BLACKETT MAGUIRE+ GOLDSMITH

22 June 2015

The General Manager
Pittwater Council
PO BOX 882
MONA VALE NSW 1660

Dear Sir / Madam,

REFERENCE: **DA NO. N0191/13 (AS AMENDED)**
2 DAYDREAM STREET, WARRIEWOOD NSW 2102 (STAGE 2)
INTERIM OCCUPATION CERTIFICATE

As required by Clause 151(2) of the EP&A Regulation 2000 (the Regulation) notice is hereby given that the following application for Occupation Certificate has now been approved.

Applicant:	Livpac Developments Pty Ltd
Subject Address:	2 Daydream Street, Warriewood NSW 2102
Date Received:	11 June 2015
Date Determined:	22 June 2015

Please find undercover a copy of the Interim Occupation Certificate No. OC-15147 for the completed Stage two development of an industrial and commercial complex including additional level of carparking and the uses of a swim school and gymnasium.

This Interim Occupation Certificate has been issued for:

+ Basement and ground floor carpark, Level 1 office, part of Level 2 office and Warehouse tenancy G.2 & G.3

We have also enclosed a copy of the documentation relied upon as indicated on the Occupation Certificate for Council's record.

Pursuant to Clause 263(2) Environmental Planning and Assessment Regulation 2000, please find enclosed a cheque to the sum of $36.00 for the submission of this Part 4A Certificate and request that a receipt for which is forwarded to our office.

If we have provided the approved documentation to you electronically on a USB storage device, we would like to advise you that this device is for transmittal purposes only and is not designed for long term storage, please transfer all documentation to a purpose designed form of storage media.

Please contact the undersigned should you have any further enquiries on 02 9211 7777.

Yours Sincerely,

Tony Heaslip
Director
Blackett Maguire + Goldsmith Pty Ltd

$36 REC: 375903 29/6/15

Address | Suite 2.01, 22-36 Mountain St Ultimo NSW 2007
Postal | PO Box 167 Broadway NSW 2007
ABN | 18 408 985 851
Contact | Ph: 02 9211 7777 Fax: 02 9211 7774 Email: admin@bmplusg.com.au

BLACKETT MAGUIRE+ GOLDSMITH

OCCUPATION CERTIFICATE

Pursuant to Part 4A of the Environmental Planning & Assessment Act 1979

CERTIFICATE NO.:	OC-15147
TYPE:	☑ Interim ☐ Final
DETERMINATION:	Approved
DATE OF DETERMINATION:	22 June 2015
SUBJECT LAND:	
Lot & DP	Lot 100 DP 1174851
Address	2 Daydream Street, Warriewood NSW 2102
LOCAL GOVERNMENT AREA:	Pittwater Council
APPLICANT:	
Name	Mark Livingstone
Company	Livpac Developments Pty Ltd
Address	Level 8, 151 Macquarie Street, Sydney NSW 2000
Phone / Fax / Email	Phone: (02) 8274 0400 Fax: (02) 8274 0444 Email: mlivingstone@livgroup.com.au
OWNER:	
Name	Livpac Developments Pty Ltd
Address	PO BOX R215, ROYAL EXCHANGE NSW 1225
Phone / Fax / Email	Phone: (02) 8274 0400 Fax: (02) 8274 0444 Email: mlivingstone@livgroup.com.au
DESCRIPTION OF DEVELOPMENT:	Stage two development of an industrial and commercial complex including additional level of carparking and the uses of a swim school and gymnasium *Note: This Occupation Certificate excludes any external ancillary services, structures or civil works required by relevant authorities.*
WHOLE / PART:	Part
Description of part (where applicable):	Basement and ground floor carpark, Level 1 office (base building), part of Level 2 office (base building) and Warehouse Tenancies G.2 & G.3.
BCA CLASSIFICATION:	Class 5, 7a, 7b & 9b
DEVELOPMENT CONSENT:	
Development Application No. & Date of Determination	N0191/13 dated 8 October 2013 amended by N0191/13/S96/1 dated 15 January 2015
CONSTRUCTION CERTIFICATE:	
Construction Certificate No. & Date of Determination	CC-14157 dated 25 July 2014 CC-14236 dated 23 October 2014 CC-15057 dated 26 March 2015 CC-15057/A dated 4 June 2015

STATUTORY CERTIFICATION:

Blackett Maguire + Goldsmith certify that:

- *The health and safety of the occupants of the building have been taken into consideration where an interim occupation certificate is being issued; and*
- *A current development consent or complying development certificate is in force for the building; and*
- *If any building work has been carried out, a current construction certificate (or complying development certificate) has been issued with respect to the plans and specifications for the building; and*
- *The building is suitable for occupation or use in accordance with its classification under the Building Code of Australia; and*
- *A fire safety certificate has been issued for the building; and*
- *A report from the Fire Commissioner has been considered (if required).*

Address Suite 2.01, 22-36 Mountain St Ultimo NSW 2007
Postal PO Box 167 Broadway NSW 2007
ABN 18 408 985 851
Contact Ph: 02 9211 7777 Fax: 02 9211 7774 Email: admin@bmplusg.com.au

DOCUMENTATION RELIED UPON:	As listed in Schedule 1
DETAILS OF CERTIFYING AUTHORITY:	
Certifying Authority	Blackett Maguire + Goldsmith Pty Ltd
Accreditation No.	ABC 4
SIGNATURE:	Date: 22/06/2015
SIGNED ON BEHALF OF BM+G:	Tony Heaslip Accreditation No. BPB 0178

