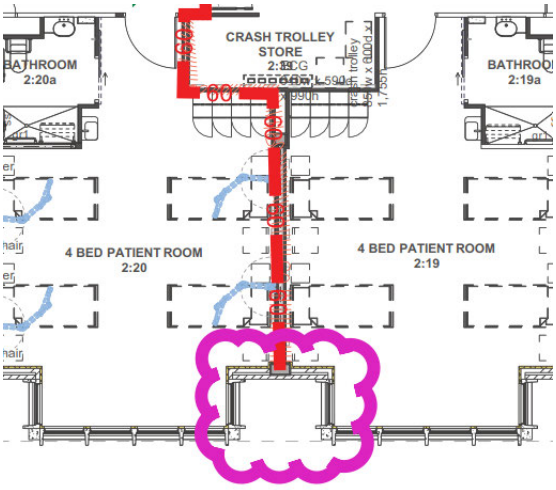


Figure 1 – Unprotected openings between firecells

Fire and Emergency advises the BCA to require the applicant to assess the risk of fire spread between firecells in order to demonstrate compliance with the Building Code.

1.3 Treatment of Service Penetrations

The architectural drawings indicate a number of services risers for mechanical and plumbing that do not appear to be within fire-rated shafts. It is unclear from the documentation provided if these services are being fire-stopped at the floor slab.

Fire and Emergency advises the BCA to require the applicant to confirm that service penetrations that are not within fire-rated shafts are adequately fire stopped in order to demonstrate compliance with the Building Code.

1.4 Fire-rated Doors – Coordination

The door schedule provided in the architectural drawing set does not appear to be fully coordinated. Examples are included, but not limited to the following:

a. Door D62 provides access to a duct riser is required to be fire-rated, however in the door schedule, it is not indicated as a fire-rated door.

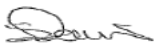
b. Door D74 is indicated as a fire-rated door, however it provides access to a mechanical riser which is not indicated to be fire-separated.

The documentation should be adequately coordinated to ensure that after the alteration works, the building will comply with the requirement of the Building Code.

Fire and Emergency advises the BCA to require the applicant to ensure that design coordination is undertaken and to amend the documentation as required to ensure that all the fire safety features are reflected within the design in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Adeline Teo**		15 April 2020
Checked by:	**Eduardo Maciel**		21 April 2020
Approved by:	**Simon Davis**		21 April 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Beca fire drawing set (appended to fire report)	24 March 2020	5399890	0
McCoyWixon architectural drawing set	1 April 2020	5641	A
Electrical Design Solutions electrical drawing set	25 March 2020	07C	-
Cosgroves mechanical drawing set	20 February 2020	CS19015	Multiple
Fire Protection Engineers fire sprinkler/ hydrant drawing set	Multiple	2625	Multiple

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	24 September 2020
Design Review No	15424

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Dunedin City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA-2020-1906	**Contact**	Building Consent Administrator

Property Information			
Street Number	72	**Legal Description**	
Street Name	Newington Avenue		
Town/Suburb	-	**City/Region**	Dunedin City
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	McCoy and Wixon Architects
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	Level 2 Wards Refurbishment Mercy Hospital Fire Engineering Report
Fire Report Date	08/09/2020
Version	0a
Identifier	5399890

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not specified	**Fire Alarm Type**	Type 7
Building Height	Not specified	**No. Floors – Above**	4
Escape Height	Not specified	**No. Floors – Below**	0

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Pre-administration and officers	2	WB	< 50	C/VM2
Bedrooms, nurse office	2	SI	12 patients, 3 staff	
Bedrooms, utility rooms, store	2	SI	11 patients, 3 staff	

Description of the Proposed Works

This building consent amendment relates to the proposed alterations of Level 2 of Mercy Hospital to accommodate ward areas. The building has a Type 7 system, which will be upgraded and altered to accommodate the fitout.

Fire and Emergency has provided comments on the original Building Consent in DR 14703. Comments from the previous DR will be reiterated herein, where applicable.

Fire and Emergency also notes that the fire report includes updated construction staging plans. Fire and Emergency has previously provided comments on the CPU application in DR 14608. This DR is attached for the BCA's information and action, as there is insufficient information provided to verify if the previous items raised have been resolved.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular, if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Location of Scenario CF#10 – New Comment

The proposed design amendment changes the floor areas of the firecells and reduces the staff number to 3. The ward firecells each have 12 patients and 11 patients respectively. An amended evacuation strategy based on a single staff member assisting each patient is proposed.

Fire report Appendix 4 documents that the challenging fire CF#10 is assessed within the first firecell (i.e. Evac Zone 7), whereby the tenability in the corridor determines the Available Safe Egress Time (ASET) value.

However, Fire and Emergency notes that the second firecell (Evac Zone 8) has a smaller corridor volume which would likely reduce ASET, and has the same Required Safe Egress Time (RSET) as Evac Zone 7 (i.e. 4 rounds of 120 seconds to evacuate all patients in that firecell).

As the RSET/ASET safety margin for Evac Zone 7 s only 58 seconds, Fire and Emergency cannot verify if the tenability conditions for Evac Zone 8 can comply with the Building Code clauses C4.3 and C4.4.

Fire and Emergency advises the BCA to require the applicant to provide an assessment of Evac Zone 8 as described above to demonstrate that the design will achieve Building Code clauses C4.3 and C4.4.

1.2 Dead End Open Path from Roof Space – Reiterated Comment

Fire report Section 4.1.3 states that Scenario BE has been met as the longest roof plant space of each evacuation zone is less than 50 m.

Architectural drawings A209 and A210 indicates that the roof space has a single means of escape via the service stair above Stair 3, and that the dead end open path (DEOP) measured from the furthest point along the service walkway exceeds 50m. The C/VM2 paragraphs 4.1 BE scenario, limits the DEOP to no more than 50m for areas and people who are familiar with the building.

As the alterations to the roof space are considered new works, the fire report has not demonstrated that the means of escape provisions within the roof space complies with the Building Code.

Fire and Emergency advises the BCA to require the applicant to demonstrate that the means of escape from the roof plant space complies with the Building Code.

1.3 Extent of Separation for the Firecell – Reiterated Comment

Fire report Section 3.5 indicates that Scenario HS is not required to be assessed for internal alteration works. However, fire plan FE-K101 indicates that as part of the internal alterations, the clinical (ward) area is divided into 2 firecells along Gridlines 8 and 8a.

Fire and Emergency notes that there are bay windows along the western elevation that constitute unprotected openings between firecells. These are indicated in the mark-up in the figure below.

C/VM2 paragraph 4.5 requires horizontal fire spread to be addressed between firecells with sleeping occupancies. As architectural drawing A600 indicates that these windows are to be replaced, an assessment of these windows is necessary and the design amended if required to prevent fire spread between the firecells.

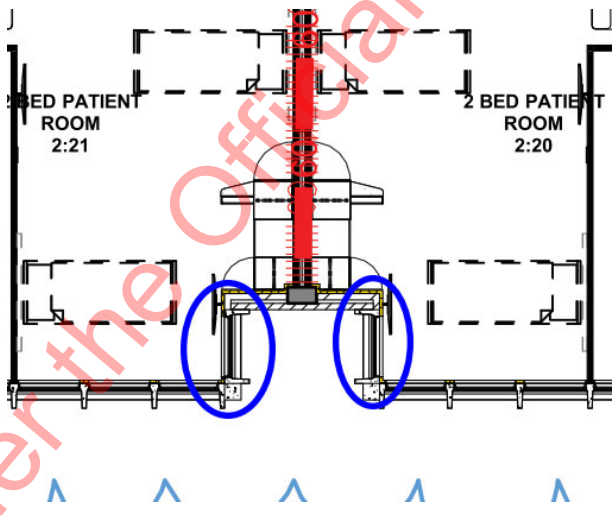


Figure 1 – Unprotected openings between firecells

Fire and Emergency advises the BCA to require the applicant to assess the risk of fire spread between firecells in order to demonstrate compliance with the Building Code.

1.4 Treatment of Service Penetrations - Reiterated Comment

The architectural drawings indicate a number of services risers for mechanical and plumbing that do not appear to be within fire-rated shafts. It is unclear from the documentation provided if these services are being fire-stopped at the floor slab.

Fire and Emergency advises the BCA to require the applicant to confirm that service penetrations that are not within fire-rated shafts are adequately fire stopped in order to demonstrate compliance with the Building Code.

1.5 Fire-rated Doors – Coordination – Updated Comment

The door schedule provided in the architectural drawing set does not appear to be fully coordinated. An example is included, but not limited to the following:

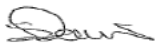
- Door D74 is within a fire-rated shaft, but not indicated as a fire-rated door.

Fire and Emergency considers that the consent documentation should be adequately coordinated to ensure that after the alteration works, the building will comply with the requirement of the Building Code.

Fire and Emergency advises the BCA to require the applicant to ensure that design coordination is undertaken and to amend the documentation as required to ensure that all the fire safety features are reflected within the design in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Adeline Teo**		22 September 2020
Checked by:	**Eduardo Maciel**		24 September 2020
Approved by:	**Simon Davis**		24 September 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Beca fire drawing set (appended to fire report)	7 September 2020	5399890	0A
McCoyWixon architectural drawing set	1 September 2020	5641	C
Electrical Design Solutions electrical drawing set	1 September 2020	07C	2
Cosgroves mechanical drawing set	1 September 2020	CS19015	Multiple
Fire Protection Engineers fire sprinkler/ hydrant drawing set	2 September 2020	2625	A

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	26 March 2020
Design Review No	14608

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Dunedin City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA-2020-401	**Contact**	Building Consent Administrator

Property Information			
Street Number	72	**Legal Description**	-
Street Name	Newington Avenue		
Town/Suburb	-	**City/Region**	Dunedin
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	McCoy and Wixon Architects
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	Mercy Hospital Level 2 Demolition Works - Fire Engineering Assessment for CPU Application
Fire Report Date	05/03/2020
Version	
Identifier	5399890

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)	CPU for Partial Demolition	x	x

Building Characteristics			
Footprint	Not specified	**Fire Alarm Type**	Type 7
Building Height	Not specified	**No. Floors – Above**	4
Escape Height	Not specified	**No. Floors – Below**	0

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Pre-admissions and offices	2	SI/WB	50	Not specified

Description of the Proposed Works

This CPU application relates to the use of the northern end of Level 2,maitaining pre-admission area, offices and store, while the remainder of Level 2 undergoes demolition works. The existing building has a Type 7 system, and the proposed works will cap off and isolate the sprinkler and fire alarm system, only within the demolition areas.

Fire and Emergency notes that the proposed Level 2 wards is planned to be submitted for Building Consent at the end of March 2020.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Fire and Emergency New Zealand Advice

Fire and Emergency has previously provided design review advice, for Level 2 alterations to accommodate the pre-admissions area (DR Memo 13474). The advice in the previous memo still applies and the BCA is advised to review and satisfy itself that the comments have been satisfactorily addressed.

1. MEANS OF ESCAPE

1.1 Fire Separation

The fire plans indicate that the both, Stairs 3 and 4, are required to be outside the demolition zone and usable in an emergency. Demolition work for Stair 3 is noted to be only carried out when Level 2 is not occupied.

Fire and Emergency notes the following regarding the proposed fire separations:

a. It is noted in the fire drawings that the separation between the construction area and the areas where no works are being carried out, is being proposed to be as non-combustible.

   Fire and Emergency notes that NZS4541 Sections 205.1 and 205.2 require sprinkler firecells to be fully fire separated from the non-sprinklered firecells by no less than 120min FRR. The above noting that NZS4541 does not provide any allowances for temporary or permanent constructions.

   Fire and Emergency is highly concern that, if a fire starts within the construction areas (non-sprinklered) and it is not controlled, by the time it reaches the sprinkled protected area, it will overrun the sprinkler system and it may spread through the rest of the building. This will put the occupants of the rest of the building at great risk of fire, smoke and untenable conditions.

b. Architectural drawing A401 indicates that the fire separation of Stair 3 does not extend to the roof of the building. From Note 14, the ceiling to the stair is proposed to be demolished, which connects Stair 3 to the demolition zone. Although the fire plans indicate a hoarding line constructed of non-combustible materials, this stair should be rectified to be compliant with the fire separation requirements of an exitway or the sprinkler standard, whichever is more onerous.

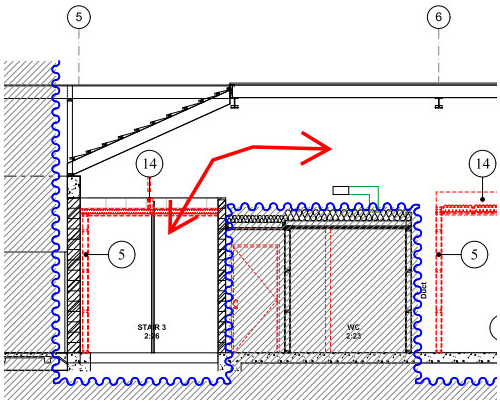


Figure 1 – Fire separation of Stair 3

c. Architectural drawing A401 indicates that the lobby wall which is part of Stair 4 will be demolished. As this wall is required to be fire-rated, it is unclear why the hoarding line is not fire-rated. In addition to being a designated egress route from the Level 2 demolition zone, Stair 4 also serves as a means of escape from the levels below, with Level 1 appearing to be a ward area with a more vulnerable population. Therefore, maintaining fire separation of this stair is necessary, particularly since a fire occurring within the demolition zone will not be sprinkler controlled.

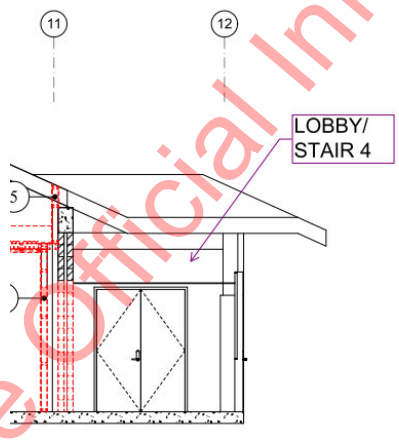


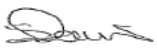
Figure 2 – Fire separation of Stair 4

The documentation provided does not indicate that the fire separation of the two exit stairs, which serves multiple levels of the building, will be maintained, and hence does not demonstrate compliance to the means of escape provisions of the Building Code.

Fire and Emergency advises the BCA to require the applicant to amend the documentation to demonstrate compliance with the means of escape requirements of the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Adeline Teo**		18 March 2020
Checked by:	**Eduardo Maciel**		24 March 2020
Approved by:	**Simon Davis**		26 March 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Beca fire plan FE-SK01 and FE-SK02	5 March 2020	5399890	A
McCoy Wixon architectural drawing set	9 March 2020	5641	B
Fire Protection Engineers plan FS3	6 March 2020	2625	B

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	01 December 2021
Design Review No	17559

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Dunedin City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA-2021-2631	**Contact**	Building Consent Administrator

Property Information			
Street Number	72	**Legal Description**	
Street Name	Newington Avenue		
Town/Suburb	-	**City/Region**	Dunedin City
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	McCoy and Wixon Architects
Fire Engineer	[redacted] / Greg North, Beca Ltd
Fire Report Title	Mercy Hospital ICU Development Fire Engineering Report
Fire Report Date	04/11/2021
Version	0
Identifier	5391360-1669966410-32

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Unknown	Fire Alarm Type	Type 7
Building Height	~15m	No. Floors – Above	4
Escape Height	~10m	No. Floors – Below	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
ICU	L1	SI	3	C/VM2
Ward	L1	SI	40	C/VM2

Description of the Proposed Works

This consent refers to the alterations of an existing four storey hospital building. The works are focused on moving an existing ICU area from the ground floor into Level 1.

The sprinkler system along with smoke detection will be amended to suit the new layout.

It is noted that the fire report indicates that Dunedin City Council has agreed on accepting the design without following the highly recommended FEB process and that no Peer reviewer was required. Whilst the fire report has not provided written confirmation of such agreement, Fire and Emergency acknowledges the agreement and assumes Council is aware of the details and implications of the agreement. Therefore, Fire and Emergency has not provided further comment on this regard.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 RSET/ASET assessment

The fire report provides an assessment on the required time to escape, this is based a previous fire safety assessment using the C/VM2 parameters.

Fire and Emergency has the following concerns:

a. The new ICU area is being provided with a single means of escape via the corridor that has non-fire separated service areas (e.g. kitchen, dirty utility, etc.). Potential impact of fire on the only means of escape from ICU has not been assessed (i.e. exposure to radiation).

b. Whilst it is acknowledged that the number of patients has been reduced after the alterations, the type of occupants and the level of assistance required is much higher than the previous occupants. The fire report appears to account for the extra staff members that are being included and the reduced number of patients, however, it does not appear to account for the complexity of the evacuation and preparation time to move an ICU patient.

c. Given the proposed design where the ICU is located within the same firecell as other wards and services, it is unclear how many staff will be available to help the new ICU area without compromising other patient's safety. The fire report has not provided an assessment of the number, location and restrictions of all staff present (e.g. during the night shift as there are less staff members).

d. Given the vulnerability of the patients and the extra time that may be required to evacuate the patients, occupants in the ICU may not be able to escape as the conditions outside of the room may be difficult for way-finding.

Based on the above and given that the fire safety assessment has not considered the complexity of the new occupants and in combination of services not being fire separated, Fire and Emergency is concerned that the fire safety design may not be sufficient to ensure that all occupants will escape safely in case of a fire.

Fire and Emergency advises the BCA to require the applicant to provide a robust ASET/RSET assessment taking into consideration on nature of the new patients, staff ratios, locations and restrictions, in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Eduardo Maciel**		24 November 2021
Checked by:	**Angela Chen**		25 November 2021
Approved by:	**Simon Davis**		1 December 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire drawings - Beca	04/11/2021	5391360	0
Architectural drawings	04/11/2021	5769	0

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	17 August 2021
Design Review No	17016

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Hamilton City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC2021/43117	**Contact**	Building Review Officer

Property Information			
Street Number	19	**Legal Description**	Angelsea Hospital
Street Name	Knox Street		
Town/Suburb	Central	**City/Region**	Hamilton
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Designwell
Fire Engineer	[redacted] BelshamFire Ltd
Fire Report Title	ANGLESEA HOSPITAL ZONE 3 REFURB 19 KNOX STREET HAMILTON Fire Engineering Report
Fire Report Date	25/05/2021
Version	B
Identifier	

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	x	x
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~500m² (area of works only)	Fire Alarm Type	7
Building Height	Not provided	No. Floors – Above	1
Escape Height	0m (area of works only)	No. Floors – Below	0

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Zone 3 – Recovery	Ground	SI	7	Alternative Solution
2	Zone 6 - Theatres	Ground	SI	9	Alternative Solution

Description of the Proposed Works

The proposed works includes the internal remodelling and renovation within an existing day hospital to allow for the creation of new recovery ward bedrooms (Zone 3), and the relocation of an existing operating theatre to a new location within the existing firecell (Zone 6).

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has provided an overall building score in line with MBIE guidance[1].

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Challenging Fires

The fire report proposes three challenging fires (CFs) located in the lounge of the recovery firecell (CF1), in a unoccupied operating theatre (CF2), and in the theatre corridor (CF3). Fire and Emergency notes the following:

a. CF1 has not considered the required 3 seconds per occupant door opening time (as required by C/VM2 paragraph 2.2.1 b.) which is intended to account for the smoke movement between firecells when occupants pass through to the adjacent firecell (or evacuation zone in this case). Fire and Emergency notes from the B-Risk model that the fire becomes ventilation-limited at 172 seconds. The door openings may provide additional ventilation to sustain the fire which would in turn produce more toxic products.

   We note that Section 7.1 and 7.2 of the FEB (Rev.B) confirms that the fire doors will be modelled as open for the 3 seconds per person for all Challenging Fires.

b. CF2 is intended to test the smoke doors and existing smoke separations of the operating theatres. Fire and Emergency notes that the new smoke rated walls for the New Theatre 1 will be a tested smoke rated system. However, the smoke doors of New Theatre 1, and the entire smoke rated construction (doors and walls, etc.) can be classified as non-tested smoke separations, and as such, are required to fall away when the upper layer temperature exceeds 200°C (refer C/VM2 paragraph 2.2.1 l.). However, the modelling results indicate that only the doors to the operating theatres are modelled to fail when the temperatures reach 200°C. It is unclear what the effect of the entire wall falling away would be on the tenability within the corridor.

c. On review of CF2 and CF3, it is noted that these design fires do not include any detection time or notification time (reasonably assumed to be 30s detection time +30s notification time = 60s). These periods of times are normally added to the total RSET times when assessing design fires. In the case of CF2 and CF3, the additional time would extend the 'FED path' (the monitoring of noxious gases on the egress path) by an extra 60 seconds. It is unclear how this would affect the tenability within the corridor as the results show that FEDCO stops being monitored at 660 seconds and is capped at that level (0.23).

Thus, Fire and Emergency would recommend additional analysis be carried out to determine that conditions are not made worse than those outlined in the current FER.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Fire and Emergency advises the BCA to require the applicant to revise the fire design and design documentation to clarify the items discussed above, to demonstrate compliance with the Building Code.

1.2 Existing Fire rated Construction

The corridor outside the operating theatres is required to be maintained as fire sterile as possible as the only escape route from the operating theatres is via the corridor. Therefore, no combustibles such as storage of bedding, towels, etc. or the storage of any other combustible is permitted. This potential issue was discussed at length during the FEB stage, and it was agreed that maintaining the corridor as fire sterile as possible is essential due to it being the only escape route for the theatre occupants. It was also agreed that all combustibles would be housed within a specific fire separated storage room.

However, Fire and Emergency notes that it is unclear if all potential fire risk areas have been appropriately fire separated from the corridor escape route. Refer to snip below taken from the fire drawings:

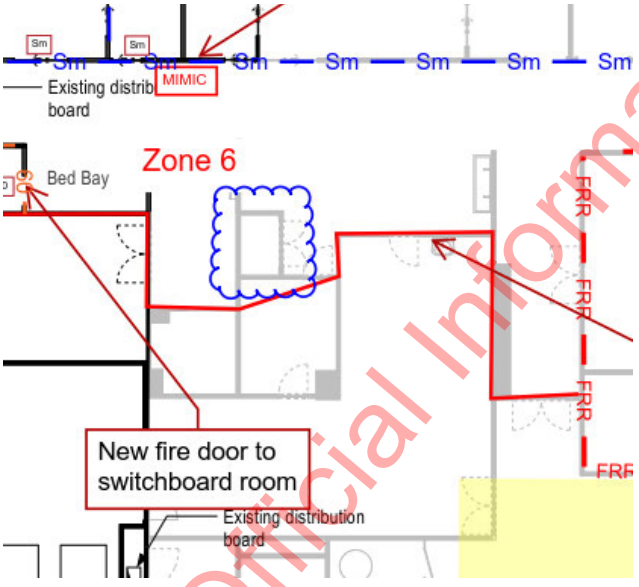


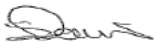
Figure 1 - Fire drawing FES-01

It is unclear what the small room located within the corridor is, however, Fire and Emergency considers it essential to maintain the escape corridor as fire sterile as possible with only essential medical equipment permitted within the corridor (i.e. crash cart, etc.).

Fire and Emergency advise the BCA to require the applicant to provide additional information regarding the small room identified above, and if required, to revise the fire design and design documentation to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Stephen Reeves**		16 August 2021
Checked by:	**Adeline Teo**		17 August 2021
Approved by:	**Simon Davis**		17 August 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Belsham Fire drawings	13/05/2021	7108	D
Designwell architect drawings	23/06/2021	-	BC

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	08 July 2020
Design Review No	15028

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Hastings District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA20200677	**Contact**	[redacted]

Property Information			
Street Number	500	**Legal Description**	
Street Name	Southland Road (220 Prospect Road)		
Town/Suburb	-	**City/Region**	Hastings
Owner/Registered Proprietor			
Premises / Company Name	Royston Hospital		

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted], Holmes Fire
Fire Report Title	Royston Hospital New Day Stay Surgery Unit 500 Southland Road, Hastings Fire Engineering Strategy
Fire Report Date	30/04/2020
Version	B
Identifier	111785.05.FESM001b

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	899 m^2	**Fire Alarm Type**	Type 7
Building Height	9.38 m	**No. Floors – Above**	1
Escape Height	3.96 m	**No. Floors – Below**	-

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Hospital	G	SI	52	C/VM 2
	Plant	1	WB	4	C/VM 2

Description of the Proposed Works

This consent application concerns a construction of the new, single storey Day Surgery Unit with upper level plant room space within the existing Royston Hospital site at 500 Southland Road, Hastings.

Fire and Emergency acknowledges involvement in the Fire Engineering Brief process for this development. The most recent correspondence was provided on 2 June 2020 (FENZ ref FEB 14134 R2 - 02062020). All items remain outstanding from this correspondence and were not closed out during the stakeholder review process. Where this is relevant, this is noted in the comments below.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Challenging Fire

Section 5.3 of the fire verification report states that *the corridor immediately outside the operating theatre is considered reasonably sterile as thoroughfare for the operating theatres and medical equipment. Therefore, no challenging fire is proposed in this corridor.*

However, Fire and Emergency observes from the fire plan FEV201 that there is a non-fire separated equipment store and a bed store alcove as shown below.

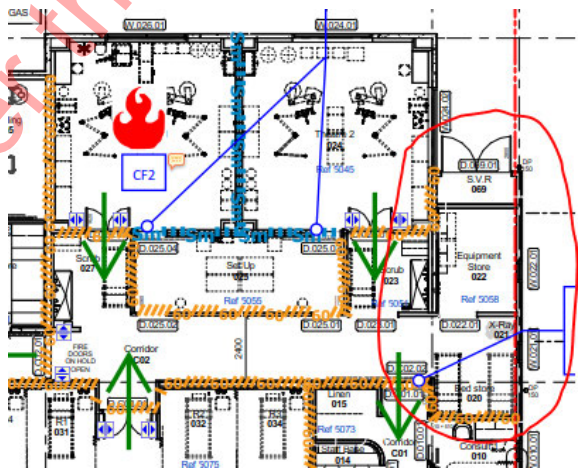


Figure 1: Excerpt from fire drawing FEV201 showing fire load within the theatre corridor

Therefore, Fire and Emergency observes that the corridor area is not reasonably sterile. A challenging fire in the corridor is more onerous than the other challenging fire locations

considered in the fire report as the corridor is on the egress routes for the operating theatres (and for stage 1 and stage 2 patients).

The additional challenging fire assessment should consider the tenability in the corridor for the occupants from the operating theatre that must pass through this space to evacuate the building. Neither of the challenging fires currently outlined in the fire report consider tenability in this corridor for occupants egressing from the theatre.

Fire and Emergency considers that without this additional challenging fire assessment, the compliance of the means of escape from the theatres has not been demonstrated. It is also noted that this issue cannot be resolved by moving the evacuation zone boundaries to exclude the corridor from the theatre space evacuation zone as this would leave the theatre space evacuation zone with a single means of escape only. This arrangement would not meet the requirements for an internal “place of safety”.

Fire and Emergency advises that the BCA the require the applicant to provide an additional challenging fire in the theatre corridor space to demonstrate the compliance of the means of escape from the operating threatre spaces.

1.2 Travel Speed

Table 10 of the fire verification report states that the travel speed for the stage two patients is to be 1.2 m/s. This RSET input appears to have been adopted on the basis that it is the travel speed stated in C/VM2.

The travel speed identified in C/VM2 is intended to represent an average for the general population. In a building with occupants under care, occupants may not be reasonably able to achieve this walking speed.

Fire and Emergency observes no further justification for the use of the 1.2m/s travel speed for the stage two patients has been provided has been provided. Therefore, Fire and Emergency challenges the validity of the RSET calculations based on the 1.2m/s travel speed without robust justification of the travel speed input.

Fire and Emergency advises that the BCA requires the applicant to require the applicant to either;

a. **robustly justify the 1.2m/s travel speed figure or,**

b. **amend the ASET/RSET assessment to include a more conservative travel speed for the stage two patients (relative to their abilities),**

in order to demonstrate that the proposed design will meet the performance requirement of the Building Code.

1.3 Notification Time

Section 5.3.1 of the fire report states that a notification time of 30 seconds will be used for the RSET calculation.

Fire and Emergency notes that, for non-standard evacuation strategies the notification time should incorporate any investigation time delays. It is unclear if any notification delays have been taken into account in the 30 seconds figure.

Fire and Emergency advises the BCA to require the applicant to provide a more robust justification for the notification time adopted in the RSET assessment to support the suitability of the RSET calculation figures.

1.4 BE Scenario

Section 4 of the fire verification report states that BE scenario has not been assessed, since the single direction travel distance from each firecell does not exceed 50 m where occupant are considered familiar.

Fire and Emergency observes from the architectural plan A-1002 that there are access rooms next to the plant room on the first floor which have not been shown on the fire plans and the rooms are served by a single means of escape which exceeds 50 metres.

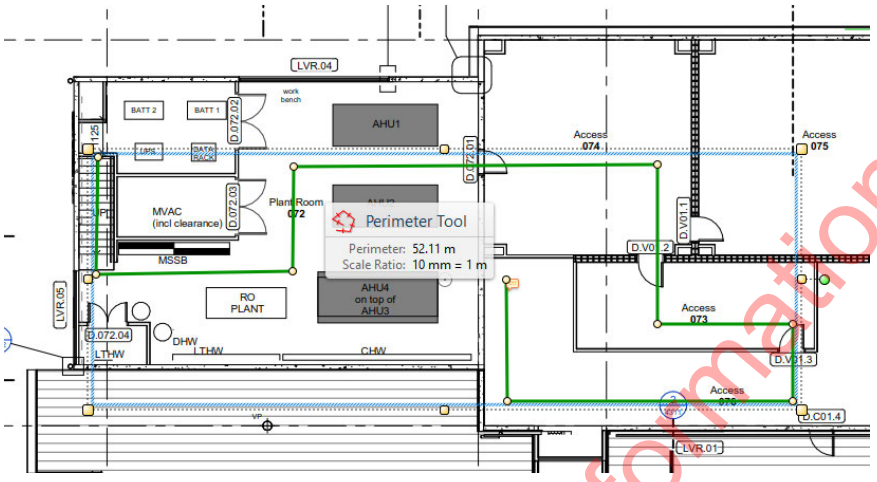


Figure 2: Excerpt from architectural drawing A-1002 showing means of escape from first floor plant room

Therefore, Fire and Emergency notes that the single means of escape from the first floor plant room does not comply with the C/VM2, Paragraph 4.1 BE scenario.

Fire and Emergency advises the BCA to require the applicant to demonstrate that the single means of escape from the plant room will meet the performance requirement of the Building Code.

1.5 Design Coordination

Fire and Emergency notes that a number of the requirements of the fire design have not been reflected in the architectural and mechanical drawings. This includes, but may not be limited to:

a. **Smoke sealing on sliding doors** - The fire plan FEV 201 states that the doors between the operating theatres and the setup room is to be an automatic door having smoke sealing capabilities.

   No associated product data sheet for the automatic sliding door has been provided in the consent documentation provided to Fire and Emergency for review. Fire and Emergency therefore cannot verify whether the auto-sliding doors will have smoke sealing capabilities.

   It is noted that if no suitable product can be identified this will require the fire modelling to be revised to incorporate leakage over the height of the gap between the sliding doors.

b. **Provision of smoke and fire dampers** - Section 5.6.7 of the fire report states that throughout the building motorised smoke and fire dampers are required to be installed where HVAC ductwork penetrates through fire separations.

   However, Fire and Emergency observes from the mechanical plans that some of ducts penetrating fire separations have not been indicated as provided with smoke and fire dampers. See examples in figures 3 and 4 below.

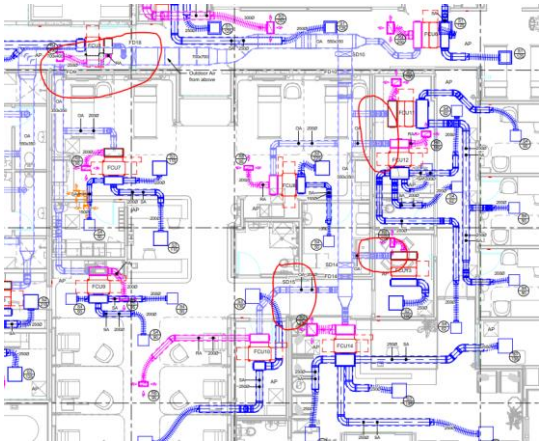


Figure 3: Mechanical drawing M203 excerpt showing lack of fire and smoke dampers along fire separation (circled)

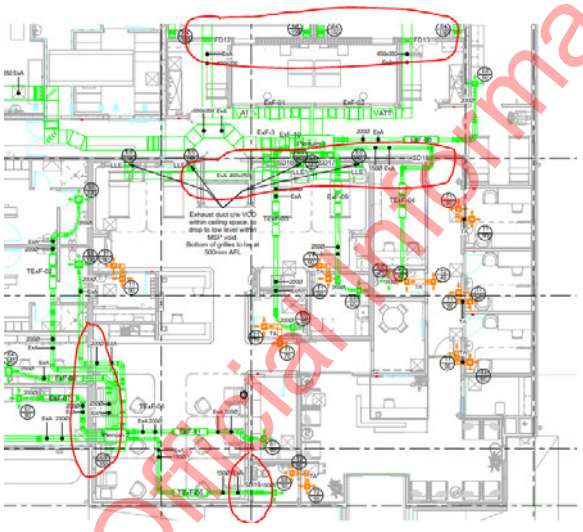


Figure 4: Mechanical drawing M205 excerpt showing lack of fire and smoke dampers along fire separation (circled)

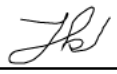
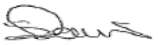
c. **Fire separations around bottle storage space** - Section 5.6.2 of the fire strategy report states that the bottle storage underneath the stair including its ceilings is required to be fire separated with FRR of no less than (120)/120/120.