SCHEDULE 1

SCHEDULE OF DOCUMENTATION

ITEM	DOCUMENTATION	PREPARED BY	DATE
1.	OC Application Form	Livpac Development Pty Ltd	11 June 2015
2.	Interim Fire Safety Certificate	FDC Construction & Fitout Pty Ltd	19 June 2015
3.	Certification – Hydrants & hose reels	Danny Hall Plumbing Pty Ltd	29 May 2015
4.	Certification – Fire collars	Danny Hall Plumbing Pty Ltd	29 May 2015
5.	Certification – Fire hose reels, hydrant system & fire seals	Danny Hall Plumbing Pty Ltd	29 May 2015
6.	Certification – Fire sprinkler system, building occupant warning system, fire alarm system, fire detection system, alarm signalling equipment, automatic fail safe devices & portable fire extinguishers	Innovative Fire Services Pty Ltd	13 April 2012
7.	Certification – Automatic sprinkler system, building occupant warning system, automatic smoke detection system & fire extinguishers	Force Fire Pty Ltd	9 June 2015
8.	Certification – Fire rated dry wall	JLW Interiors Pty Ltd	19 June 2015
9.	Certification – EPS Panels	JLW Interiors Pty Ltd	19 June 2015
10.	Certification – Fire & smoke walls	FDC Construction & Fitout Pty Ltd	15 June 2015
11.	Certification – Emergency lighting & exit signs	Data 2 Electrical Pty Ltd	4 June 2015
12.	Certification – Fire alarm communication link	Romteck Grid Pty Ltd	8 March 2012
13.	Certification – Paths of travel	FDC Construction & Fitout Pty Ltd	1 June 2015
14.	Certificate of Compliance – Screw pile installation	Helcon Contracting Australia Pty Ltd	24 April 2015
15.	Certification – Installation of plumbing & drainage	Danny Hall Plumbing Pty Ltd	29 May 2015
16.	Certification – Hot water supply	Danny Hall Plumbing Pty Ltd	29 May 2015
17.	Installation Certificate – Waterproofing works	Classic Tiles Projects Pty Ltd	28 May 2015
18.	Certification – Tread and riser for each private and public stairway	FDC Construction & Fitout Pty Ltd	5 June 2015
19.	Certification – Building works	FDC Construction & Fitout Pty Ltd	5 June 2015
20.	Design certification – Car park and line marking	SBA Architects Pty Ltd	11 May 2015
21.	Certification – Electrical services	Data 2 Electrical Pty Ltd	4 June 2015
22.	Certification – External glazing	South West Aluminium Pty Ltd	20 May 2015
23.	Bushfire Compliance Statement	FDC Construction & Fitout Pty Ltd	12 June 2015
24.	Survey letter & plan	Michael Shannon & Associates Pty Ltd	26 April 2015
25.	Identification Report	Michael Shannon & Associates Pty Ltd	26 April 2015
26.	Certification – Off street parking	FDC Construction & Fitout Pty Ltd	2 June 2015
27.	Certification – Stormwater engineering works	Northrop Consulting Engineers Pty Ltd	4 June 2015
28.	Certification – AAA water rating	Danny Hall Plumbing Pty Ltd	25 May 2015
29.	Certification – Mechanical services	Whiffen & Andrews Air Conditioning	28 May 2015

ITEM	DOCUMENTATION	PREPARED BY	DATE
30.	Structural inspection certification	Northrop Consulting Engineers Pty Ltd	3 June 2015
31.	Letter regarding trade waste is not required for base build works	Danny Hall Plumbing Pty Ltd	24 April 2015
32.	Trade waste agreement	Sydney Water Corporation	29 May 2015
33.	Water management report submission to Council	FDC Construction & Fitout Pty Ltd	11 March 2015
34.	Acoustic testing report	Wood & Grieve Engineers Ltd	11 June 2015
35.	Letter regarding Condition E.09 has been satisfied	FDC Construction & Fitout Pty Ltd	2 June 2015
36.	Letter regarding Health inspection for IOC is not relevant	FDC Construction & Fitout Pty Ltd	2 June 2015
37.	Letter regarding food registration is not relevant for IOC	FDC Construction & Fitout Pty Ltd	2 June 2015
38.	Flood Emergency Response Plan	Worley Parsons Services Pty Ltd	5 June 2015
39.	Email regarding the structural integrity of the building can withstand immersion and impact velocity and debris up to the level of probable maximum flood	FDC Construction & Fitout Pty Ltd	12 June 2015
40.	Flooring installation compliance – Carpet and vinyl	Arrow Corporate Flooring Systems	Undated
41.	Finishes schedule – Wall & floor	FDC Construction & Fitout Pty Ltd	Undated
42.	Slip Resistance Report – Test report no. 4708.2s	CSIRO	6 February 2009
43.	Service penetrations/fire rating schedule	FDC Construction & Fitout Pty Ltd	Undated
44.	Certification – Lifts	Schindler Lifts Australia Pty Ltd	12 June 2015
45.	Expanded Polystyrene Technical data sheet	Australian Urethane & Styrene	Undated
46.	Certificate of Compliance – Walkway & anchor points	Roofsafe T Systems	28 May 2015
47.	Installation Certificate – Roof construction and penetration	Glidevale Roofing Pty Ltd	4 June 2015
48.	Flow test – Fire hose reels	Fire Compliance & Maintenance Pty Ltd	2 June 2015
49.	Flow test – Fire hydrants	Fire Compliance & Maintenance Pty Ltd	2 June 2015
50.	Interim OC plans	SBA Architects	18 March 2015
51.	Final Fire Safety Report – Interim Occupancy	Fire & Rescue NSW	11 June 2015
52.	Fire Engineering Inspection Report – Report no. 26664700-RPT02-1	Exova Warringtonfire Aus Pty Ltd	12 June 2015
53.	Installation Certificate – Mechanical services	Whiffen & Andrews Air Conditioning	28 May 2015
54.	Certification – Fire Door	JLW Interiors Pty Ltd	26 October 2014
55.	Certification – Installation of stortz coupling	Danny Hill Plumbing Pty Ltd	15 June 2015
56.	Inspection and test record – Electrical fit-off	Force Fire	12 June 2015
57.	Geotechnical services during construction report	JK Geotechnics	19 June 2015
58.	Inspection and test record – Electrical fit off	Fore Fire	12 June 2015
59.	Statement of Installation Compliance – Fire Services	Fire Stopping	12 June 2015
60.	Fire Engineering Report – Report No. 26664700-RP702-2	Exova Warringtonfire Aus Pty Ltd	18 June 2015

SCHEDULE 2

FIRE SAFETY SCHEDULE

Issued under Clause 168 of the Environmental Planning & Assessment Regulation 2000

OWNER:	Livpac Developments Pty Ltd
ADDRESS:	2 Daydream Street, Warriewood (Stage 2)
DEVELOPMENT APPLICATION NO.:	N0191/13 (as amended)
CONSTRUCTION CERTIFICATE NO.:	CC-14157, CC-14236, CC-15057 & CC-15057/A
OCCUPATION CERTIFICATE NO.:	OC-15147