   However, Fire and Emergency cannot verify from the architectural plans A-1301 that the ceiling of the room will achieve the stated 120-minute fire rating.

Fire and Emergency advises the BCA to require the applicant to revise the design to address the issues identified above (as well as any others identified during design coordination) in order to ensure that the fire design requirements outlined in the fire report are suitably reflected in the final building design.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		2 July 2020
Checked by:	**Amy Harpur**		8 July 2020
Approved by:	**Simon Davis**		8 July 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Holmes Fire, Fire Plans (Consent set)	varies	111785.05	varies
Klein, Architectural Plans (Consent set)	12/06/2020	3.1251	B
Holmes Fire, Fire Protection Plans (Consent set)	27/05/2020	111785.05	B
ENSOR, Mechanical Plans (Consent set)	12/06/2020	02653	H
ENSOR,Electrical Plans (Consent set)	12/06/2020	02653	H

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	18 January 2021
Design Review No	15907

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Hastings District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA20200935	**Contact**	[redacted]

Property Information			
Street Number	500	**Legal Description**	
Street Name	Southland Road		
Town/Suburb	-	**City/Region**	Hastings
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Design Group Architects H + K
Fire Engineer	[redacted], Holmes Fire
Fire Report Title	TRG Imaging Alterations Royston Hospital, Hastings Fire Engineering Strategy
Fire Report Date	11/12/2020
Version	D
Identifier	111785.04.FESM001d

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	**Fire Alarm Type**	Type 7
Building Height	Not stated	**No. Floors – Above**	2
Escape Height	Not stated	**No. Floors – Below**	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Bedrooms	Firecell A	SI	38	Alternative Solution
Bedrooms	Firecell B	SI	38	
Bedrooms	Firecell C	SI	16	
Laundry	Firecell D	WB	2	
Staff room	Firecell E	WB	13	
Kitchen and store rooms	Firecell F	WB	5	
Theatre 1 & 2	Firecell G	SI	16	
Dirty / Decon, Cssd, Cooling	Firecell H	SI	8	
Theatre 3	Firecell J	SI	8	
Inwards good, offices, Loan & dock	Firecell K	WB	8	
Theatre 4 & 5	Firecell L	SI	16	
Store (including extension)	Firecell M	WB	2	

Ex recovery, Interview rooms	Firecell N	SI	21	
Stage 2 recovery	Firecell O	SI	15	
Stage 1 recovery	Firecell P	SI	15	
Day surgery & office	Firecell Q	CA/WB	96	

Description of the Proposed Works

This application for consent concerns proposed internal fitout within the TRG Imaging tenancy (X-Ray and MRI spaces) at the front of the two-level Royston Hospital building in Hastings.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular, if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 18. Therefore, the level of information provided for assessment is a "gap assessment". There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Use of C/VM2

Section 2 of the fire report states given the use of the building, the occupants will not be expected to egress on fire alarm but rather be moved to adjacent firecells.

Section 3 of the fire report states C/VM2, Amendment 5 has been adopted as the basis of the design to demonstrate compliance. However, C/VM2, 1.2.1 specifically states buildings that do not have simultaneous evacuation scheme that evacuate immediately to outside, such as hospital, falls outside of its scope. The proposed design methodology is therefore inappropriate for the subject building.

The fire report proposes to review the works against the parameters in the previous fire reports dated 2004, 2012 and 2018 which may not be sufficient to demonstrate compliance in current legal framework. Fire and Emergency notes that no Fire Engineering Brief (FEB) has been submitted for this project, which could have reduced the risk of additional work being required at consent.

Fire and Emergency advises the BCA to require the applicant to revise the proposed compliance path for the design, with recommended FEB process, in order to demonstrate compliance of the Building Code to the extent required by the Building Act.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

2. MEANS OF ESCAPE

2.1 Occupancy

Fire and Emergency observes that Appendix A.1 of the fire report calculates the occupancy of the entire firecell (firecell Q) based on an occupant density of 10m^2/person. While this may be appropriate for use in the office areas within this firecell, a higher occupant density appears to be appropriate for significant areas (e.g. waiting areas). It is unclear what effect this would have of the occupancy of this firecell.

Fire and Emergency advises the BCA to require the applicant to provide additional justification for the occupancy of this firecell in order to support the subsequent analysis.

2.2 Challenging Fire

Section A.3.2 of the fire report argues a CF for the firecell undergoing alteration is not necessary as it was not considered worst credible in the 2018 base built review. However, Fire and Emergency notes that the 2018 base built review (both FEB and FER) considered the space as 3 firecells (Firecell O, P & Q), with subdivision and extension which had been staged to be completed at a later date.

Due to the proposed alteration within the space prior to the above-mentioned subdivision/extension, a different challenging fire scenario is required to assess safety of the occupants within the current firecell arrangement and to reflect the current occupant and building characteristics with specific consideration of the following factors:

a. Will both the existing and new MRI suite be sprinkler protected or are they fire separated from the balance of the tenancy.

b. Do patients within the MRI units require assistance or additional time to extricate themselves from the MRI.

c. What is the worst-case level of care that patients in the MRI suite requires? Does any patient using the other medical imaging require assistance? Is sufficient staff available to provide this?

Fire and Emergency advises the BCA to require the applicant to provide the required new CF scenario for the firecell of alteration in its current state, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

2.3 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

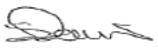
a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

Fire and Emergency advises the BCA to ensure the applicant to provide the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		12 January 2021
Checked by:	**Paul Richards**		15 January 2021
Approved by:	**Simon Davis**		18 January 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix B Schedule of Fire Safety Sketches	11/12/20	111785.04	D
Architectural drawing set	23/07/2020	14.15.01	BC1

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	24 March 2021
Design Review No	16310

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Hastings District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	ABA20210277	**Contact**	[redacted]

Property Information			
Street Number	500	**Legal Description**	
Street Name	Southland Road		
Town/Suburb	-	**City/Region**	Hastings
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Design Group Architects H + K
Fire Engineer	[redacted], Holmes Fire
Fire Report Title	TRG Imaging Alterations Royston Hospital, Hastings Fire Engineering Strategy
Fire Report Date	19/02/2021
Version	G
Identifier	111785.04.FESM001g

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	**Fire Alarm Type**	Type 7
Building Height	Not stated	**No. Floors – Above**	2
Escape Height	Not stated	**No. Floors – Below**	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Bedrooms	Firecell A	SI	38	C/VM2
Bedrooms	Firecell B	SI	38	
Bedrooms	Firecell C	SI	16	
Laundry	Firecell D	WB	2	
Staff room	Firecell E	WB	13	
Kitchen and store rooms	Firecell F	WB	5	
Theatre 1 & 2	Firecell G	SI	16	
Dirty / Decon, Cssd, Cooling	Firecell H	SI	8	
Theatre 3	Firecell J	SI	8	
Inwards good, offices, Loan & dock	Firecell K	WB	8	
Theatre 4 & 5	Firecell L	SI	16	
Store (including extension)	Firecell M	WB	2	

Ex recovery, Interview rooms	Firecell N	SI	21	
Stage 2 recovery	Firecell O	SI	15	
Stage 1 recovery	Firecell P	SI	15	
Day surgery & office	Firecell Q	CA/WB	96	

Description of the Proposed Works

This application for consent concerns proposed internal fitout within the TRG Imaging tenancy, including CT, Ultrasound, Mammography and Administration Areas, at the front of the two-level Royston Hospital building in Hastings.

It is noted that this consent covers the same work under previous consent application ABA20200935, which Fire and Emergency had provided comments under DR15907 and had subsequent meeting/discussion with the designer. It was agreed that the additional information provided addressed previous comments raised under DR15907.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 18. Therefore, the level of information provided for assessment is a "gap assessment". There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

On assessment of the plans and documentation supplied, Fire and Emergency NZ has no advice or comment to offer on this particular application.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		22 March 2021
Checked by:	**Paul Richards**		24 March 2021
Approved by:	**Simon Davis**		24 March 2021

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix B Schedule of Fire Safety Sketches	11/12/20	111785.04	G
Architectural drawing set	23/07/2020	14/15/01	BC1

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	21 January 2021
Design Review No	16000

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Invercargill City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BDG/2020/1467	**Contact**	Building Consent Administrator

Property Information			
Street Number	99	**Legal Description**	-
Street Name	Wicklow Street		
Town/Suburb	-	**City/Region**	Invercargill
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Ikon Architects
Fire Engineer	[redacted] Cosgroves Ltd
Fire Report Title	Southland Charity Hospital 99 Wicklow Street, Invercargill Fire Safety Strategy Report
Fire Report Date	09/12/2020
Version	B
Identifier	CQ20014

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112		
Change of Use	115	X	X
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	664 m^2	**Fire Alarm Type**	7
Building Height	5.8 m	**No. Floors – Above**	1
Escape Height	-	**No. Floors – Below**	-

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Hospital	G	SI	90	C/AS 2

Description of the Proposed Works

This consent application concerns an existing, single storey commercial building undergoing a change of use – converting an existing tavern into a new hospital with an operating theatre.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Applicability of Acceptable Solution

Section 1 of the fire report states that the risk group of the proposed building is identified as SI and the building is to be assessed by Acceptable Solutions, C/AS2, since the building is used for medical day treatment without any overnight stay.

Fire and Emergency observes from section 3.1.1 of the fire report that *"the theatre and recovery room are allowed to have delayed initiation of evacuation given each area is designed with property rating and 2 means of escape in according (sic) to the requirements of a place of safety. (Staged Evacuation)".*

Fire and Emergency notes following:

a. C/AS2, Table 1.1 states that the operating theatre is out of the scope of the acceptable solution.

b. No additional information has been provided to indicate the type of procedures to be carried out in the theatre (e.g. letter from the future operator). Therefore, Fire and Emergency cannot gain a clear understanding of the risk to occupants and whether the use of C/AS2 may be justifiable.

Based on the information provided, Fire and Emergency considers that this building cannot be assessed using C/AS2 and that compliance with the Building Code should be established using a more suitable methodology (i.e. C/VM2 or an alternative solution).

However, Fire and Emergency notes that the decision rests at the discretion of the BCA.

Fire and Emergency advises the BCA to satisfy itself with the chosen compliance path (Acceptable Solution) and that the proposed level of information is appropriate for the project or, if necessary, to require the applicant to re-assess the design using a more suitable methodology in order to demonstrate compliance with the Building Code.

2. MEANS OF ESCAPE

2.1 Exit Separation

Table 9 of the fire report states that two means of escape are required for the theatre firecell. The fire report suggests that these have been provided.

However, Fire and emergency observes from the architectural plan that the distance between the two designated egress doors is less than 8 metres. Consequently, these cannot be considered alternative egress paths.

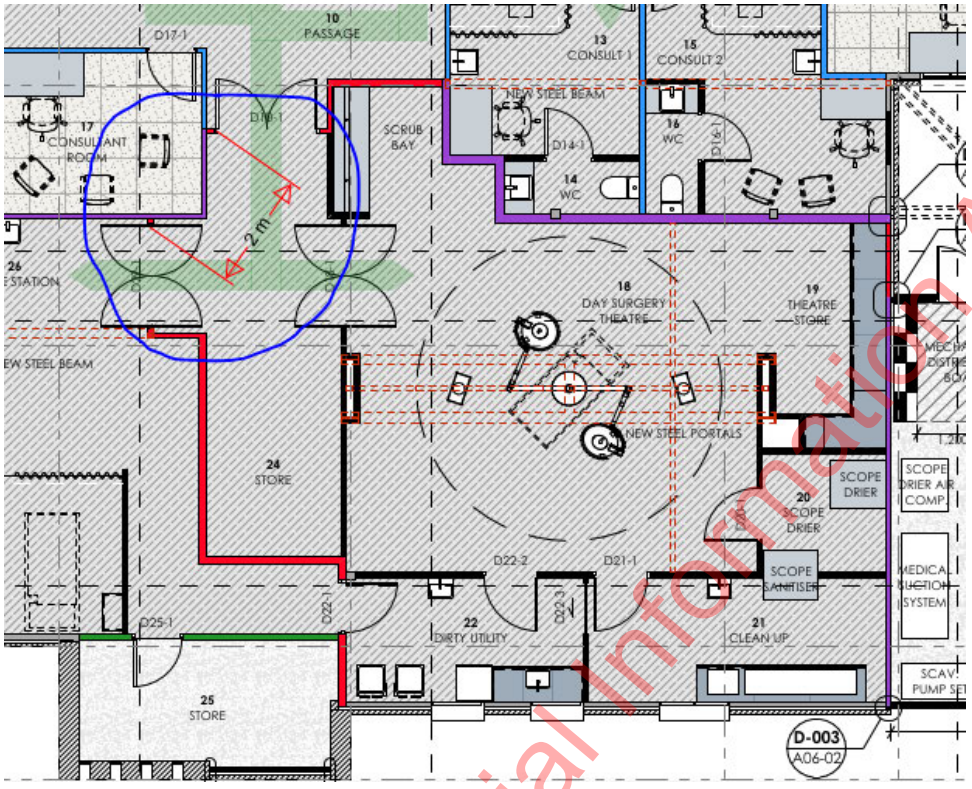


Figure 1 - Distance between two egress doors from the operating theatre firecell

Fire and Emergency notes that, where two or more exits are required to be provided, those exits are either to be separated more than 8 metres or by smoke separations in accordance with C/AS2, paragraph 3.6.2.

Fire and Emergency advises the BCA to require the applicant to revise the design as necessary to provide adequate egress routes from the operating theatre in order to demonstrate compliance with the Building Code.

2.2 Design Coordination

Table 4 of the fire report states that fire and smoke dampers (i.e. with smoke rating) are required to be provided to ducts penetrating fire separations, given a delayed evacuation scheme is proposed.

However, Fire and emergency cannot verify from the mechanical plan M101 that the specified dampers are fire and smoke dampers as opposed to standard fire dampers.

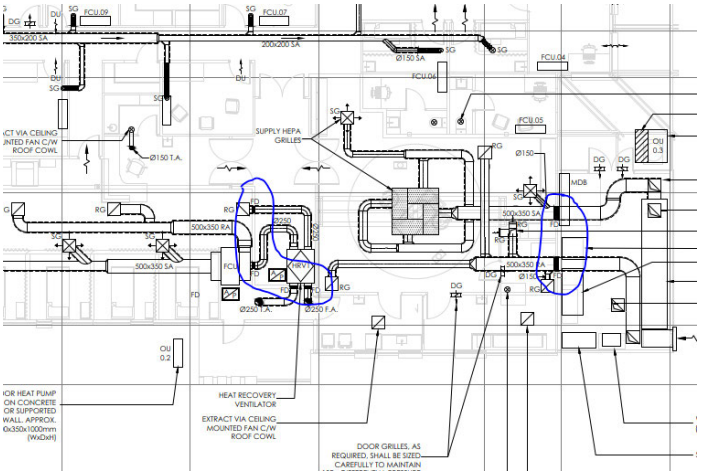


Figure 2 - Fire dampers on ducts penetrating fire separations

Fire and Emergency notes that fire separation requirement indicated in the fire report should be reflected in the other discipline's documentation.

Fire and Emergency advises the BCA to require the applicant to confirm that the proposed dampers will meet the requirements of the fire design in order to comply with the Building Code.

2.3 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed new surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed new flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of proposed external wall cladding, including evidence that the specified product(s) will not exceed the acceptable peak rate of heat release and total heat released as specified in the fire report.

d. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

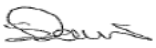
e. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

f. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		19 January 2020
Checked by:	**Etienne Hermouet**		20 January 2021
Approved by:	**Simon Davis**		21 January 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Cosgrove, Fire Plans (Consent set)	09/12/2020	CQ20014	D
IKON, Architectural Plans (Consent set)	20/10/2020	2139	03
Cosgrove, Electrical Plans (Consent set)	09/12/2020	CQ20014	C
Cosgrove, Mechanical Plans (Consent set)	09/12/2020	CQ20014	C

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	08 June 2021
Design Review No	16649

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Far North District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	EBC-2021-1319/0	**Contact**	Building Consent Administrator

Property Information			
Street Number	29	**Legal Description**	
Street Name	Redan Road		
Town/Suburb	-	**City/Region**	Kaitaia
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Beard+Beard Online Architecture
Fire Engineer	[redacted], GHD
Fire Report Title	Statement of Change Kaitaia Hospital Northland District Health Board
Fire Report Date	07/05/2021
Version	00
Identifier	12550617

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	Fire Alarm Type	Type 7
Building Height	Not stated	No. Floors – Above	3
Escape Height	Not stated	No. Floors – Below	1

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Resus room	G	SI	3	C/AS2 (?)
	Remaining building	overall	SI	Not stated	Not stated

Description of the Proposed Works

This application for consent concerns proposed new negative pressure room in A&M resus area in Kaitaia Hospital. The new room is proposed to have a swipe card access installed.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 15. Therefore, the level of information provided for assessment is a "gap assessment". However, only a "Statement of Change" report has been submitted. There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Extent of Review and Level of Assessment

Despite a building score of 15 which would typically require a "Gap Assessment", the fire report has been prepared in the format of "Statement of Change" without supporting evidence on agreement with council. Fire and Emergency consider the extent of review and level of assessment is not sufficient for the following reasons:

a. The previous fire report (Master fire report for whole building dated 27/03/2007) referenced for compliance of the building was not reviewed by Fire and Emergency. It is however noted that the report appears to focus on parts of the building subject to proposed work at the time only (i.e. Stage 3 – Stage 5 work), which does not represent a full building assessment.

b. It is noted that the referenced report was carried out against the fire-related clauses of the building code in 2007 and was made against compliance documents that have now been superseded. The previous fire report may not be sufficient to demonstrate compliance to the current building code.

c. Based on the attached previous fire report, the building contains places that are outside the scope of Acceptable Solution per C/AS2, 1.1.2. e.g. operating theatres, delivery rooms and recovery rooms. Hence the proposed compliance route does not appear to be suitable for the building.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Section 112 of the Building Act refers to the compliance of the *building* following the proposed works, not limited to just the area of work. Therefore, the assessment may not contain adequate information to demonstrate the extent of compliance required by Section 112 of the Building Act.

It is also considered that additional information should be provided to justify the appropriateness of the level of information provided. Should existing non-compliances be identified, these would be required to be assessed to establish the extent to which they should be remediated.

Fire and Emergency advises the BCA to satisfy itself that the proposed extent of review and level of assessment provided is sufficient to address occupant safety, in order to demonstrate Building Code compliance to the extent required by the Building Act.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	Angela Chen		2 June 2021
Checked by:	JK Park		8 June 2021
Approved by:	Simon Davis		8 June 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Architcetural drawing set	05/06/2020	-	-

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	02 July 2021
Design Review No	16772

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Hutt City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC210651	**Contact**	You Send Property

Property Information			
Street Number	638-640	**Legal Description**	Hutt Hospital
Street Name	High Street		
Town/Suburb	Boulcott	**City/Region**	Lower Hutt
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	CCM Architects
Fire Engineer	[redacted] Fire HQ
Fire Report Title	HVDHB Clocktower Procedure Suite 638 High Street Boulcott Lower Hutt Fire Engineering Report
Fire Report Date	01/06/2021
Version	B
Identifier	6394.104

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not Specified	Fire Alarm Type	Type 7 – Level 2 Type 6 with supplementary smoke detection – Remainder of the building
Building Height	15.45 m	No. Floors – Above	3
Escape Height	8.16 m	No. Floors – Below	-

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Procedure Suite	2	SI	18	Alternative Solution
	Reception Area	2	CA	37	Alternative Solution

Description of the Proposed Works

This consent application concerns a refurbishment of Level 2 Procedure Suite of the existing 3 storey Clock Tower building. The proposed alteration area includes 5 minor procedure rooms where patients are stated to undergo minor procedures without general anaesthetic or sedation. The proposed design is to comply with C/AS2 except no fire separation to the minor procedure rooms, and the building is stated to have "one out- all out" evacuation strategy.

New smoke detectors are proposed to be provided throughout the Level 2 forming a Type 7 fire alarm system (automatic sprinkler and smoke detection systems) and other levels are retained with a Type 6 automatic sprinkler system with supplementary smoke detection.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Design Coordination – Fire Rated Walls

The fire plan FES-01 shows the locations of fire rated walls and states that the fire wall is to terminate as close as possible to the roof cladding and ceiling void will require a 60 minute fire rated door/hatch.

However, Fire and Emergency cannot verify from the architectural plan A3.11 that the fire rated walls (corridor wall with a fire door) are continuous from the floor to the roof line and it appears that there is discontinuation as shown below.

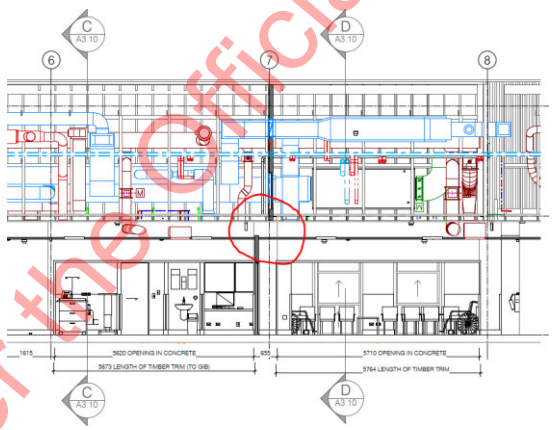


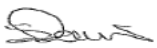
Figure 1 - Location of discontinued fire rated wall between the procedure suite and the reception area - Extracted from the architectural plan A3.11

Fire and Emergency notes that the fire rated wall requirement stated in the fire report and the fire plan should be reflected in the architectural drawings.

Fire and Emergency advises that the BCA requires the applicant to revise the design to address the issues identified above (as well as any others identified during design co-ordination) in order to satisfy the requirements of the fire design.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	JK Park		29 June 2021
Checked by:	Angela Chen		2 Jully 2021
Approved by:	Simon Davis		2 July 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
FireHQ, Fire Plans (Consent set)	01/06/2021	6394.104	B
CCM Architectrs, Architectural Plans (Consent set)	30/04/2021	17007-4	1
Norman Disney & Young, Electrical Plans (Consent set)	30/04/2021	W09731-029E	A

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	24 February 2020
Design Review No	14478

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Nelson City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC200055	**Contact**	Building Consent Administrator

Property Information			
Street Number	36	**Legal Description**	-
Street Name	Manuka Street		
Town/Suburb	-	**City/Region**	Nelson
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	AMK Ltd
Fire Engineer	[redacted], Powell Fenwick Consultants Ltd
Fire Report Title	Fire Engineering Report Stage 2 Manuka St Hospital Nelson
Fire Report Date	20/12/2019
Version	A
Identifier	180076/F

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~170 m^2	**Fire Alarm Type**	Type 6
Building Height	3.5 m	**No. Floors – Above**	G
Escape Height	0 m	**No. Floors – Below**	0

Population Characteristics and Design Methodology			
Space Description	**Risk Group**	**Number of Occupants**	**Compliance Path**
Energy Centre	WB	10	C/AS2

Description of the Proposed Works

It is proposed to construct an energy centre which forms part of the Stage B of the redevelopment project at Manuka St Hospital. Fire and Emergency notes this consent is for the energy centre only and does not include any of the other buildings.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Exit signage

Section 3 of the fire report indicates that one new exit sign is to be provided as part of the proposed works. Noting that this exit sign is located at the final exit, which is not visible from other parts of the building, this single sign will not satisfy the requirements of Building Code, Clause F8.3.3. Signage should be provided so that the exits are visible from all occupied spaces.

Fire and Emergency advises the BCA to require the applicant amend the fire design to provide additional exit signage so that the escape routes are visible from all occupied spaces as per the requirements of Building Code clause F8.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Sophia Cao**		20 February 2020
Checked by:	**Amy Harpur**		24 February 2020
Approved by:	**Simon Davis**		24 February 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Architectural drawings – Warren and Mahoney	28/12/2019	7961	C
Fire drawings – Powell Fenwick	29/01/2020	180076/F/1	-

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	20 March 2020
Design Review No	14580

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Nelson City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC200114	**Contact**	Building Consent Administrator

Property Information			
Street Number	36	**Legal Description**	-
Street Name	Manuka Street		
Town/Suburb	-	**City/Region**	Nelson
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Warren and Mahoney
Fire Engineer	[redacted], Powell Fenwick Consultants Ltd
Fire Report Title	Fire Engineering Report Stage 2 Manuka St Hospital Nelson
Fire Report Date	26/02/2020
Version	C
Identifier	180076/F

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not specified	**Fire Alarm Type**	Type 7
Building Height	~ 4m	**No. Floors – Above**	1
Escape Height	< 4m	**No. Floors – Below**	0

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	South-West ward	G	SI	10	C/AS3 (not subject to current assessment)
2	Centre-West ward	G	SI	4	
3	North-West ward	G	SI	8	
4	Reception, Waiting Area, Training Rooms, Offices Waiting Room	G	CA/WB	54	
5	Theatre 1	G	SI	6	
6	Theatre 2	G	SI	6	
7	Theatre 3	G	SI	6	Alternative Solution
8	Theatre 4	G	SI	6	
9	Recovery Stage 1 & 2	G	SI	20	
10	Pre-op waiting, consultation rooms, kitchen, offices, laundry	G	SI/ CA	124	C/AS3

Description of the Proposed Works

This building consent application relates to the Stage 2 Manuka Street Hospital redevelopment which consists of alterations to accommodate a new Recovery Stage 1 and 2 areas, and a new operating theatre.

Fire and Emergency has been consulted during the FEB phase for this project (FEB 14176).

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be “all out”, therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Fire Matrix

Fire report Section 4.1.1 presents a fire matrix which indicates which fire safety systems would activate the building evacuation and fire brigade callout.

Fire and Emergency notes that the recovery areas are provided with smoke extraction, and the operating theatres are provided with a pressurisation system. These mechanical systems (and its associated make-up/ return air requirements) should be included in the fire matrix, as incorrect implementation of these systems may cause smoke to spread to these critical areas.

Fire and Emergency also notes that that table mentions that smoke detector activation will not provide an alarm to apartments. It is unclear if this is an error, or if there are some areas that will not receive an alarm in the event of smoke detector activation.

The fire matrix provides information to the different engineering disciplines and contractors on how the systems are to interact with each other, therefore without a clear and comprehensive fire matrix, it is unclear if the fire safety systems will operate as intended.

Fire and Emergency advises the BCA to require the applicant to provide a fire matrix that encompasses all fire safety systems and zones, in order to demonstrate that the building complies with the Building Code to the extent required in the Building Act.

1.2 Existing Plasterboard Construction

As indicated during the FEB process, Fire and Emergency has concerns that the existing plasterboard wall and ceiling construction is presented as being compliant ANARP, even though its fire rating performance is highly dependent on fixing method and cannot be verified.

Of particular concern are the operating theatres which would need up to 3600 seconds (60 minutes) to stabilise the patient prior to evacuation. Whilst Operating Theatre 4 has predominantly new fire-rated walls and ceilings, Operating Theatre 3 relies on existing walls (presented as having FRR30) and ceilings (presented as having FRR15) to provide fire safety to the occupants within the operating theatre.

Fire and Emergency understands that this wall and ceiling construction has been previously accepted by BCA as demonstrating compliance ANARP, hence has provided our concerns for consideration of the BCA.

Fire and Emergency advises the BCA to satisfy itself that the existing construction complies ANARP, or otherwise require the applicant to amend the fire design to demonstrate that the internal fire separation complies with the Building Code to the extent required in the Building Act.

1.3 High Level Make-up Air

Fire report Section 5.9.2 states that the make-up air supply for the smoke extraction system is provided at ceiling level. Appendix E presents a B-Risk model to demonstrate that the location of the make-up air provisions does not impact on the tenability conditions in the recovery area.

Fire and Emergency has concerns over the validity of using B-Risk (zone) model to demonstrate the suitability of high-level make-up air supply, as zone models are inherently simplified representations of the space, relying on stratification to create an upper and a lower layer. Hence, it is not able to simulate turbulence and potential short-circuiting of the smoke extraction system due to the high-level make-up air.

Fire and Emergency advises the BCA to require the applicant to provide robust justification that the zone model assessment is suitable, or otherwise require the applicant to reassess the building using an appropriate fire model and amend the design accordingly to demonstrate compliance with the Building Code to the extent required in the Building Act.

1.4 Fire Doors – Coordination

The door schedule in architectural drawing A7.02 presents a number of discrepancies, including but not limited to the following:

a. Door D0.86a separating the recovery area from the corridor (refer to drawing A1.12) is required to have FRR60, but its door leaf type is unspecified.

b. Door D0.123 separating the corridor from electrical plant (refer to drawing A1.13) is required to have FRR60, but has only a solid core door leaf.

Fire and Emergency advises the BCA to require the applicant to amend the door schedule to reflect the requirements of the fire report, in order to demonstrate compliance with the Building Code to the extent required in the Building Act.

1.5 Completeness of documentation

The plans and specifications provided to Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of proposed mechanical extraction system (and associated make-up air provisions), including evidence that the design will meet the extract rate and number of extract points specified in the fire report.

d. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

e. Confirmation of the Compliance Schedule entries and indicative maintenance, management and operational requirements in respect of fire safety-related systems.

Fire and Emergency advises the BCA to ensure the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

2. FIREFIGHTING NEEDS

2.1 Fire Alarm Panel

The fire report indicates that the fire alarm panel is proposed to be relocated in the building.

Fire and Emergency notes that NZS 4512:2010, Paragraph 403.1 requires the location of multi-zone fire alarms to be approved by Fire and Emergency NZ. If this approval does not accompany the consent documentation, then any location proposed cannot be considered as a final location.

Fire and Emergency advises the BCA to require the applicant to demonstrate that the proposed location has been agreed with Fire and Emergency.

2.2 Fire Hydrant System

Fire report Section 4.1.4 states that a fire hydrant system is not required for the building as all areas of the hospital can be reached within 75 m from the fire service attendance points. As indicated in the FEB process, Fire and Emergency has concerns that the hose runs from the proposed attendance points at the front of the building would exceed 75 m (to the rear corridor of the new Operating Theatre). The measured hose run length based on fire plan F1 is approximately 78 m, and requires fire-fighters to traverse through reception/ staff counters, and through the operating theatre.

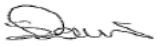
Hence, to facilitate fire-fighting without the need to provide building hydrants, Fire and Emergency requested for fire appliance vehicular access to the rear of the building.

As this does not appear to have been provided, compliance to the FO Scenario for this new part of the building is not demonstrated.

Fire and Emergency advises the BCA to require the applicant to provide fire appliance vehicular access to the rear of the building, or otherwise, to provide a robust justification that the fire-fighting provisions for the new works comply with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Adeline Teo**		16 March 2020
Checked by:	**Paul Richards**		18 March 2020
Approved by:	**Simon Davis**		20 March 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Powell Fenwick fire plan F1, F2, FEB1	Multiple	180076/F/1	Multiple
Warren and Mahoney architectural drawing set	2 March 2020	7961	Multiple

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	11 December 2020
Design Review No	15808

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the New Plymouth District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC20/127033	**Contact**	[redacted]

Property Information			
Street Number	43	**Legal Description**	
Street Name	David Street		
Town/Suburb	Westown	**City/Region**	New Plymouth District
Owner/Registered Proprietor	Ministy of Health		
Premises / Company Name	Taranaki Base Hospital		

Design Details	
Architect	Warren and Mahoney
Fire Engineer	[redacted], Norman Disney & Young
Fire Report Title	Fire Engineering TARANAKI BASE HOSPITAL REDEVELOPMENT - PROJECT MAUNGA STAGE 2 SRMP – RENAL BUILDING Taranaki DHB
Fire Report Date	21/11/2020
Version	3.3
Identifier	rp200217a0021

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	x	x
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	806m^2	**Fire Alarm Type**	7
Building Height	Not stated	**No. Floors – Above**	1
Escape Height	0m	**No. Floors – Below**	0

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Renal treatment facility	Ground	SI	49	Alt Soln

Description of the Proposed Works

This application for consent concerns a new single storey hospital support building incorporating a renal treatment facility. It is stated that all occupants are alert and able to self-evacuate within a 3 min disconnection process (if connected to dialysis).

The design uses an Alternative Solution approach This approach and the associated gap assessment have been peer reviewed by an independent fire engineer (Daryn Glasgow of Crossfire).

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency NZ Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

www.fireandemergency.nz

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Fire ratings

Appendix F of the fire report calculates the fire ratings of both the underfloor space and the rubbish room. This is stated to be in accordance with the methodology within C/VM2 section 2.4. Fire and Emergency notes the following points:

a. For the rubbish room a FLED of 400 MJ/m^2 has been used. Considering the use of the space is to store rubbish, it is unclear why the FELD of 400MJ/m^2 has been considered appropriate.

b. The calculations consider either one or both external doors open to provide ventilation. An additional calculation has been undertaken with both doors closed with no ventilation. These calculations are not in line with C/VM2 as claimed, in that if the vertical ventilation factor a_v is less than 0.025 then C/VM2 specifies a value of 0.025 to be used.