SCHEDULE

Statutory Fire Safety Measure	Design/Installation Standard	Existing	New/ Altered
Alarm Signalling Equipment	AS1670.3 – 2004	✓	✓
Automatic Fire Detection & Alarm System *Tenancy 1 (Amber Technology) & Level 2 of Stage 2 Development*	Clause 5 of BCA Specification E2.2a Fire Engineering Report prepared by Exova Warringtonfire, Report No. 2567602- RPT01-2, Revision 2 dated 22/12/2011 Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Automatic Fire Suppression Systems *(Excluding Swim school tenancy)*	BCA Spec. E1.5 & AS 2118.1-1999 Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Building Occupant Warning System activated by the Sprinkler System	Clause 8 of BCA Spec E1.5 & Clause 3.22 of AS 1670.1 – 2004	✓	✓
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 - 2005	✓	✓
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS 2293.1 - 2005	✓	✓
Fire Blankets	AS 3504 - 1995 & AS 2444 – 2001	✓	✓
Fire Dampers	BCA Clause C3.15, AS 1668.1 - 1998 & AS 1682.1 & 2 - 1990	✓	✓
Fire Doors	BCA Clause C2.12, C2.13, C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8 and AS 1905.1 – 2005	✓	✓
Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005	✓	✓
Fire Hydrant Systems	Clause E1.3 & AS 2419.1 - 2005	✓	✓
Fire Seals	BCA Clause C3.15, AS 1530.4 & AS4072.1 - 2005	✓	✓
Lightweight Construction	BCA Clause C1.8 & AS 1530.3 – 1999	✓	✓
Mechanical Air Handling Systems	BCA Clause E2.2, AS/NZS 1668.1 - 1998 & AS 1668.2 – 1991	✓	✓
Paths of Travel	EP & A Regulation Clause 186 and Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001	✓	✓
Required Exit Doors (power operated)	BCA Clause D2.19(b)	✓	✓
Warning & Operational signs	Section 183 of the EP&A Regulations 2000, AS 1905.1 - 2005, BCA Clause C3.6, D2.23, E3.3	✓	✓

Statutory Fire Safety Measure	Design/Installation Standard	Existing	New/ Altered
Fire Engineered Alternative Solution relating to fire resisting construction (allowing reduced FRL's from 4hrs to 2hrs)	BCA Performance Requirements CP1 & CP2 Stage 1: Fire Engineering Report prepared by Exova Warringtonfire, Report No. 2567600-RPT02-3, Revision 3 dated 6/10/2011. Stage 2: Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Fire Engineered Alternative Solution relating to distances between alternative exits in Tenancy 1 (Amber Technology) comprising 75m in Lieu of 60m – *Stage 1 development*	Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	
Fire Engineered Alternative Solutions for the Stage 2 Development relating to: ▪ To allow the provision of a 120/120/120 FRL fire walls, floors and columns in lieu of 240/240/240 FRL to the warehouse areas. ▪ To allow drencher protected glazing in lieu of 120/120/120 FRL to the Ground Floor entry lobby of the swim school and Stair 2. ▪ Fire isolation of Fire Stair 2, and separation of rising and descending stairs in fire isolated exits. ▪ Travel distance of up to 65m to an exit within the basement carpark in lieu of 40m. ▪ Travel distance of up to 120m between alternative exits within the car parking basement levels in lieu of 60m. ▪ Travel distance up to 25m to the single exit in lieu of 20m within the warehouse mezzanine. ▪ Travel distance of up to 30m to the single exit in lieu of 20m within the Level 2 office. ▪ Travel distance up to 70m between alternative exits within Tenancy G.3 in lieu of 60m. ▪ Travel distance within the childcare centre on Level 2 of up to 70m between alternative exits in lieu of 60m. ▪ To allow the travel path egress width within the swim school between columns and the pools is 820mm wide, in lieu of 1m. ▪ The non-provision of a sprinkler system to the swim school tenancy. ▪ The use of jet-fans in lieu of a conventional exhaust air system in the basement carpark where the jet-fans do not comply with the requirements and recommendations in clause 5.5 of AS/NZS 1668.1. ▪ The provision of Danpalon and Alucobond Plus, which are not considered "non-combustible", to form part of the external walls at various locations.	BCA Performance Requirements CP1, CP2, DP4, DP5, EP1.4 & EP2.2 Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.		✓

SCHEDULE 3

INSPECTION SCHEDULE

Inspection Type	Inspection by	Date	Satisfactory
▪ After excavation for, and before the placement of footings	Tony Heaslip (BPB0178)	25/8/2014	Yes*
▪ Prior to covering any stormwater drainage connections	Tony Heaslip (BPB0178)	24/04/2015	Yes*
▪ After the building work has been completed and prior to any occupation certificate being issued in relation to the building.	Tony Heaslip (BPB0178)	19/06/2015	Yes
▪ *Other inspections*			
- Progress Inspection	Tony Heaslip (BPB0178)	29/05/2015	
- Fire Systems witness test	Tony Heaslip (BPB0178)	5/06/2015	
- FRNSW Clause 152 Inspection	Tony Heaslip (BPB0178)	10/06/2014	

** Subject installation certification.*

OCCUPATION CERTIFICATE APPLICATION

BLACKETT MAGUIRE+ GOLDSMITH

Environmental Planning and Assessment Act 1979, s.109H
Environmental Planning and Assessment Regulation 2000, clauses 149 and 151

APPLICATION SOUGHT

☑ Interim Occupation Certificate ☐ Final Occupation Certificate

APPLICANT

An application for an occupation certificate may only be made by a person who is eligible to appoint the PCA for the development, it cannot be the Builder unless they are the Owner Builder.

Company: Livpac Developments Pty Ltd
ABN (if applicable): 65 122 395 091
Applicant Name: Mark Livingstone
Applicant Postal Address: Level 8, 151 Macquarie Street, Sydney
Phone: 8274 0400
Fax: 8274 0444
Mobile:
Email:

Signature: X
Date: 11 JUNE 2015

SUBJECT LAND

Location and title details of the land where the building work or subdivision work is to be carried out.

Unit / Street No: 2
Street Name: Daydream Street
Suburb / Town: Warriewood
State: NSW
Postcode: 2102
Lot No: 100
DP / SP No: DP 1174851

DESCRIPTION OF DEVELOPMENT

Briefly describe the development, if the application relates to a new use of the building or apart of the building, also describe the new use.