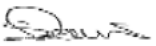
   In the context of an alternative solution, the approach is not conservative as it does not consider a partially open nor does it consider the failure of the glazed vision panels in this door. Given the small area of the firecell, a single door leaf has a significant impact on the ventilation percentage.

Consideration of the impact of either of these two factors would result in a fire rating exceeding the 30 minutes proposed by the fire design.

Fire and Emergency advises the BCA to require the revise the design as required to address the fire rating of the disposal room in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**James Firestone**		8 December 2020
Checked by:	**Paul Richards**		11 December 2020
Approved by:	**Simon Davis**		11 December 2020

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
NDY - Fire Plans (Consent Set)	21-11-20	-	3.3
Warren & Mahoney Architectural Drawings (Consent Set)	24-07-20	8728	C

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	13 October 2021
Design Review No	17326

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the New Plymouth District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC21/129309	**Contact**	[redacted]

Property Information			
Street Number	27A	**Legal Description**	
Street Name	David Street		
Town/Suburb	Westown	**City/Region**	New Plymouth District
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Boon team Architects
Fire Engineer	[redacted] Cross Fire
Fire Report Title	Fire Safety Design Taranaki Base Hospital A c u t e Services Building PPE Store Extension
Fire Report Date	19/08/2021
Version	A
Identifier	4040

Overview

Legislation			
Description	Building Act Section	Proposed	Assessed
New Build	17		
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	Fire Alarm Type	7
Building Height	Not stated	No. Floors – Above	4
Escape Height	<4m (from basement)	No. Floors – Below	1

Population Characteristics and Design Methodology				
Space Description	Level(s)	Risk Group	Number of Occupants	Compliance Path
Services, plant, BoH and storage	Basement	WB	38	Alt. Solution

Description of the Proposed Works

The proposed works involves alterations to the basement of an existing hospital building. This includes a new extension with an approximate area of ~120m^2 to accommodate a new personal protective equipment storage space. The upper floors of the building are unaffected by the proposed alterations.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 16. Therefore, the level of information provided for assessment is a gap assessment. There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Extent of Review

The fire report reviews the proposed alteration in isolation, with minimal information provided for the remaining areas/floors of the building and adjacent main building. Section 112 of the Building Act requires an assessment to be made on a 'whole building' basis rather than solely considering the area of works. This is emphasized in section 3.3 of the MBIE Guidance document "Requesting information about means of escape from fire for existing buildings".

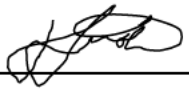
While Fire and Emergency acknowledges that a full review of the entire complex may not be appropriate, it unclear if the BCA has accepted the level of assessment provided for what is in essence a 'statement of change'.

Fire and Emergency advises the BCA to satisfy itself that the level of assessment is appropriate and, if not, expand this to review the means of escape provisions for the entire building to the extent required by the Building Act.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Omar Abu-Hijleh**		7 October 2021
Checked by:	**James Firestone**		13 October 2021
Approved by:			13 October 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
MEP Drawings	27.09.21	5296382	0
Fire drawings	19.08.21	4040	A
Architectural drawings	29.09.21	6697	-

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	04 August 2020
Design Review No	15155

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Queenstown Lakes District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC200835	**Contact**	[redacted]

Property Information			
Street Number	20	**Legal Description**	-
Street Name	Douglas Street		
Town/Suburb	Frankton	**City/Region**	Queenstown
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Southern District Health Board
Fire Engineer	[redacted], Cosgroves Ltd
Fire Report Title	Fire Engineering Review for Lake District Hospital Whanau Room at 20 Douglas Street, Frankton
Fire Report Date	15/07/2020
Version	
Identifier	CS19131

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not Stated	**Fire Alarm Type**	Type 7
Building Height	5.5 m	**No. Floors – Above**	2
Escape Height	3.2 m	**No. Floors – Below**	-

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Whanau Room	G	SM	4	C/AS 2

Note- Occupant load of the whole building has not been stated in the fire report and the total occupant load of the building will not be changed as per the proposed works.

Description of the Proposed Works

This consent application concerns the extension and associated internal alterations for Lake District Hospital Whanau Room at 20 Douglas Street, Frankton. Section 2 of the fire report states that the existing Whanau room is used as a sleeping area for overnight visitors to the hospital.

Section 2 of the fire report states that a *detailed building Gap Assessment has recently been carried out and documented in the fire report prepared by Cosgroves Ltd, dated September 2018, titled "Southern Lakes District Hospital", Issue D, Ref CS17075. In addition, four addendums were issued by Cosgroves during the construction phase in 2019, addressing various fire rating changes that occurred during the construction period.* The fire report therefore proposes to limit its review to the proposed area of work as a "statement of change" fire review.

In view of the recent full building review, and that the proposed work area is fire separated from rest of the building and provided with independent egress directly to outside not affecting existing building fire safety provisions, Fire and Emergency did not make comment in this regard and our review is limited to the area of works in line with the fire report. Comments raised on the previous gap assessment for the building (DR 11552) are assumed to have been addressed and accepted by council.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 17. Therefore, the level of information provided for assessment is a gap assessment, however, the design is proposed to be a statement of change review (refer introduction above). There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of existing and proposed new surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of existing and proposed new flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of proposed external wall cladding, including evidence that the specified product(s) will not exceed the acceptable peak rate of heat release and total heat released as specified in the fire report.

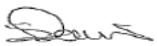
d. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		30 July 2020
Checked by:	**Angela Chen**		4 August 2020
Approved by:	**Simon Davis**		4 August 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Cosgroves, Fire Plans (Consent set)	21/07/2020	CS19131	B
Southern District Health Board, Architectural Plasn (Consent set)	21/07/2020	20015	2

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	03 November 2020
Design Review No	15607

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Rotorua Lakes Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	B 81376	**Contact**	[redacted]

Property Information			
Street Number	58	**Legal Description**	-
Street Name	Otonga Road		
Town/Suburb	-	**City/Region**	Rotorua
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Archimedia
Fire Engineer	[redacted], Cross Fire
Fire Report Title	Fire Safety Design Southern Cross Hospital Rotorua – Stage 1 & Stage 2 Southern Cross Hospitals
Fire Report Date	16/09/2020
Version	D
Identifier	2939

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	x	x
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	347m^2, 249m^2, and 102m^2	**Fire Alarm Type**	7
Building Height	Unknown	**No. Floors – Above**	1
Escape Height	0m (Area of works)	**No. Floors – Below**	0

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Ward 1	Ground	SI	22	C/AS2
2	Ward 2	Ground	SI	13	C/AS2
3	Oncology	Ground	SI	14	C/AS2

Description of the Proposed Works

The proposed works includes minor internal alteration to three limited areas of an existing hospital. As a result of the proposed works, existing separating construction between the three areas and adjacent spaces are to be upgraded to be fire separations of 60/60/- FRR.

Note: Ward 2 includes 5 HDU (High Dependency Unit) bedrooms.

Fire and Emergency notes that the consent documentation provided for review do not contain a set of architectural drawings. Without architectural drawings, Fire and Emergency is unable to confirm that the requirements of the fire design have been co-ordinated.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 17. Therefore, the level of information provided for assessment is a gap assessment. There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Assessment Methodology

Section 1.1.1 of the fire report states the single level hospital building contains operating theatres and recovery areas, which C/AS2 Paragraph 1.1.2 (c) specifically stated as being outside the scope of Acceptable Solution.

In particular, Section 1.3 declares that there are 5 High Dependency Unit 'HDU' beds located in Ward 2 (area of proposed work), which typically involve sedation and may require a 'defend in place' strategy. While Section 2.2.1 of the fire report states *'the design assumes that the evacuation will commence promptly on the fire alarm'*, no supporting evidence from the hospital management on the building evacuation strategy and management procedures to support the use of Acceptable Solution for the building.

Fire and Emergency advises the BCA to

a. **require the applicant to provide further information regarding the activities that occur in the HDU, the extent of occupant dependency, the intended evacuation strategy and the proposed management procedure for these occupants, or**

b. **revise the design to use a suitable alternative methodology in order to demonstrate compliance to the Building Code to the extent required by the Building Act.**

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

2. MEANS OF ESCAPE

2.1 Extent of Review

While partial information on the overall building is provided, the fire report appears to be largely focus its review on area of work (i.e. Ward 1 & Ward 2). No detailed review has been provided for the Theatre suite. Fire and Emergency notes that no information has been provided to justify a reduced scope of assessment (e.g. via the MBIE scoresheet for existing buildings).

Section 112 of the Building Act refers to the compliance of the *building* following the proposed works, not limiting to area of work, therefore the assessment does not contain adequate information to demonstrate the extent of compliance required by Section 112 of the Building Act.

Fire and Emergency advises the BCA to require the applicant to provide a full assessment of the building, in order to demonstrate Building Code compliance to the extent required by the Building Act.

2.2 Fire Door

Section 2.1.6 of the fire report states doors in fire separation shall comply with a minimum rating of -/xx/-sm (xx = rating of surrounding partition) and have self closer fitted. However, Fire and Emergency notes that C/AS2 Table 4.2 requires provision of -/*/30sm (* integrity value of the fire rating) for closures in fire separation within sprinklered SI Risk Group i.e. provision of 30 minutes insulation is required. The proposed design does not comply with the relevant requirement.

Fire and Emergency advises the BCA to require the applicant to amend the design and provide fire door with the required insulation in order to demonstrate compliance to the Building Code.

2.3 Completeness of Documentation

The plans and specifications provided to Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

d. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

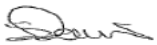
e. The location of proposed emergency lighting shown clearly on the drawings.

f. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Stephen Reeves**		28 October 2020
Checked by:	**Angela Chen**		2 November 2020
Approved by:	**Simon Davis**		3 November 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Crossfire Fire Drawings	16/9/2020	2939	D

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	31 August 2020
Design Review No	15290

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Ruapehu District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC2387	**Contact**	[redacted]

Property Information			
Street Number	63	**Legal Description**	-
Street Name	Kururau Road		
Town/Suburb	-	**City/Region**	Taumarunui
Owner/Registered Proprietor	Waikato District Health Board		
Premises / Company Name	Taumarunui Hospital		

Design Details	
Architect	Waikato District Health Board
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	WDHB - Taumarunui Maternity Ward S112 Assessment Building Fire Engineering Gap Assessment Report
Fire Report Date	13/08/2020
Version	0
Identifier	5494150

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~240m^2 (maternity ward)	**Fire Alarm Type**	Type 6 + supplementry smoke detectors (maternity ward firecell) Type 6 (rest of the building)
Building Height	Not stated	**No. Floors – Above**	1
Escape Height	0m?	**No. Floors – Below**	Subfloor space

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Maternity Ward	G	SI?	16	C/AS2?

? refer comment 1.1 below

Description of the Proposed Works

This application for consent concerns alteration of the existing maternity ward at Taumarunui Hospital. The maternity ward contains two LDR (labour, delivery, recovery) rooms, a labour room, two postnatal rooms, a lounge, two offices and other supporting spaces.

The fire report limits its review to firecell of work (maternity ward) and states this has been agreed with BCA. Fire and Emergency was not party to any discussions leading to the agreement and notes that no evidence of an agreement being reached was included in the documentation submitted for review.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has not provided an overall building score in line with MBIE guidance[1]

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Assessment Methodology

The Executive Summary section and Appendix B of the fire report states that the fire engineering S112 methodology has been agreed with council to be C/AS2 gap assessment, risk group SI, because the building is provided with an all-out evacuation strategy. This contradicts to Section 3.2.2 of the fire report where staged evacuation seems to be implemented in the maternity wards.

In addition, Fire and Emergency notes that delivery rooms are specifically stated to be outside the scope of Acceptable Solution per C/AS2, 1.1.2 (c) as evacuation from delivery room is expected to be delayed due to nature of its usage. Patients may be subject to sedation or epidurals during difficult birth and require assistance to evacuate. Other project of the same nature suggests that in worst case it could take up to 30 minutes to prepare patients and move them out.

A lower level of mobility of occupants/patients within the post-natal rooms can also be expected due to the following:

- Patients that have undergone caesarean section are not likely to be able to self-evacuate.
- Patient just gone through labour may be exhausted and require assistance to evacuate.
- Patient may have suffered complications (e.g. severe blood lost and/or subsequent stitches) may be extremely uncomfortable and may have reduced mobility.
- New-born babies usually stay with their mother in the post-natal rooms. In an emergency situation, patients may need to evacuate holding their new born, which will slow down their evacuation.

As Fire and Emergency has not been contacted by the consultant as suggested in the Appendix B meeting minutes, and that there is no confirmation of acceptance by council to the meeting minutes, Fire and Emergency questions the suitability of the proposed methodology.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Fire and Emergency advises the BCA to satisfy itself that the proposed assessment methodology is suitable to sufficiently address the potential risk to occupants , in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

Notwithstanding the above, the following advice are provided based on its compliance to C/AS2, SI risk group requirements.

2. MEANS OF ESCAPE

2.1 Type 7 System

Section 4.1 of the fire report propose to upgrade the existing Type 6 system to Type 7 system within maternity ward firecell by providing automatic smoke detection below ceiling. The fire report states that detection in the ceiling voids may be provided by sprinkler only without justification.

Based on Table 2.2a of C/AS2, the fire safety provision requirement for the firecell is Type 7. As the ceiling space is not fire separated, smoke detection is required to be provided within the ceiling space to form a complete Type 7 system.

Fire and Emergency advises the BCA to require the applicant to provide further justification for the lack of smoke detection or to include the required smoke detection within ceiling the space, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

2.2 Combined effect of existing non-compliances

The fire report identifies a number of existing non-compliances as follows.

a. Insufficient life rating on existing fire separation from adjacent firecell – existing 30 minutes instead of required 60 minutes

b. Retaining existing smoke separation to sleeping area – existing smoke separation instead of required fire separation

c. No fire separation from subfloor space – existing fire separation from adjacent area is proposed to extend down to the subfloor space

d. Retaining existing false ceiling as smoke barrier

e. Retaining existing surface finish

Despite these identified items, the fire report argues that the existing design is acceptable on an ANARP basis given the limited work proposed, high cost to upgrade to requirement and disruption. Fire and Emergency notes that the proposal is to reinstate the original Maternity ward use. It is understood that the space is currently unused, hence potential disruption resulting from any upgrade work should be minimal.

While each of the items above may not be as significant in isolation, the cumulative impact of these issues has not been considered. As all these items directly impact on occupant's life safety, especially the more vulnerable occupants requiring care and assistance to evacuate, Fire and Emergency consider that additional information is required to demonstrate that compliance on an ANARP basis has been achieved.

Fire and Emergency advises that the BCA requires the applicant to provide a robust ANARP argument, considering all relevant factors to demonstrate compliance with the Building Code to the extent required by the Building Act.

2.3 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

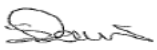
c. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

d. The location of proposed emergency lighting shown clearly on the drawings.

Fire and Emergency advises the BCA to ensure the applicant to provide the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		28 August 2020
Checked by:	**Etienne Hermouet**		31 August 2020
Approved by:	**Simon Davis**		31 August 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix A Fire Engineering Sketches	13/08/2020	5494150	0
Architectural drawing set	May 2020	-	0

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	05 October 2021
Design Review No	17280

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Tauranga City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC312329	**Contact**	[redacted]

Property Information			
Street Number	281	**Legal Description**	Grace Hospital
Street Name	Cheyne Road		
Town/Suburb	Oropi	**City/Region**	Tauranga
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Archimedia
Fire Engineer	[redacted], Beca Ltd
Fire Report Title	Grace Hospital Stage 5 Theatres 8 & 9 Fitout Fire Engineering Report
Fire Report Date	20/08/2021
Version	0B
Identifier	5494974-878144386-1071

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112		
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not stated	Fire Alarm Type	Type 7
Building Height	Not stated	No. Floors – Above	2
Escape Height	Not stated	No. Floors – Below	1

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Operating Theatre (OT8 & 9)	G	SI	Not stated	Alt Solution

Description of the Proposed Works

This application for consent concerns the first fitout work to a vacant shell area to create two new operating theatres (OT08 & OT09) at the Grace Hospital.