Description: Mixed use building consisting of multi-storey office, warehouse, basement level carpark, Childcare & swim school
Part of the Building (for Interim OC): Basement and ground floor carpark, Level 1 office, part of level 2 office & Warehouse tenancy G.2 & G.3 – Refer markup
Existing BCA Classification: 5, 7a, 7b & 9b
Proposed BCA Classification: 5, 7a, 7b & 9b

DEVELOPMENT CONSENT

Development Consent / CDC No: N0191/13/S96/1
Date of Determination: 15/01/2015
Consent Authority: Pittwater council
DA / CDC Applicant Name: J Andonopoulos

OFFICE USE – RECEIPT OF APPLICATION

This Occupation Certificate Application was received by Blackett Maguire + Goldsmith on:

(Please stamp 'Received' stamp or write date received in the space provided).

Date Received:

Received
11-Jun-15
Blackett Maguire + Goldsmith

Address: Suite 2.01, 22-36 Mountain St Ultimo NSW 2007
Postal: PO Box 167 Broadway NSW 2007
ABN: 18 408 985 851
Contact: Ph: 02 9211 7777 Fax: 02 9211 7774 Email: admin@bmplusa.com.au

CONSTRUCTION CERTIFICATE (Not applicable for CDC's)

Construction Certificate No	Date of Determination
CC-15057	26/03/2015

Does the development involve an alternative solution under the BCA in respect of a fire safety requirement?

☑ Yes ☐ No

If yes, please ensure Blackett Maguire + Goldsmith have copies of either the compliance certificate or the written report from a 'Fire Safety Engineer'.

Does the application relate to a residential flat development for which the development application was required under Clause 50(1A) of the EP&A Regulation to be accompanied by a design verification from a qualified designer?

☐ Yes ☑ No

If yes, provide a statement from a qualified designer which verifies that the residential flat development achieves the design quality of the development as shown in the plans and specifications on which the construction certificate was issued, having regard to the design quality principles set out in Part 2 of State Environmental Planning Policy No. 65 – Design quality of Residential Flat Development (SEPP 65).

OWNERS DETAILS

Company / Full Name Livpac Developments Pty Ltd ABN (if applicable) 65 122 395 091

Postal Address PO Box R215 Royal Exchange NSW 1225

Phone 8274 0400 Fax 8274 0444 Mobile

Email

DELIVERY OF THE APPLICATION

Applications for construction certificates must be delivered to the principal office of Blackett Maguire + Goldsmith by one of the following methods:

- By hand;
- By post; or
- Transmitted electronically.

Applications **MAY NOT** be sent by fax.

REQUIRED DOCUMENTATION

Please refer to the OC Requirements list issued separately for all documentation required to be forwarded to our office to support this application and facilitate the approval of the Occupation Certificate.

Fire Safety Certificate

Issued under the Environmental Planning and Assessment Regulation 2000, Clauses 170 to 174

Type of Certificate	☒ Interim ☐ Final
Owner / Agent	I, Joel Andonopoulos
Address	of 22-24 Junction Street, Forest Lodge NSW 2031

Certify that:

each of the essential fire safety measures specified in the current fire safety schedule for the building to which the certificate relates:

a) has been assessed by a properly qualified person, and

b) was found, when it was assessed, to be capable of performing to at least the standard required by the current fire safety schedule for the building for which the certificate is issued.

Identification of Building

Address	2 Daydream Street, Warriewood NSW 2102
Building Name	Peninsula Business Estate
Side of Street	West
Nearest Cross Street	Jubilee Avenue

Particulars of Building

Scope	☐ Whole ☒ Part
Description of Part (where applicable)	Basement and ground floor carpark, Level 1 office, part of level 2 office & Warehouse tenancy G.2 & G.3 – Refer markup
Date of Assessment	17/06/2015

Owner's Details

Name	Livpac Developments Pty Ltd
Address	Level 8, 151 Macquarie Street, Sydney

Schedule

Statutory Fire Safety Measure	Design/Installation Standard	Existing	New/Altered
Alarm Signalling Equipment	AS1670.3 - 2004	✓	✓
Automatic Fire Detection & Alarm System *Tenancy 1 (Amber Technology) & Level 2 of Stage 2 Development*	Clause 5 of BCA Specification E2.2a Fire Engineering Report prepared by Exova Warringtonfire, Report No. 2567602- RPT01-2, Revision 2 dated 22/12/2011 Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Automatic Fire Suppression Systems (Excluding Swim school tenancy)	BCA Spec. E1.5 & AS 2118.1-1999 Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Building Occupant Warning System activated by the Sprinkler System	Clause 8 of BCA Spec E1.5 & Clause 3.22 of AS 1670.1 - 2004	✓	✓

Statutory Fire Safety Measure	Design/Installation Standard	Existing	New/Altered
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 - 2005	✓	✓
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS 2293.1 - 2005	✓	✓
Fire Blankets	AS 3504 - 1995 & AS 2444 - 2001	✓	✓
Fire Dampers	BCA Clause C3.15, AS 1668.1 - 1998 & AS 1682.1 & 2 - 1990	✓	✓
Fire Doors	BCA Clause C2.12, C2.13, C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8 and AS 1905.1 - 2005	✓	✓
Fire Hose Reels	BCA Clause E1.4 & AS 2441 - 2005	✓	✓
Fire Hydrant Systems	Clause E1.3 & AS 2419.1 - 2005	✓	✓
Fire Seals	BCA Clause C3.15, AS 1530.4 & AS4072.1 - 2005	✓	✓
Lightweight Construction	BCA Clause C1.8 & AS 1530.3 - 1999	✓	✓
Mechanical Air Handling Systems	BCA Clause E2.2, AS/NZS 1668.1 - 1998 & AS 1668.2 - 1991	✓	✓
Paths of Travel	EP & A Regulation Clause 186 and Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 - 2001	✓	✓
Required Exit Doors (power operated)	BCA Clause D2.19(b)	✓	✓
Warning & Operational signs	Section 183 of the EP&A Regulations 2000, AS 1905.1 - 2005, BCA Clause C3.6, D2.23, E3.3	✓	✓
Fire Engineered Alternative Solution relating to fire resisting construction (allowing reduced FRL's from 4hrs to 2hrs)	BCA Performance Requirements CP1 & CP2 Stage 1: Fire Engineering Report prepared by Exova Warringtonfire, Report No. 2567600-RPT02-3, Revision 3 dated 6/10/2011. Stage 2: Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	✓
Fire Engineered Alternative Solution relating to distances between alternative exits in Tenancy 1 (Amber Technology) comprising 75m in Lieu of 60m - Stage 1 development	Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.	✓	
Fire Engineered Alternative Solutions for the Stage 2 Development relating to: ▪ To allow the provision of a 120/120/120 FRL fire walls, floors and columns in lieu of 240/240/240 FRL to the warehouse areas. ▪ To allow drencher protected glazing in lieu of 120/120/120 FRL to the Ground Floor entry lobby of the swim school and Stair 2. ▪ Fire isolation of Fire Stair 2, and separation of rising and descending stairs in fire isolated exits. ▪ Travel distance of up to 65m to an exit within the basement carpark in lieu of 40m. ▪ Travel distance of up to 120m between alternative exits within the car parking basement levels in lieu of 60m. ▪ Travel distance up to 25m to the	BCA Performance Requirements CP1, CP2, DP4, DP5, EP1.4 & EP2.2 Fire Engineering Report prepared by Exova Warringtonfire, Report No. 26664700-RPT01-8, Revision 8 dated 8/04/2015.		✓