The fire report limits its review to the proposed fitout area only.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

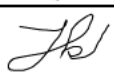
Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

On assessment of the plans and documentation supplied, Fire and Emergency NZ has no advice or comment to offer on this particular application.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		1 October 2021
Checked by:	**JK Park**		5 October 2021
Approved by:	**Simon Davis**		5 October 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix A Fire Engineering Sketches	20/08/2021	5494974/401	-
Architectural drawing set	30/09/2019	18039	B
Electrial drawing set	20/08/2021	5494974	0

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	13 January 2021
Design Review No	15913

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Timaru District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC2.2020.927.1.	**Contact**	[redacted]

Property Information			
Street Number	53	**Legal Description**	-
Street Name	Elizabeth Street		
Town/Suburb	-	**City/Region**	Timaru
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Totem Studio Architects Ltd
Fire Engineer	[redacted], Powell Fenwick Consultants Ltd
Fire Report Title	Fire Statement NEW BASEBUILD EXTENSION (CONSENT STAGE 1 OF 2) FOR BIDWILL TRUST HOSPITAL 53 ELIZABETH ST, TIMARU
Fire Report Date	04/12/2020
Version	D
Identifier	200766/F

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~3000m^2	**Fire Alarm Type**	Type 7
Building Height	~9.4m	**No. Floors – Above**	Ground
Escape Height	~0m	**No. Floors – Below**	Lower Ground

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Existing hospital building	Ground + Lower Ground	SI	226	C/AS2
New PRG extension	Ground	SI	50	C/AS2

Description of the Proposed Works

It is proposed to construct a new extension to the existing Bidwell Hospital. The extension will include reconfiguration and minor extension of part of the eastern of the existing hospital and an addition of a new radiology clinic on the same part of the eastern elevation.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Assessment methodology

Section 1 of the fire report indicates that it has been agreed, in principle, to assess the compliance of the existing and new parts of the building against C/AS2. It is noted that this building (as a whole) has features that place it outside the scope of C/AS2 including delayed evacuation of Theatre spaces. The fire report indicates that assessment against C/AS2 has been agreed in principle with the BCA.

Fire and Emergency notes that;

a. As new construction, the new part of the building is typically expected to be assessed using an appropriate compliance methodology (which is not C/AS2).

b. Notwithstanding part "a" of this comment, there is no supporting evidence within the documents provided to Fire and Emergency which shows that an agreement has been reached between the applicant and the BCA to assess the whole building against C/AS2. This should be included within the consent documentation to create a record of said agreement which highlights the basis of and any assumptions/limitations of the agreement.

c. Section 1 of the fire report indicates that part of the basis for the above noted agreement is that fire upgrade work was carried out to this building in 2010. No further detail is provided on what works were carried out or to what extent compliance was achieved at that time. Therefore, Fire and Emergency cannot provide comment on the suitability of this part of the justification for assessing against C/AS2.

Based on the above, Fire and Emergency has concerns that the assessment approach adopted in the fire report is not suitable for a building of this type. In particular, the assessment approach does not provide assurance that the proposed design will support the evacuation strategy for this building; this is important due to the delayed/assisted evacuation strategy.

Fire and Emergency advises the BCA to either;

a. **satisfy itself that the assessment of this building against C/AS2 is appropriate and any associated agreement has been suitably evidenced for future reference or,**

b. **require the applicant to provide a revised assessment of the means of escape from this building using a more suitable compliance methodology (i.e. alternative solution).**

2. MEANS OF ESCAPE

2.1 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed new surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed new flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

d. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

e. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises the BCA to ensure the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Amy Harpur**		12 January 2021
Checked by:	**Eduardo Maciel**		13 January 2021
Approved by:	**Etienne Hermouet**		13 January 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire report drawing set – Powell Fenwick	4 December 2020	200766	Issue D
Architectural drawing set – Totem Studio Architects	7 December 2020	Not stated	B

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	05 February 2021
Design Review No	16039

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Timaru District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC2.2020.948.1	**Contact**	[redacted]

Property Information			
Street Number	14-16	**Legal Description**	Timaru Hospital
Street Name	Queen Street		
Town/Suburb	Parkside	**City/Region**	Timaru
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	DLA Architects
Fire Engineer	[redacted], Cosgroves Ltd
Fire Report Title	Timaru Hospital, Level 2, Child and Maternity Services Refurbishment 14-16 Queen Street, Parkside, Timaru Fire Safety Gap Analysis
Fire Report Date	08/12/2020
Version	B
Identifier	CC20056

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	2400m^2	**Fire Alarm Type**	Type 7
Building Height	Not stated	**No. Floors – Above**	5
Escape Height	Not stated	**No. Floors – Below**	1

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Area of Work (Child and Mternity)	Level 2	SI	93	C/AS2*
	Remaining building	B, Level 1, 3,4 & 5	WB / SI / CA	725	TBA

*refer comment 1.1 below

Description of the Proposed Works

This application for consent concerns proposed alteration for Level 2 of Timaru Hospital, Child and Maternity Services.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 24. Therefore the level of information provided for assessment is a "full assessment."

Fire and Emergency New Zealand Advice Under Section 47

1. METHODOLOGY

1.1 Assessment Methodology

Section 1.1 of the fire report states that the fire safety design for Level 2 is in accordance with C/AS2, and that the existing birthing suites are to be retained as discussed with Timaru District Council and FENZ.

Fire and Emergency notes that delivery rooms are specifically stated to be outside the scope of Acceptable Solution per C/AS2, 1.1.2 (c) as evacuation from delivery room is expected to be delayed due to nature of its usage. Patients may be subject to sedation or epidurals during difficult birth and require assistance to evacuate. Other project of the same nature suggests that it could take up to 30 minutes to prepare patients and move them out. While Section 5.2.25 of the fire report argues that the birthing suites are not intended to support complex birthing situations, Fire and Emergency questions how this could be controlled.

Furthermore, Fire and Emergency notes that a lower level of mobility of occupants/patients within the post-natal rooms can be expected due to the following:

- Patients that have undergone caesarean section are not likely to be able to self-evacuate.
- Patient who have just gone through labour may be exhausted and require assistance to evacuate.
- Patient may have suffered complications (e.g. severe blood lost) may be weaker and/or may have reduced mobility.
- New-born babies usually stay with their mother in the post-natal rooms. In an emergency situation, patients may need to evacuate holding their new born, which will slow down their evacuation.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

The fire report is referencing a meeting with Fire and Emergency representative held on the 1 December 2020 and appears to suggest that the proposed approach and use of C/AS2 was endorsed during the discussion. Fire and Emergency acknowledges the meeting but notes that the discussions were centred around the building's evacuation scheme. No specific agreement was given on the proposed assessment methodology (i.e. use of C/AS2). Fire and Emergency does not consider C/AS2 appropriate to establish compliance with the Building Code for this project. It is however acknowledged that the decision rests with the BCA.

Fire and Emergency advises the BCA to require the applicant to re-assess the design using a suitable methodology that adequately considers the potential risk to occupants, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

Notwithstanding the above, the following advice is provided based on its compliance to C/AS2, SI risk group requirements.

2. MEANS OF ESCAPE

2.1 Neo-Natal Ward Dead End Travel Distance ANARP Justification

Section 5.2.7 of the fire report highlights the non-compliant dead-end travel distance in the neo-natal ward, which exceeds the limitation by 35%. The fire report argues that the patients (mothers and babies) will mostly be able to self-evacuate together, and there is staff presence to assist evacuation, hence propose to retain the existing layout on ANARP basis.

However, according to the architectural drawing set (Drawing A1.00 and A1.01), the area was originally used for Physiotherapy and the space was a Hydrotherapy pool. The introduction of neo-natal ward and potentially sick babies are new under this consent.

Fire and Emergency understands the space is mainly for new-born babies with special needs and may be on life-support machines, while there is provision for mothers to visit, evacuation is still heavily relying on nurses assistance and may be longer than other maternity spaces. Furthermore, Fire and Emergency notes that the fire separation and evacuation zone have been modified around this area under this consent, which could have been an opportunity to update it to a compliant design. Therefore, in view of the vulnerability of the occupants within and the "new" nature of the space, Fire and Emergency does not consider the proposed ANARP argument to be suitable.

Fire and Emergency advises that the BCA requires the applicant to revise the design to position the high risk neo-natal ward in a location with compliant travel distance, or to provide additional protection to the space, in order to demonstrate compliance with the Building Code to the extent required by the Building Act.

2.2 Combined effect of existing non-compliances

Section 3 of the fire report identifies a number of existing non-compliances for Level 2 as follows. It is noted that more non-compliances may exists on other levels.

a. Lack of independent water supply for the sprinkler system

b. Lack of fire rated corridor for the central stair (i.e. discharge into ground floor firecell)

c. Extended dead end travel distance from the neo-natal wing

d. Retaining existing switchboard in exitway, but provide smoke seals at the door as improvement

e. Retaining existing stair doors (the performance of which is unclear) on levels other than Level 2

f. Penetrations in area remote form alteration are to be retained and reviewed in later stage

g. Retaining existing surface finish

Despite these identified items, the fire report argues that the existing design is acceptable on an ANARP basis given the limited work proposed, high cost to upgrade to requirement and disruption. While each of the items above may not be as significant in isolation, the cumulative impact of these issues has not been considered. As all these items directly impact on occupant's life safety, especially the more vulnerable occupants requiring care and assistance to evacuate, Fire and Emergency considers that additional information is required to demonstrate that compliance on an ANARP basis has been achieved.

Fire and Emergency advises that the BCA requires the applicant to provide a robust ANARP argument, considering all relevant factors to demonstrate compliance with the Building Code to the extent required by the Building Act.

2.3 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

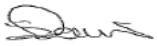
d. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

e. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises the BCA to ensure the applicant to provide the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		29 January 2021
Checked by:	**Etienne Hermouet**		4 February 2021
Approved by:	**Simon Davis**		5 February 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Appendix A Fire Safety Requirements	08.12.20	CC20056	2
Architcetural drawing set	11.12.20	S825	1

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	21 January 2020
Design Review No	13955

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Wairoa District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC190122	**Contact**	[redacted]

Property Information			
Street Number	-	**Legal Description**	
Street Name	Kitchener Street		
Town/Suburb	-	**City/Region**	Wairoa
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Architecture HDT
Fire Engineer	[redacted], GHD Olsson Fire & Risk Consulting Engineers
Fire Report Title	Design Advice Proposed Alterations to the Xray Unit D Block in the Wairoa Hospital
Fire Report Date	27/11/2019
Version	DA01
Identifier	12514596

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	x	x
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	~1000 m^2	**Fire Alarm Type**	Type 7
Building Height	Unknown	**No. Floors – Above**	1
Escape Height	< 4m	**No. Floors – Below**	1

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Office/Lab	GL	WB	100	C/AS1 (2012)

Description of the Proposed Works

It is proposed to carry out alterations to one 3-level block of the existing healthcare complex. The proposed works involve removing exiting floor coverings, adding an internal partition and doors in partial of the ground floor.

The block has an existing Type 7 fire safety system which is to be retained and altered to suit the new layout of the building.

Fire and Emergency notes that the assessment presented is limited to the area of works, which is deemed appropriate for the limited scope of works based on MBIE guidance. However, the decision to accept this approach rests with the BCA.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 10. Therefore the level of information provided for assessment is a "list of fire safety features and statement of changes". There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Completeness of Documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

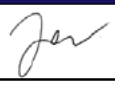
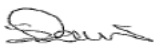
c. The location of the required exit signage shown clearly on the drawings to identify the escape routes.

Fire and Emergency advises the BCA to ensure the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Jewel Zhu**		21 January 2020
Checked by:	**Etienne Hermouet**		21 January 2020
Approved by:	**Simon Davis**		21 January 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire drawing - GHD Olsson Fire & Risk Consulting	27/11/2019	12514596	0
Fire drawing – Holmes Fire	09/03/2012	107167	C

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	11 September 2020
Design Review No	15360

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Wellington City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	Sr471172	**Contact**	Building Consent Administrator

Property Information			
Street Number	23	**Legal Description**	
Street Name	Mein Street		
Town/Suburb	Newtown	**City/Region**	Wellington
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Pelorus Architecture
Fire Engineer	[redacted], Fire HQ
Fire Report Title	Wellington Hospital Level 10 CSB Fitout Riddiford Street Newtown Wellington
Fire Report Date	20/08/2020
Version	B
Identifier	6364.202

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	1,917 m^2	**Fire Alarm Type**	Type 7 (Proposed Floor)
Building Height	43 m	**No. Floors – Above**	13
Escape Height	34.7 m	**No. Floors – Below**	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Offices/Meeting/Training/Theatre	10	WB	218	C/AS 2

Description of the Proposed Works

This consent application concerns the existing 13 storey CSB building at Wellington Hospital. The building is mainly used for offices and laboratories serving the hospital.

The proposed work is a refurbishment of Level 10 of the building.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Escape Routes – Direction of Opening

Section 1.2.3 of the fire report states that *All doors serving more than 50 people shall swing in the direction of escape and this applies to all main escape routes and meeting room exits.* Fire and Emergency observes from Table 1 of the fire report that the occupant load of the Level 10 is 218 people and they are served by two vertical safe paths.

Fire and Emergency observes from the fire plan and the architectural plan that a double-leaf egress door to the North stair opens against the direction escape and observes from the architectural plan that the door is a new door, thus required to fully comply with the Building Code.

C/AS2, Paragraph 3.15.3, states that, for exit routes serving spaces with an occupancy of greater than 50, exit doors are required to swing in the direction of escape.

The proposed arrangement does not comply, and as the fire report specifies the compliance requirements for egress doors, then the drawings should reflect this.

Note it is not permissible to divide the total occupant load by the number of doors available and if less than 50/door state that this achieves compliance as occupants will not evenly divide themselves up this way and it is well proven than they most often use the main entrance or door they are most familiar with.

Fire and Emergency advises that the BCA requires the applicant to address the direction of door opening in order to demonstrate compliance with the Building Code.

1.2 Design Coordination – Fire Rating

The fire plan FES-01 shows the locations of fire rated walls.

On review of architectural plan 1779A3-10-1, it appears that the duct room near the South stair does not include a 30-minute fire rating as required by the fire safety design.

Fire and Emergency notes that fire rating requirements identified in the fire report and the fire plan should be reflected in the architectural plan.

Fire and Emergency advises that the BCA requires the applicant to revise the design to address the issues identified above (as well as any others identified during design co-ordination) in order to satisfy the requirements of the fire design.

1.3 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed new surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed new flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

d. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

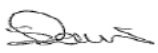
e. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

f. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		8 September 2020
Checked by:	**Stephen Reeves**		11 September 2020
Approved by:	**Simon Davis**		11 September 2020

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Fire HQ, Fire Plans (Consent set)	20/08/2020	6364.202	B
Pelorus Architecture, Architectural Plans (Consent set)	25/08/2020	1779	A
Aurecon, Mechanical Plans (Consent set)	21/08/2020	504141	C
Aurecon, Electrical Plans (Consent set)	21/08/2020	504141	B
Aurecon, Frie Protection Plans (Consent set)	21/08/2020	504141	B

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	26 March 2021
Design Review No	16339

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Wellington City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	SR485685	**Contact**	Building Consent Administrator

Property Information			
Street Number		**Legal Description**	
Street Name	Riddiford Street		
Town/Suburb	Newtown	**City/Region**	Wellington
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted], Fire HQ
Fire Report Title	Wellington Hospital CSB Level 3 Fitout Riddiford StNewtown Wellington
Fire Report Date	22/02/2021
Version	E
Identifier	6364.203

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112		
Change of Use	115	X	X
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	1,917 m^2	**Fire Alarm Type**	Type 7 (Level 3)
Building Height	43 m	**No. Floors – Above**	13
Escape Height	34.7 m, 0 m (Level 3)	**No. Floors – Below**	-

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Urology Department	3	CA	39	Alternative Solution
	Renal Department	3	SI	66	Alternative Solution

Description of the Proposed Works

This consent application concerns a refurbishment of Level 3 CSB of the existing, 13 storey commercial building.

Level 3 of CSB building is to be comprised of a Renal and Urology department with 12 treatment rooms, 5 consult rooms, staff bases and offices. The building is connected by corridor to other areas of the Wellington Regional Hospital. Original use of the space is understood to be office without care units, hence this consent constitutes a Change of Use.

This consent also covers small area of new cladding on Level 3 and small areas of floor infilling on Level 4 and Level 7.

The fire report states that the alteration area contains medical services for outpatients only There are no wards on this floor or within the CSB, and it is not occupied overnight. Any procedures undertaken are minor in nature using local anaesthetic only if required, and patients are assumed to be able to self-evacuate. The building is under "one out all out" evacuation strategy.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 ASET / RSET Assessments

Fire and Emergency has the following comments on the proposed ASET / RSET Assessments:

a. Space to be Modelled

Figure 2 and 3 of the fire report shows the B-Modelling set up with a wire diagram and shows the internal spaces as combined area to be modelled without consideration of internal partitions.

As commented during FEB stage (item 1.11 of FEB comment refers), in the presence of a sprinkler system, the upper layer temperature in the room of origin is not likely to exceed 200°C therefore failure of internal partition walls is not likely to occur and should be considered in the relevant model. This is likely to reduce the smoke reservoir size and impact on ASET timing.

b. Potential Merging Flow

Section 5.5 of the fire report argues the impact of merging flow is negligible and that Section 8 of the fire report provides the RSET calculation based on time of people leaving the affected firecell only.