Statutory Fire Safety Measure	Design/Installation Standard	Existing	New/Altered
single exit in lieu of 20m within the warehouse mezzanine. ▪ Travel distance of up to 30m to the single exit in lieu of 20m within the Level 2 office. ▪ Travel distance up to 70m between alternative exits within Tenancy G.3 in lieu of 60m. ▪ Travel distance within the childcare centre on Level 2 of up to 70m between alternative exits in lieu of 60m. ▪ To allow the travel path egress width within the swim school between columns and the pools is 820mm wide, in lieu of 1m. ▪ The non-provision of a sprinkler system to the swim school tenancy. ▪ The use of jet-fans in lieu of a conventional exhaust air system in the basement carpark where the jet-fans do not comply with the requirements and recommendations in clause 5.5 of AS/NZS 1668.1. ▪ The provision of Danpalon and Alucobond Plus, which are not considered "non-combustible", to form part of the external walls at various locations.			

'FDC certify as applicable to Stage 2 works only'

Date of Certificate dated this 19th day of June 2015

Signature _____

Head Contractor

A copy of this certificate together with the relevant fire safety schedule must be forwarded to the Council and the Commissioner of the New South Wales Brigades.

A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.

DHP
DANNY HALL PLUMBING Pty Ltd
Hydraulic and Civil contractors

Danny Hall Plumbing Pty Ltd
PO Box 58, Galston NSW 2159
Ph. 02 9656 1800
Fax. 02 9656 1710
Mob. 0417 525 123
danny@dhphc.com.au

29th May 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street,
Forest Lodge NSW 2037

Attention: Mr Joel Andonopoulos

Dear Sir,

RE: Warriewood (Stage 2) – Base Building
2 Daydream Street, Warriewood NSW 2102

Hydrant & Hose Reel Certificate

I, Danny Hall, hereby certify that Hydrants & Hose Reels have been installed to the above project in accordance with BCA Clause E1.3 & AS 2419.1 – 2005, and BCA Clause E1.4 & AS 2441 – 2005 respectively, and have been tested under pressure. This certificate also covers existing Hydrants that have been utilised for coverage on the new building.

Yours Sincerely,
Danny Hall Plumbing Pty Ltd

Danny Hall
Director

DHP
DANNY HALL PLUMBING Pty Ltd
Hydraulic and Civil contractors

Danny Hall Plumbing Pty Ltd
PO Box 58, Galston NSW 2159
Ph. 02 9656 1800
Fax. 02 9656 1710
Mob. 0417 525 123
danny@dhphc.com.au

29th May 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street,
Forest Lodge NSW 2037

Attention: Mr Joel Andonopoulos

Dear Sir,

RE: Warriewood (Stage 2) – Base Building
2 Daydream Street, Warriewood NSW 2102

Fire Seal Certificate

I, Danny Hall, hereby certify that all plastic pipes that penetrate between fire compartments have been protected with either a cast in or retrofit fire collar. These collars have been procured and installed in accordance with BCA Clause C3.15, AS 1530.4 & AS 4072.1 – 2005.

Yours Sincerely,
Danny Hall Plumbing Pty Ltd

Danny Hall
Director

Date 15/10/13 REF:
Form 15 - Fire Safety Certificate

~~Final~~ / Interim
Fire Safety Certificate

Issued under the Environmental Planning and Assessment Regulation 2000, Clauses 170 and 173

Type of certificate (see note 1)	☒ Interim ☐ Final
Certificate Name owner/agent Address (see notes 2 & 3)	I, Danny Hall (Danny Hall Plumbing) of PO Box 58 Galston NSW 2159 certify that: (a) each of the essential fire measures listed below: ▪ has been assessed by a person (chosen by me) who was properly qualified to do so, and ▪ was found, when it was assessed, to have been properly implemented and to be capable of performing to a standard not less than that required by the most recent fire safety schedule (copy attached) for the building for which the certificate is issued. (b) The information contained in this certificate is, to the best of my knowledge and belief, true and accurate.
Identification of Building	Address: 2 Daydream Street, Warriewood NSW 2102 Side of Street: West Nearest Cross Street: Jubilee Ave Municipality: Pittwater
Particulars of Building	Whole building: Industrial/ Commercial Complex (Stage 2) Description of part: Base Building
Date of Assessment	Date: 29/05/15
Owner of Building	Name: Livpac Developments Address: PO Box R215, Royal Exchange NSW 1225

Fire Safety Schedule

(Pursuant to Clause 168 of the Environmental Planning and Assessment Regulation 2000)

	Essential Fire Safety Measures	Standard of Installation/Performance
1.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
2.	Fire Hydrant System	BCA Clause E1.3 & AS 2419.1 – 2005
3.	Fire Seals	BCA Clause C3.15, AS 1530.4 & AS 4072.1 – 2005

Date of Certificate	Date: 29/05/15
Signature	Agent

- A copy of this certificate together with the relevant fire safety schedule must be forwarded to the Council and the Commissioner of the New South Wales Fire Brigades.

- A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.

Notes for completing Final/Interim Fire Safety Certificate

Note 1: An **interim fire safety certificate** or a **final fire safety certificate** is required before:

- **an interim occupation certificate can be issued to allow a partially completed new building (including an altered portion of, or an extension to, a new building) to be occupied or used, or**
- an interim occupation certificate can be issued to allow a change of building use for part of an existing building.

A **final fire safety certificate** is required:

- before a final occupation certificate can be issued to allow a new building (including an altered portion of, or extension to, a new building) to be occupied or used, or
- before a final occupation certificate can be issued to allow a change of building use for an existing building, or
- in accordance with a fire safety order given by a Council.

An **interim fire safety certificate** is issued for part of the building and may deal only with those essential fire safety measures appearing on the most recent fire safety schedule (see note 3) relevant to the part of the building for which an interim occupation certificate will be sought.

A **final fire safety certificate** must deal with all essential fire safety measures appearing on the most recent fire safety schedule (see note 3), subject to the following.

An **interim fire safety certificate** or a **final fire safety certificate** need not deal with those essential fire safety measures which have been the subject of some other final fire safety certificate or annual fire safety statement within the previous 6 months, unless the person or authority responsible for determining the relevant development consent, complying development certificate, construction certificate or fire safety order, has specified otherwise in the schedule.

(also see note 3)

Note 2: The person who carried out the assessment:

- must inspect and verify the performance of each fire safety measure being assessed, and
- in the case of a (interim or final) fire safety certificate for a new building (not an alteration to, or enlargement or extension of an existing building) must test the operation of each item of fire safety equipment installed in the building.

Note 3: The relevant essential fire safety measures are those specified in the most recent fire safety schedule, attached to one of the following:

- development consent for a change of building use.
- complying development certificate for the erection of a building or a change of building use,
- construction certificate for proposed building work, including building work associated with a change of building use, or
- a fire safety order.

The fire safety schedule will also identify the required standard of performance for each essential fire safety measure.

FINAL/INTERIM FIRE SAFETY CERTIFICATE

-------(Form 15)--------

issued under the Environmental planning and assessment regulations
clauses 80E and 80F

type of certificate see Note 1 (over leaf)	☐ **interim** ☑ **final**
Certificate name ~~owner~~/agent address see Note 2 (over leaf) assessment requirements	I, Peter Mallouk of Innovative Fire Services Pty Ltd Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208 certify that: (a) each of the essential fire measures listed below: * has been assessed by a person (chosen by me) who was properly qualified to do so, and * was found, when it was assessed, to have been properly implemented and to be capable of performing to a standard not less than that required by the most recent fire safety schedule (copy attached) for the building for which the certificate is issued * (b) the information contained in this certificate is, to the best of my knowledge and belief, true and accurate
Identification of building Location	Street 2 Daydream Street, Warriewood side of street West nearest cross street Ponderosa Pde
Particulars of building	~~whole~~/part Warehouse & Office
date of assessment	13th April 2012
Owner's details name address	Livingstone Group Level 8, 151 Macquarie Street Sydney NSW 2000
Essential fire safety measures see Note 3	Measure — Standard of performance Fire Sprinkler System — AS 2118 Part 1 – 1999 BCA E1.5 FM Data sheets 2-0 Building Occupant Warning System — AS1670.1 Clause 3.22 (b) BCA E2-2a Fire Alarm System (sprinkler interfacing) — AS1670.1 2004 Fire Detection System — AS1668.1-1998 BCA E2.2a Clause 5 (ground level tenancy 1, Comms room ground & Level 1) Alarm Signalling Equipment — AS4428.6 – 1997 Automatic Fail Safe Devices — BCA D2.21 Portable Fire Extinguishers — AS2444 – 2001 BCA Clause E1.6
Signature **date of certificate**	~~owner~~/*agent* 13th April 2012

- *A copy of this certificate together with the relevant fire safety schedule must be forwarded to the council and the Commissioner of the New South Wales Fire Brigades.*
- *A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.*

Notes for completing Final/Interim Fire Safety Certificate

Note 1 An **interim fire safety certificate** or a **final fire safety certificate** is required before:

- an interim occupation certificate can be issued to allow a partially completed new building (including an altered portion of, or an extension to, a new building) to be occupied or used, or
- an interim occupation certificate can be issued to allow a change of building use for part of an existing building.

A **final fire safety certificate** is required:

- before a final occupation certificate can be issued to allow a new building (including an altered portion of, or extension to, an new building) to be occupied or used, or
- before a final occupation certificate can be issued to allow a change of building use for an existing building, or
- in accordance with a fire safety order given by a Council.

An **interim fire safety certificate** is issued for part of the building and may deal only with those essential fire safety measured appearing on the most recent fire safety schedule (see note 3) relevant to the part of the building for which an interim occupation certificate will be sought.

A **final fire safety certificate** must deal with all essential fire safety measured appearing on the most recent fire safety schedule (see note 3), subject to the following.

An **interim fire safety certificate** or a **final fire safety certificate** need not deal with those essential fire safety measures which have been the subject of some other final fire safety certificate or annual fire safety statement within the previous 6 months, unless the person or authority responsible for determining the relevant development consent, complying development certificate, construction certificate of fire safety order, has specified otherwise in the Schedule.

See also note 3.

Note 2 The person who carried out the assessment:

- must inspect and verify the performance of each safety measure being assessed; and
- in the case of a (interim or final) fire safety certificate for a new building (not an alteration to, or enlargement or extension of a an existing building) must test the operation if each item of fire safety equipment installed in the building.

Note 3 The relevant essential fire safety measures are those specified in the most recent fire safety schedule attached to one of the following:

- development consent for a change of building use,
- complying development certificate for the erection of a building or a change of building use;
- construction certificate of proposed building work, including building work associated with a change of building use; or
- a fire safety order.
  The fire safety schedule will also identify the required standard of performance for each essential fire safety measure.

FORCEFIRE
DETECT ▸ SUPPRESS

A.B.N. 51 120 605 290 A.C.N. 120 605290

FINAL/INTERIM FIRE SYSTEMS CERTIFICATE

issued under the Environmental Planning and Assessment Regulations 2000 (Part 9 Division 4)

Type of Certificate See note 1 (over leaf)	✓ interim final
Certificate name contractor See Note 2 (over leaf) assessment requirements See Note 3 (over leaf) relevant fire safety schedule	I, David Adamson of Force Fire Pty Ltd certify that: (a) each of the essential fire measures listed below: • has been assessed by a person (chosen by me) who was properly qualified to do so, and • was found, when it was assessed, to have been properly implemented and to be capable of performing to a standard not less than that required by the most recent fire safety schedule for the building for which the certificate is issued. • (b) the information contained in this certificate is, to the best of my knowledge and belief, true and accurate.
Identification of building Location	House/unit no or name 2 Street Daydream City Warriewood Nearest cross street
particulars of building	~~Whole~~/part Description of part (where applicable) Stage 2 – Base Building Only
Date of assessment	9/6/15
Owner's details name address	_____ _____
Essential fire safety measures See Note 3 **Date of Certificate**	Measure / Standard of Performance **Automatic Sprinkler System:** **AS 2118-1999** **Building Occupant Warning System:** **AS1670.4 -2004, BCA Clause E2.2a** **Automatic Smoke Detection System:** **AS1670.1 -2004, BCA Clause E2.2a** (Within level 2 office and Pool tenancy as per Fire Engineering Report prepared by Exova Warrington, Report No 26664700-RPT-01-7, Revision 7 dated 19/3/2015.) **Fire Extinguishers:** **AS 2444-2001, BCA Clause E1.6** dated this 9th day of June 2015
Signature	_____

- A copy of this certificate together with the relevant fire safety schedule must be forwarded to the Council and the Commissioner of the New South Wales Fire Brigades.
- A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.