As commented during FEB stage (item 1.4 of FEB comment refers), the building is under total evacuation strategy, potential merging flow should be considered in the design, including occupants from both L3 firecells and people from upper levels. The discussion provided does not consider the nature of the occupancy at various locations in the building and the associated difference in pre-movement time. As occupants on Level 3 has longer pre-movement time (up to 180s) compare to other upper office floors (60s), it is expected occupants from upper floors are likely to take precedence in using the stair final exit. This is likely to impact on RSET timing.

Fire and Emergency advises that the BCA requires the applicant to amend the fire report, to include consideration of internal partitions and merging flow in ASET/RSET assessment per agreement reached at FEB stage, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

1.2 Urology Department

Section 3.1.2 of the fire report states that the risk group of the Urology department is to be CA and any procedures undertaken are minor in nature using local anaesthetic only if required, and patients are assumed to be able to self-evacuate.

Fire and Emergency observes that confirmation letter from the building owner (indicating the Urology department have no procedures that render the occupants incapable and therefore do not require assistance to escape) has not been provided to this consent application as recommended at FEB stage (item 1.5 of FEB comment refers).

Fire and Emergency advises that the BCA requires the applicant to provide a confirmation letter from building management stating that the urology department is for outpatients only and there will be no procedure requiring assistance to escape, or satisfies itself that the proposed level of information is appropriate to the project and, if necessary, requires the applicant to amend the documentation to address all issues arising.

1.3 Design Coordination - Exit Signs

Fire and Emergency observes that the exit sign locations at the north side of Urology department shown on the fire plan is different from that shown on the electrical plan El-1031.

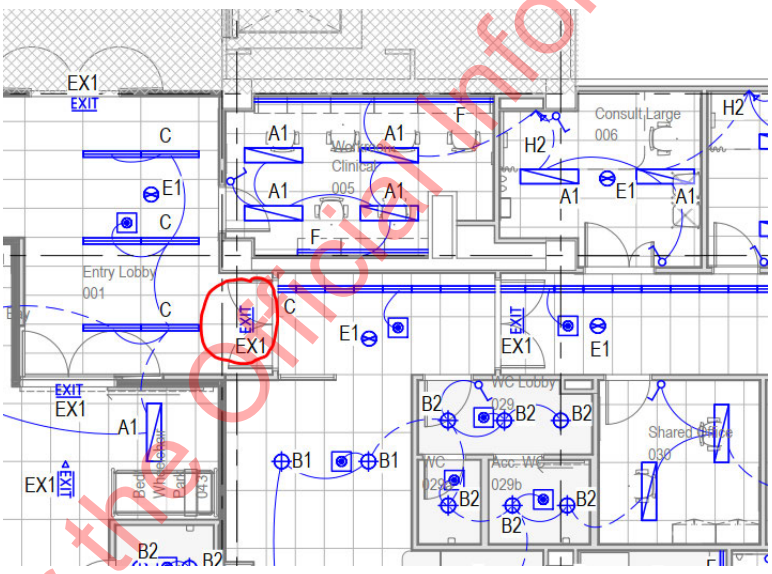


Figure 1 - Locations of exit signs - Extracted from the electrical plan EL-1031

The exit sign circled in red in the figure above should be re-located to the other side of the double leaf door as shown on the fire plan to meet the design intent.

Fire and Emergency advises that the BCA requires the applicant to revise the design to address the issues identified above (as well as any others identified during design co-ordination) in order to satisfy the requirements of the fire design.

1.4 Design Coordination – Fire Door

The fire plan states that the existing fire door to the cleaner's room is to have smoke and intumescent paint fitted. However, Fire and Emergency cannot verify from the architectural plan A-302 that the door is to be fitted with smoke and intumescent paint.

Fire and Emergency notes that the fire rating requirements for the door is required to be reflected in the architectural plan.

Fire and Emergency advises that the BCA requires the applicant to revise the design to address the issues identified above (as well as any others identified during design co-ordination) in order to satisfy the requirements of the fire design.

1.5 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of existing and proposed new surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of existing and proposed new flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

d. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

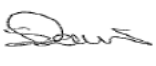
e. Confirmation of the Compliance Schedule entries and indicative maintenance, management and operational requirements in respect of fire safety-related systems (as specified in Practice Note 22, Appendix C).

f. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		23 March 2021
Checked by:	**Angela Chen**		26 March 2021
Approved by:	**Simon Davis**		26 March 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Please add drawings used	22/02/2021	6364.203	-
Klein, Architecturla Plans (Consent set)	17/02/2021	3.1269	D
Aurecon, Electrical Plans (Consent set)	05/02/2021	504141	E
Aurecon, Fire Protection Plans (Consent set)	18/01/2021	504141	D
Aurecon, Mecanical Plans (Consent set)	05/02/2021	504141	E

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	25 May 2021
Design Review No	16593

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Wellington City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	SR487361	**Contact**	Building Consent Administrator

Property Information			
Street Number	32	**Legal Description**	Wakefield Hospital
Street Name	Florence Street		
Town/Suburb	Newton	**City/Region**	Wellington
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	CCM Architects
Fire Engineer	[redacted], Holmes Fire
Fire Report Title	Wakefield Hospital, Site Redevelopment 32 Florence Street, Newtown, Wellington Fire Engineering Strategy
Fire Report Date	05/03/2021
Version	L
Identifier	92424.10FES01L

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Not Specified	**Fire Alarm Type**	Type 7
Building Height	16.8 m	**No. Floors – Above**	6
Escape Height	12.6 m	**No. Floors – Below**	-

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
1	Kitchen/office/pharmacy/ maintenance/store manager	1	WB	16	Alternative Solution
4	Inspection packaging	2	WB	20	Alternative Solution
4	Office/Loan/Decon/Reception	2	WB	18	Alternative Solution
4	Gym	2	CA	5	Alternative Solution
4	Treatment Rooms	2	WB	14	Alternative Solution
4	Hot Desk	2	WB	3	Alternative Solution
4	Theater Lounge	2	CA	23	Alternative Solution
4	Future Use	2	WB	17	Alternative Solution
6	Operating Theatres	3	SI	30	Alternative Solution

8	Operating Theatres	3	SI	30	Alternative Solution
9	Cath Lab	3	SI	20	Alternative Solution
10	ICU/HDU	3	SI	18	Alternative Solution
11	Hold Area/Endoscopy/Reprocess/ Office/Interview Rooms/Prep Rooms /Consult Room	3	SI	45	Alternative Solution
12	Staff Base/Stage 1 Recovery	3	SI	16	Alternative Solution
13	Staff Base/Stage 2&3 Recovery	3	SI	39	Alternative Solution
14 (Lower Level)	Lobby / Reception/ Admin. / Waiting Area/Café/ Interview Room/ Pre-admission Rooms/ Publishing	3	SI	141	Alternative Solution
14 (Upper Level)	Gen Surg/ Exam/Procedure/ Wating/Recetion/Meeting room	3	SI	149	Alternative Solution
15	Radiology	3	SI	76	Alternative Solution
16	Kitchen/Meeitng Rooms/Hospital Staff Cafeteria/Board Room/offices	3	SI	18	Alternative Solution
17	Bedward/Staff Base	4	SI	22	Alternative Solution
18	Bedward/Staff Base	4	SI	23	Alternative Solution
21	Office/Reception/Wait/Consulting	5	SI	131	Alternative Solution

Description of the Proposed Works

This consent application concerns the proposed redevelopment of the Wakefield Hospital located at 32 Florence Street, Newtown, Wellington. Section 2 of the fire strategy report states that the redevelopment of the Wakefield Hospital consists of 6 floor levels and will be built in two stages including the refurbishment of the existing building (Block L - Level 3 only) that is connected to the new Wakefield Hospital.

The building will be constructed in three different stages so part of the site can remain operational during the construction. Part of the existing building will be kept and will be connected to the new building on levels 2 and 3.

Section 2.3 of the fire strategy report states that

The construction of the proposed redevelopment is divided into two stages:

a. *Stage 1 (which has been consented) involves the Stage 1 building which consists of the new main entrance foyer and Radiology on Level 3, new consulting areas on Level 4 and 5, and plant room on Level 6.*

b. *Stage 2:*

Stage 2A involves demolition of existing Building C, D, E, N and part of Building B and construction of the extension of new building from Stage 1. The extension includes back of house areas on Level 1 and 2, ICU/HDU, post-operation recovery units and operating theatres on Level 3, bedwards on Level 4 and open plant deck on Level 5.

Stage 2B involves the demolition of existing Building A, G, H, K and the remainder of Building B for a new outdoor carpark at the east. This stage also includes the internal fitout on Level 3 of the existing Building L for staff amenities (changing rooms and cafeteria).

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

c. Provision of the means of escape from fire.

d. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements will apply. In particular if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Treatment rooms

As per the item 1.2 of the FEB response (Fire and Emergency's Reference: 15497, Dated 10th November 2021), a confirmation letter from the client (indicating that the treatment rooms on level 2 will not accommodate patients who require any assistance to escape) is not provided in this consent application.

Therefore, Fire and Emergency cannot verify that the patients in the treatment rooms require any assistance to escape.

Fire and Emergency notes that, if patients need any assistance to escape, the RSET should be reassessed and the treatment rooms are required to be fire separated from the Back of House areas.

Fire and Emergency advises the BCA to require the applicant either to provide a confirmation letter from the owner or otherwise to amend the documentation to address the items identified above and demonstrate that the building complies with the Building Code.

1.2 Design Co-ordination

Fire and Emergency notes the following elements of the design have not been co-ordinated with the architectural drawings.

a. As identified in item 1.3 of the FEB log, stair 2 includes a door below the stairs. The response to the FEB query identified that this led to a storage space that was to be fire separated from the vertical safe path stairs. However, the consent issue fire report drawing (FS 103) does not show this space as fire separated from the stairs and the architectural drawings also show no fire rating.

b. The same fire drawing shows two doors that are required to open in the direction of escape. However, the architectural drawings still show the doors opening in the same direction despite being clearly identified on the fire report drawings.

Fire and Emergency advises the BCA to require the applicant to revise the design drawings as required to reflect all of the requirements of the fire design in order to demonstrate compliance with the Building Code.

1.3 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed new surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed new flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Confirmation of the Compliance Schedule entries and indicative maintenance, management and operational requirements in respect of fire safety-related systems (as specified in Practice Note 22, Appendix C).

d. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

2. FIREFIGHTING NEEDS

2.1 Fire Hydrant

Section 4.7 of the fire strategy report states that Building hydrant systems are required to be installed in accordance with NZS 4510. It is proposed that these are located within Stair 01, 02, 03 and 04 and where there is any shortfall of hydrant coverage, additional floor hydrants are to be installed.

The fire verification report (section 6.2) refer to the attached plans for fire hydrant coverages.

However, Fire and Emergency observes that plans showing fire hydrant locations and coverages has not been provided in this consent application and observes that there will be a short fall at the north east corner of firecell 18 on level 4.

Fire and Emergency notes that the building is required to be provided with the means to deliver water for firefighting to all parts of the building in accordance with the building Code, section C5.5.

Fire and Emergency advises the BCA to require the applicant to provide plans showing locations of fire hydrant and coverages of reassess the hose runs and demonstrate that all areas can be reached within 40m from the building hydrant, or otherwise to provide an additional hydrant system, in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		18 May 2021
Checked by:	**Paul Richards**		24 May 2021
Approved by:	**Simon Davis**		25 May 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Holmes, Fire Plans (Consent set)	05/03/2021	92424.10	H
HSPC Health Architects, Architectual Plans (Consent set)	18/03/2021	40-4070	2
Aurecon, Electrical Plans (Consent set)	18/03/2021	500947	G
Aurecon, Mechanical Plans (Consent set)	18/03/2021	500947	G

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	11 October 2021
Design Review No	17318

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Wellington City Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	SR499657	**Contact**	Building Consent Administrator

Property Information			
Street Number	114	**Legal Description**	
Street Name	Churchill Drive		
Town/Suburb	Crofton Downs	**City/Region**	Wellington City
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	CCM Architects
Fire Engineer	[redacted], Holmes Fire
Fire Report Title	Operating Theatre 5 and Sterile Store Fitout Bowen Hospital, 98 Churchill Drive Fire Engineering Strategy
Fire Report Date	16/09/2021
Version	A
Identifier	W93348.26.FESM001a

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	Operating Theatre 5: 150 m^2	Fire Alarm Type	Type 7
Building Height	Not specified	No. Floors – Above	Not specified
Escape Height	Not specified	No. Floors – Below	Not specified

Population Characteristics and Design Methodology					
Firecell	**Space Description**	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
	Operating Theatre 5 / Sterile Store Room	B1	SI	15	C/AS2

Description of the Proposed Works

This building consent application relates to the fitout of Operating Theatre 5 and the adjacent sterile store room which was designed for these functions but never fitted out. The existing building has a Type 7 system, Type 9 system and emergency lighting.

Fire report page 6 indicates that the Building Importance Level is not IL4 or IL5. As the building is a hospital with surgery facilities, it is expected that IL4 would be applicable. However, as this does not have further design implications for a fitout in an existing building, no further comment is made in this regard.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

Note that an approved evacuation scheme is a licensing requirement for certain building types.

The applicant has proposed that the overall building score in line with MBIE guidance[1] is 14. Therefore, the level of information provided for assessment is a gap assessment. There is no indication that the BCA has accepted this level of information.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Existing Fire Cells

Fire drawing FSK03 indicates that the Theatre 5 wall along Gridline C is an existing fire wall, separating Theatres 4 and 5 from the adjoining spaces. Architectural drawing A2-11 indicates that the wall along Gridline C will be lined with 13mm Fyreline to maintain its fire rating. However, mechanical drawing ME-1B11 indicates 2 return air ducts with low level return air grilles within this wall. It is unclear how the return air ducts will be able to maintain the fire rating of the wall.

As Operating Theatres inherently require stay in place and staged evacuation strategies, fire walls are essential to provide additional time and safety to the occupants in these areas. It is important that the existing fire walls are well-coordinated and maintained for the proposed fitout to comply with the means of escape provisions of the Building Code.

Fire and Emergency advises the BCA to require the applicant to confirm that the existing fire walls and fire cells are maintained, in order to demonstrate compliance to the Building Code to the extent required by the Building Act.

1.2 Interior Surface Finishes - Flooring

Fire report Section 5.4 states that the flooring is required to achieve a minimum critical radiant flux of 1.2 kW/m^2. C/AS2 Table 4.5 states that for treatment rooms in risk group SI, the minimum critical radiant flux of floor is 2.2 kW/m^2.

Fire and Emergency advises that the BCA requires the applicant to revise their documentation to ensure that internal surface finishes comply with the Building Code to the extent required by the Building Act.

[1] Guidance: Requesting information about means of escape from fire for existing buildings December 2013

1.3 Completeness of documentation

The plans and specifications provided to Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

d. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**Angela Chen**		6 October 2021
Checked by:	**Adeline Teo**		11 October 2021
Approved by:	**Simon Davis**		11 October 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Holmes fire drawings FSK01 – FSK03	16/09/21	93348.26	A
CCM architectural drawings A0-00 – A9-01	17.09.2021	18010	Multiple
Aurecon mechanical drawings ME-0000 – ME-8003	17.09.21	520279	B
Aurecon electrical drawings EL-0000 – EL-9013	17.09.21	520279	B
Aurecon fire protection drawings FI-0000 – FI-1001	17.09.21	520279	A

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	02 August 2021
Design Review No	16914

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Whangarei District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC2100857	**Contact**	[redacted]

Property Information			
Street Number	12	**Legal Description**	Kensington Hospital
Street Name	Kensington Avenue		
Town/Suburb	-	**City/Region**	Whangarei
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Design Group Architects H + K
Fire Engineer	[redacted], Holmes Fire
Fire Report Title	Kensington Hospital – Stage 3 Proposed Hospital Additions and Alterations Fire Engineering Strategy
Fire Report Date	10/06/2021
Version	A
Identifier	112814.03.FES001a

Overview

Legislation			
Description	**Building Act Section**	**Proposed**	**Assessed**
New Build	17		
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	2,058 m^2	Fire Alarm Type	Type 7
Building Height	9.6 m	No. Floors – Above	2
Escape Height	4.14 m	No. Floors – Below	-

Population Characteristics and Design Methodology				
Space Description	**Level(s)**	**Risk Group**	**Number of Occupants**	**Compliance Path**
Primecare	G & 1	SI	82	Alternative Solution
Kensington	G & 1	SI	93 & Staff	Alternative Solution

Description of the Proposed Works

This consent application concerns the existing, two storey Kensington Hospital and Primecare building which were originally two adjacent building that have gradually become conjoined and are getting fully amalgamated in a series of staged works. The proposed work is for Stage 3 of the project which is an addition of theatre 5, sterile stock area, store rooms/future lift and corridor.