Note 1 An interim fire safety certificate or a final fire safety certificate is required before:

- an interim occupation certificate can be issued to allow a partially completed new building (including an altered portion of, or an extension to, a new building) to be occupied or used, or
- an interim occupation certificate can be issued to allow a change of building use for part of an existing building.

A final fire safety certificate is required:

- before a final occupation certificate can be issued to allow a new building (including an altered portion of, or extension to, a new building) to be occupied or used, or
- before a final occupation certificate can be issued to allow a change of building use for an existing building, or
- in accordance with a fire safety order given by a Council.

An **interim fire safety certificate** is issued for part of the building and may deal only with those essential fire safety measures appearing on the most recent fire safety schedule (see not 3) relevant to the part of the building for which an interim occupation certificate will be sought.

A **final fire safety certificate** must deal with all essential fire safety measures appearing on the most recent fire safety schedule (see note 3), subject to the following.

An **interim fire safety certificate** or a **final fire safety certificate** need not deal with those essential fire safety measures which have been subject of some other final fire safety certificate or annual fire safety statement within the previous 6 months, unless the person or authority responsible for determining the relevant development consent, complying development certificate, construction certificate or fire safety order, has specified otherwise in the Schedule.

See also note 3.

Note 2 The person who carries out the assessment:

- must inspect and verify the performance of each safety measure being assessed: and
- in the case of a (interim or final) fire safety certificate for a new building (not an alteration to, or enlargement or extension of an existing building) must test the operation of each item of fire safety equipment installed in the building.

Note 3 The relevant essential fire safety measures are those specified in the most recent fire safety schedule, attached to one of the following:

- development consent for a change of building use,
- complying development certificate for the erection of a building or a change of building use;
- construction certificate of proposed building work, including building work associated with a change of building use; or
- a fire safety order.

  The fire safety schedule will also identify the required standard of performance for each essential fire safety measure.

JLW INTERIORS PTY LTD
ABN 46 058 469 471
Ph: 02 4735 7034 • Fax: 02 4735 7043
Unit 5 / 116 Russell Street, Emu Plains NSW 2750
PO Box 4065, Penrith Westfields, Penrith NSW 2750
eMail: jlw@jlwinteriors.com.au
www.jlwinteriors.com.au

LIGHT WEIGHT CONSTRUCTION FIRE CERTIFICATE

Project No. 6976

Project Name : LivPac

Address : 2-4 Daydream St Warriewood

Date: 19.06.15

Contact Person: Justin Williams

This is to certify all fire rated plasterboard partitions have been constructed to comply with manufacturers instructions and BCA2014 Specifications C1.8 and A2.3 and AS 1530.4

All materials used to construct fire rated partitions are in accordance with manufacturers recommended products as well as BCA2014 Specifications C1.8 and A2.3 and AS 1530.4

Systems used: CSR092
CSR075

Yours Faithfully

Justin Williams

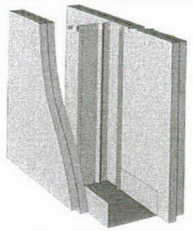
Steel Frame Internal Wall Systems – Single Stud

SYSTEM SPECIFICATION

- Lining material as per system table.
- Steel Studs at 600mm maximum centres.
- Lining material as per system table.

NOTES:
Acoustic performance valid for studs of 0.50 BMT.
*ACR = Axial Capacity Reduction

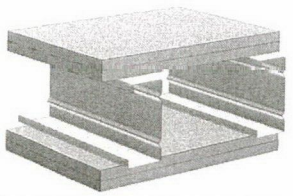
TYPICAL LAYOUT (CSR 075a shown)