Fire and Emergency acknowledges involvement in the Fire Engineering Brief process for this development. The most recent correspondence was on 14 April 2021 (FENZ ref. FEB 16385 R1 – 14042021). All items remain outstanding from this correspondence and were discussed during the stakeholder review process. Since the fire modelling and fire verification report (refer to Item 1.1 below) have not been provided, Fire and Emergency cannot verify that all the concerns raised during the FEB process have been addressed. The FEB comments have been attached for the BCA's information.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be "all out", therefore, additional requirements may apply. In particular, if evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Fire Modelling and Fire Verification Report

Fire and Emergency notes that the FDS modelling and a fire verification report has not been provided as part of the consent package. As the design relies on this modelling to demonstrate tenability within the building and the fire verification report includes fire modelling input/output data, ASET/RSET analysis, and other information relating to the Alternative Solution methodology, this forms an essential part of the consent documentation. As this is not included, Fire and Emergency considers that the consent documentation has not demonstrated compliance with the Building Code.

Fire and Emergency advises the BCA to:

a. Satisfy itself that the consent documentation, as presented initially, is sufficient to demonstrate compliance with the Building Code as required by Council's consent requirements.

Otherwise

b. To either reject the consent as the documentation submitted for consent is not sufficient to demonstrate compliance with the Building Code

or

c. To require all the missing information and then satisfy itself that the documentation presented demonstrates compliance with the Building Code.

1.2 Egress from the new theatre

Fire and Emergency observes form the fire plan FS101 that the new theatre has a single means of escape from the room.

Fire and Emergency considers that the corridor outside of the theatre can be potentially filled with smoke if a fire in adjacent area occurs. The premovement time on the theatre is usually longer than other uses (1800 seconds as

per C/VM2). Thus if the corridor is compromised by smoke, occupants in the theatre may be trapped in the theatre room without any available means of escape.

Fire and Emergency notes that the fire report has not considered this kind of risk assessment. As the design is based on an Alternative Solution, it should consider all possible risks within the building and should not be limited to the prescriptive requirements in the C/VM2 rules.

Fire and Emergency advises the BCA to require the applicant to provide an additional exit door from the new theatre room or a risk analysis when the corridor outside of the new theatre is filled with smoke as a means of demonstrating the compliance of the proposed fire design.

1.3 Emergency Lighting

Emergency lighting plan OppCT-00067429 shows the locations of emergency lighting in upper store room.

Fire and Emergency observes that there are no emergency lighting being provided to the external stairway from the storeroom.

Given that any external escape route is considered as a safe path and considering that a safe place cannot be achieved until ground level is reached, in accordance with F6/AS1, paragraph 1.2, all changes in level up to that point form part of the escape route and should be provided with emergency lighting.

Fire and Emergency advises that the BCA requires the applicant to ensure that all areas of the building used as part of the means of escape are provided with emergency lighting in order to demonstrate compliance with the Building Code.

1.4 External Stair

Fire plan FS102 states that no fire rating required to the new external stair or external wall on the basis that the stair is a temporary stair for construction/service access.

However, Fire and Emergency observes from the architectural plan A303 that the upper floor is to be used for ward rooms in the future and thus cannot verify the statement that this is just a service area (for maintenance).

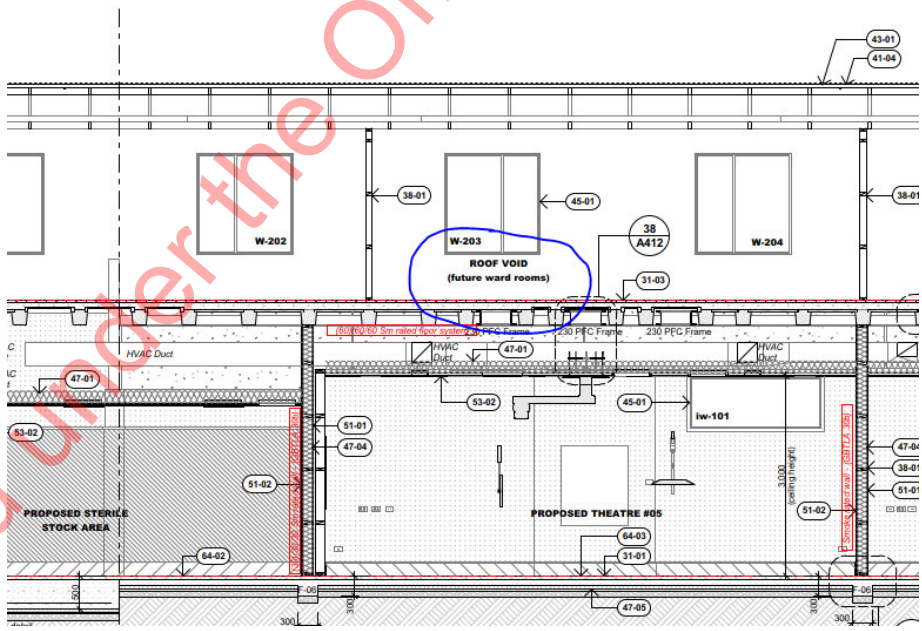


Figure 1 - Future War rooms - Extracted from the architectural plan A303

Notwithstanding the above, Fire and Emergency notes that the external egress stair is the only egress route from the upper floor space (no matter the usage of the space) and therefore, occupants in the space should be properly protected from the fire in any adjacent area and should be assessed.

Additionally, Fire and Emergency considers that, if the space is to be used in the future for wards, it should be assessed and future proofed to ensure that. If the area is converted, a safe escape to all occupants will be required by the Building Code.

Fire and Emergency advises the BCA to require the applicant to clarify the usage of the upper floor and amend the design to demonstrate that the occupants of the upper floor are provided with compliant escape routes.

1.5 Completeness of documentation

The plans and specifications provided to the Fire and Emergency do not contain the following information, necessary to demonstrate compliance with the Building Code and/or carry out the proposed building work in accordance with the recommendations of the fire report:

a. Details of proposed new surface finishes, including evidence that the specified product(s) will meet the Material Group Number(s) as specified in the fire report.

b. Details of proposed new flooring, including evidence that the specified product(s) will meet the critical radiant flux(es) as specified in the fire report.

c. Details of proposed external wall cladding, including evidence that the specified product(s) will not exceed the acceptable peak rate of heat release and total heat released as specified in the fire report.

d. Fire-rated construction details, showing how the assembly is to achieve the fire resistance rating specified in the fire report.

e. Details of all materials and systems being used to restrict the spread of fire for penetrations through fire separations, and the standard of fire resistance that will be achieved.

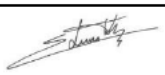
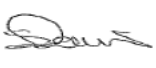
f. Confirmation of Construction Monitoring arrangements to include details of fire design features or of safety-related systems (as specified in Practice Note 22, Appendix C) that require specific installation or commissioning inspections during the Construction Monitoring phase.

g. Confirmation that co-ordination of the fire safety requirements between the fire design and the drawings, specifications and documents produced by other design disciplines has occurred.

Fire and Emergency advises that the BCA ensures the applicant provides the information listed above in order to demonstrate compliance with the Building Code.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	**JK Park**		26 July 2021
Checked by:	**Eduardo Maciel**		30 July 2021
Approved by:	**Simon Davis**		2 August 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
Holmes, Fire Plans (Consent set)	10/06/2021	112814.03	A
Architects h + k, Architectural Plans (Consent set)	18/06/2021	28/87/20	C01
Clevertronics, Emergency Lighting Plans (Consent set)	01/06/2021	-	00

Fire and Emergency New Zealand

Building Memorandum

Memo Issue	1
Date	13 August 2021
Design Review No	16987

In accordance with section 47 of the Building Act 2004 Fire and Emergency New Zealand provides advice to the Whangarei District Council in respect of the following building:

Building Consent Authority (BCA) Reference			
File Ref	BC2100911	**Contact**	[redacted]

Property Information			
Street Number	151	**Legal Description**	
Street Name	Maunu Road		
Town/Suburb	-	**City/Region**	Whangarei District
Owner/Registered Proprietor			
Premises / Company Name			

Design Details	
Architect	Klein Limited
Fire Engineer	[redacted] Beca Ltd
Fire Report Title	NDHB Te Kotuku Facility Extension Incorporating minor alterations to Building D Fire Engineering Design
Fire Report Date	23/06/2021
Version	0
Identifier	5136394-1364241147-4752

Overview

Legislation			
Description	Building Act Section	Proposed	Assessed
New Build	17	X	X
Alterations	112	X	X
Change of Use	115		
Waiver	67		
Other (specify)			

Building Characteristics			
Footprint	2,178 m² (Te Kotuku extension)	Fire Alarm Type	Type 7
Building Height	18.1 m (Te Kotuku extension)	No. Floors – Above	4
Escape Height	9 m (Te Kotuku extension)	No. Floors – Below	1

Population Characteristics and Design Methodology					
Firecell	Space Description	Level(s)	Risk Group	Number of Occupants	Compliance Path
	Plant	0	WB	12	Alternative Solution
	Maternity Unit	1	SI	132	
	Pediatric Ward West Firecell	2	SI	222	
	Pediatric Ward East Firecell	2	SI	46	
	Interview/Consult room	2	SI	6	
	Storage	2	SI	1	
	School Room	2	SI	2	
	Meeting Rooms/Offices	2	SI	16	
	SCBU Ward Firecell	2	SI	38	
	Staff Room/Reception/Laundry/Storage	2	SI	14	
	Whanau	2	SI	11	
	Day Stay	2	SI	4	

	Labs	3	WB	97	C/AS 2
	Staff Rooms/Offices	3	WB	54	
	Reception	3	WB	2	
	Meeting Room	3	WB	18	
	Storage	3	WB	2	
	Plant	3	WB	18	

Description of the Proposed Works

This consent application concerns the extension of the existing building by three levels to accommodate the relocated paediatric ward, a special care baby unit, a new physical Containment Level 2 laboratory, and associated plant space at the existing Te Kotuku Facility (Maternity Unit) at Whangarei Hospital.

Regulatory Framework

This memorandum is provided under section 46/47 of the New Zealand Building Act, on behalf of the Fire and Emergency New Zealand Board. It is based on the information provided. Note that the memorandum provides advice on

a. Provision of the means of escape from fire.

b. The needs of persons who are authorised by law to enter the building to undertake firefighting.

Under the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, this building is expected to require an evacuation scheme which will need approval from Fire and Emergency NZ. For further detail please refer to:

https://fireandemergency.nz/business-and-landlords/evacuation-schemes/

The fire report identifies that the evacuation strategy will not be “all out”, therefore, additional requirements may apply. As evacuation to an external place of safety is not feasible, legal compliance with the Evacuation Regulations requires an automatic fire sprinkler system fully complying with a recognised New Zealand standard (without modifications).

Note that an approved evacuation scheme is a licensing requirement for certain building types.

Fire and Emergency New Zealand Advice Under Section 47

1. MEANS OF ESCAPE

1.1 Lift

Section 3.3.1 of the fire report states that i*n clinical areas, evacuation is initially horizontal, with routes available into two different adjacent firecells and Once in an adjacent firecell, patients can then be moved further horizontally, or be transported vertically via the stair / lift cores at each end of the building.*

As per the Item 1.3 of the FEB correspondence, the designer has agreed that the lift is not to be used for evacuation.

Fire and Emergency notes that NZS 4332 (as referenced by Section 4.8 of the fire report) paragraph 25.6.2(d), requires lift landing signage that clearly states that the lift should not be used in the event of a fire. This would

appear to contradict the statement in the fire report which claims that NZS 4332 '*permits the lift to continue to operate normally during a fire event unless the fire occurs in the lift shaft.*'

If the lifts are not designed to support occupant movement in the event of a fire, there is a risk that occupants may become trapped due to equipment failure. While Fire and Emergency acknowledges there are international standards that do allow lifts to be used in a fire emergency, lifts confirming to those standards is not proposed by the fire engineering design and NZS 4332 does not consider these issues.

Fire and Emergency advises the BCA to require the applicant either to revise the documentation to clearly state that the lift is not used for evacuation or to ensure that lift system meets an appropriate international standard that supports the use of lifts in a fire emergency.

1.2 External Cladding

Section 7.3.1 of the fire report states that t*he eastern and western elevations of the existing building are currently clad in aluminium composite panels which is understood to be Alpolic ACP. However, the product is not non-combustible, and could theoretically cause fire spread vertically up the building in the event of fire breaking into the wall cavity.*

Section 7.3.2 of the fire report then goes on to identify the insulation in the curtain wall system is also not compliant.

Fire and Emergency observes that the Codemark Certificate for ALPOLIC FR aluminium composite cladding system has been suspended by MBIE (ACP Draft Guidance to Councils – 07082018) as shown below.

Guidance for Councils – Suspended ACP CodeMark Certificates

The intent of this letter is to provide guidance as to the appropriate action that should be taken by councils when dealing with building consents which make reference to a suspended aluminium composite panel (ACP) CodeMark certificate.

Background

Following a number of high profile international fires involving polyethylene core ACP external cladding systems, MBIE commissioned an audit and later a peer-review of ACP products used in the New Zealand market. This environmental scan included a review of all ACP CodeMark certificates.

As a result of this review MBIE determined six ACP CodeMark certificates issued by product certification body CertMark International had insufficient documentation and evidence to support compliance with the New Zealand Building Code for the protection from fire performance clauses relating to external spread of fire, C3.5 and C3.7 in particular.

Under Section 271 of the Building Act 2004, MBIE suspended the following CodeMark certificates:

- CMA-CM40035 – Alucobond Cladding Systems
- CMA-CM40075-I01-R01 – Apolic FR ACM Panel Cladding
- CMA-CM40100 – Larson FR
- CMA-CM40094 – Symonite (Alubond) Cladding Systems
- CMA-CM40111-I02-R03 – Symonite Cladding Systems (Reynobond FR)
- CMA-CM40193-I01-R01 – Vitrabond FR Cladding System

The product certificates referenced compliance with NZ Building Code clause C3.5 via fire test National Fire Protection Association (NFPA) 285. The product was tested on a defined substrate; however the certificates did not include any limitations of product application to reference installation requirements. The product therefore did not meet the provisions of the Building Code C3.5, and in some cases C3.7, without substantiation of the parameters of the fire test on which the certification was based.

It is important to note that the above list of suspended products has not unearthed any evidence that the products are dangerous, only that the certification process did not accurately follow a systems-based assessment that is required. MBIE has not identified any issues or concerns that would cause a statutory warning or a ban to be issued against a building product or method.

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For the existing cladding system which has no work on it for this consent application and has been consented previously by the BCA, the action for existing non-compliant cladding system should be followed as indicated below (situation D).

Summary of options

The below table summarises the various options and tools available.

Situation / Option	Situation A – New applications and consents not yet granted	Situation B - Consent granted, construction not started	Situation C - Consent granted, construction underway	Situation D - Consent granted, construction completed and CCC issued
Council to assess whether consent should be granted on the basis of section 49 "reasonable grounds"	X			
Owner/Agent applies for an amendment to building consent under section 45(4)		X	X	
Affected party seeks a Determination under section 177	X	X	X	X
Council to decide whether a dangerous building assessment is (or would be) required			X	X

Fire and Emergency also observes that the assessment provided considers only the replacement of the entire cladding or doing nothing. It does not consider any intermediate options to mitigate the risk nor does it consider the combined impact of the non-compliant external cladding and the external insulation. While the fire report identifies a number of features, it does not consider the vulnerability of the building occupants and the practical impact of evacuating multiple evacuation zones.

Consequently, Fire and Emergency does not consider enough information has been provided to determine compliance on an ANARP basis.

Fire and Emergency advises that the BCA requires the applicant to clarify existing external cladding systems achieve compliance with the Building Code.

1.3 Design Coordination – Smoke rated walls

The fire plan FE-K005 shows the locations of smoke and fire rated walls on the level 2.

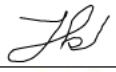
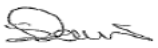
However, Fire and Emergency cannot verify from the architectural plan A-1002 that the wall between room 2.002 and 2.004 and the wall between room 2.080 and 2.082 is a smoke rated wall.

Fire and Emergency notes that the smoke rated wall requirement indicated in the fire report and fire plans should be reflected in the architectural drawings.

Fire and Emergency advises that the BCA requires the applicant to revise the design to address the issues identified above (as well as any others identified during design co-ordination) in order to satisfy the requirements of the fire design.

Disclaimer

This memorandum is provided in accordance with section 47 of the Building Act 2004 and as such does not constitute a regulatory review of all fire safety systems in the design.

Document Control			
Action	**Name**	**Signature**	**Date**
Produced by:	JK Park		9 August 2021
Checked by:	Paul Richards		12 August 2021
Approved by:	Simon Davis		13 August 2021

Appendix

Drawings Referenced			
Description	**Date**	**Project No.**	**Revision**
BECA, Fire Plans (Consent set)	22/06/2021	513694	0
Klein, Architectural Plans (Consent set)	11/06/2021	3.1234	D
BECA, Fire Protection Plans (Consent set)	11/06/2021	513694	0
BECA, Mechanical Plans (Consent set)	11/06/2021	513694	0