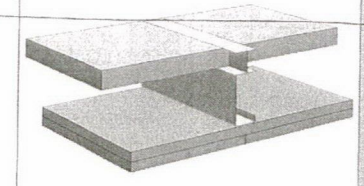
ACOUSTIC OPINION
PKA-052

FRL Report/Opinion	SYSTEM N°	WALL LININGS	STUD DEPTH mm	51	64	76	92	150
			CAVITY INFILL (Refer to Section 'A')	R_w / R_w+C_{tr}				
–/90/90 30/30/30 60/60/60* *ACR15% FAR2357	CSR 610	Both Sides (any order) • 1 x 6mm CeminSeal™ Wallboard. • 1 x 13mm GYPROCK FYRCHEK plasterboard.	(a) Nil	43/36	44/37	46/40	46/40	49/43
			(b) 50 GW Partition 11kg	48/39	49/40	51/43	51/43	53/45
			(c) 75 GW Partition 11kg	–	51/42	52/44	52/44	54/46
			(d) TSB3/ASB3 Polyester	48/41	48/41	50/44	50/44	52/46
			(e) 60 Soundscreen™ 1.6	–	50/40	52/43	52/43	54/45
			WALL THICKNESS mm	89	102	114	130	188
–/90/90 60/60/60 90/90/90* *ACR15% FAR2357	CSR 614	Both Sides • 1 x 16mm GYPROCK FYRCHEK plasterboard (against studs). • 1 x 6mm CeminSeal™ Wallboard.	(a) Nil	44/37	45/38	46/40	47/41	49/43
			(b) 50 GW Partition 11kg	49/40	50/41	51/43	52/44	53/45
			(c) 75 GW Partition 11kg	–	52/43	52/44	53/45	54/46
			(d) TSB3/ASB3 Polyester	49/42	49/42	50/44	51/45	52/46
			(e) 60 Soundscreen™ 1.6	–	51/41	52/43	53/44	54/45
			WALL THICKNESS mm	95	108	120	136	194
–/120/120 60/60/60 90/90/90* *ACR15% FAR2357	CSR 611	Both Sides • 1 x 6mm CeminSeal™ Wallboard (against studs). • 1 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil	44/37	45/38	46/40	47/41	49/43
			(b) 50 GW Partition 11kg	49/40	50/41	51/43	52/44	53/45
			(c) 75 GW Partition 11kg	–	52/43	52/44	53/45	54/46
			(d) TSB3/ASB3 Polyester	49/42	49/42	50/44	51/45	52/46
			(e) 60 Soundscreen™ 1.6	–	51/41	52/43	53/44	54/45
			WALL THICKNESS mm	95	108	120	136	194
–/120/120 90/90/90 120/120/120* *ACR10% FAR2357	CSR 075	Both Sides • 2 x 13mm GYPROCK FYRCHEK plasterboard.	(a) Nil	44/37	45/38	46/40	47/41	49/43
			(b) 50 GW Partition 11kg	49/40	50/41	51/43	52/44	53/45
			(c) 75 GW Partition 11kg	–	52/43	52/44	53/45	54/46
			(d) TSB3/ASB3 Polyester	49/42	49/42	50/44	51/45	52/46
			(e) 60 Soundscreen™ 1.6	–	51/41	52/43	53/44	54/45
			WALL THICKNESS mm	103	116	128	144	202
–/120/120 90/90/90 FAR2357	CSR 613	Both Sides (any order) • 1 x 9mm CeminSeal™ Wallboard. • 1 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil	45/38	47/41	48/42	49/43	51/45
			(b) 50 GW Partition 11kg	50/41	52/44	53/45	54/46	55/47
			(c) 75 GW Partition 11kg	–	54/46	54/46	55/47	56/48
			(d) TSB3/ASB3 Polyester	50/43	51/45	52/46	53/47	54/48
			(e) 60 Soundscreen™ 1.6	–	53/44	54/45	55/46	56/47
			WALL THICKNESS mm	101	114	126	142	200
–/180/180 and 120/120/120 FAR2357	CSR 080	Both Sides • 2 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil	43/36	45/39	46/40	47/41	49/43
			(b) 50 GW Partition 11kg	48/39	50/42	51/43	52/44	53/45
			(c) 75 GW Partition 11kg	–	52/44	52/44	53/45	54/46
			(d) TSB3/ASB3 Polyester	48/41	49/43	50/44	51/45	52/46
			(e) 60 Soundscreen™ 1.6	–	51/42	52/43	53/44	54/45
			WALL THICKNESS mm	115	128	140	156	214

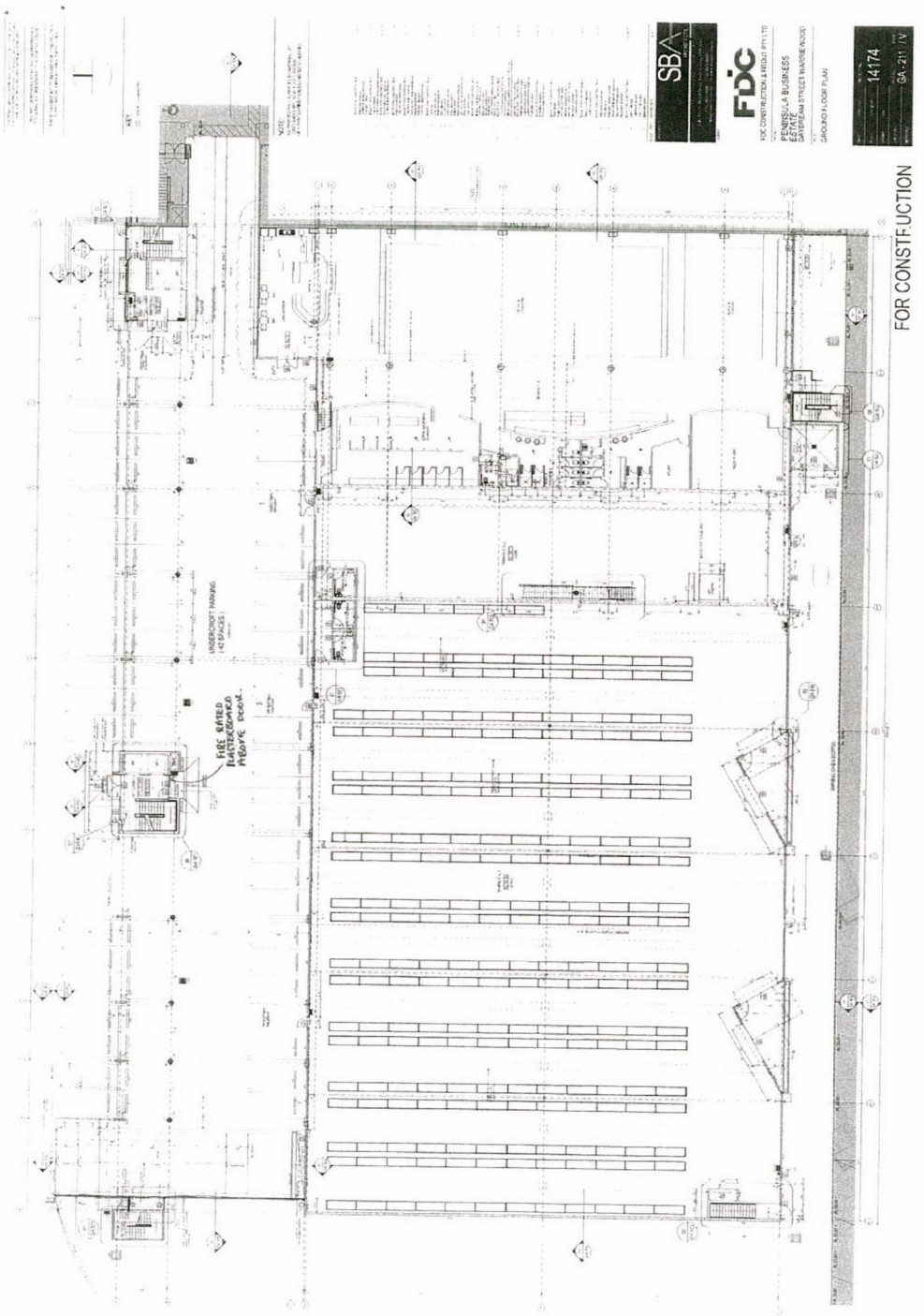
Ceilings Fire Rated from Above and/or Below

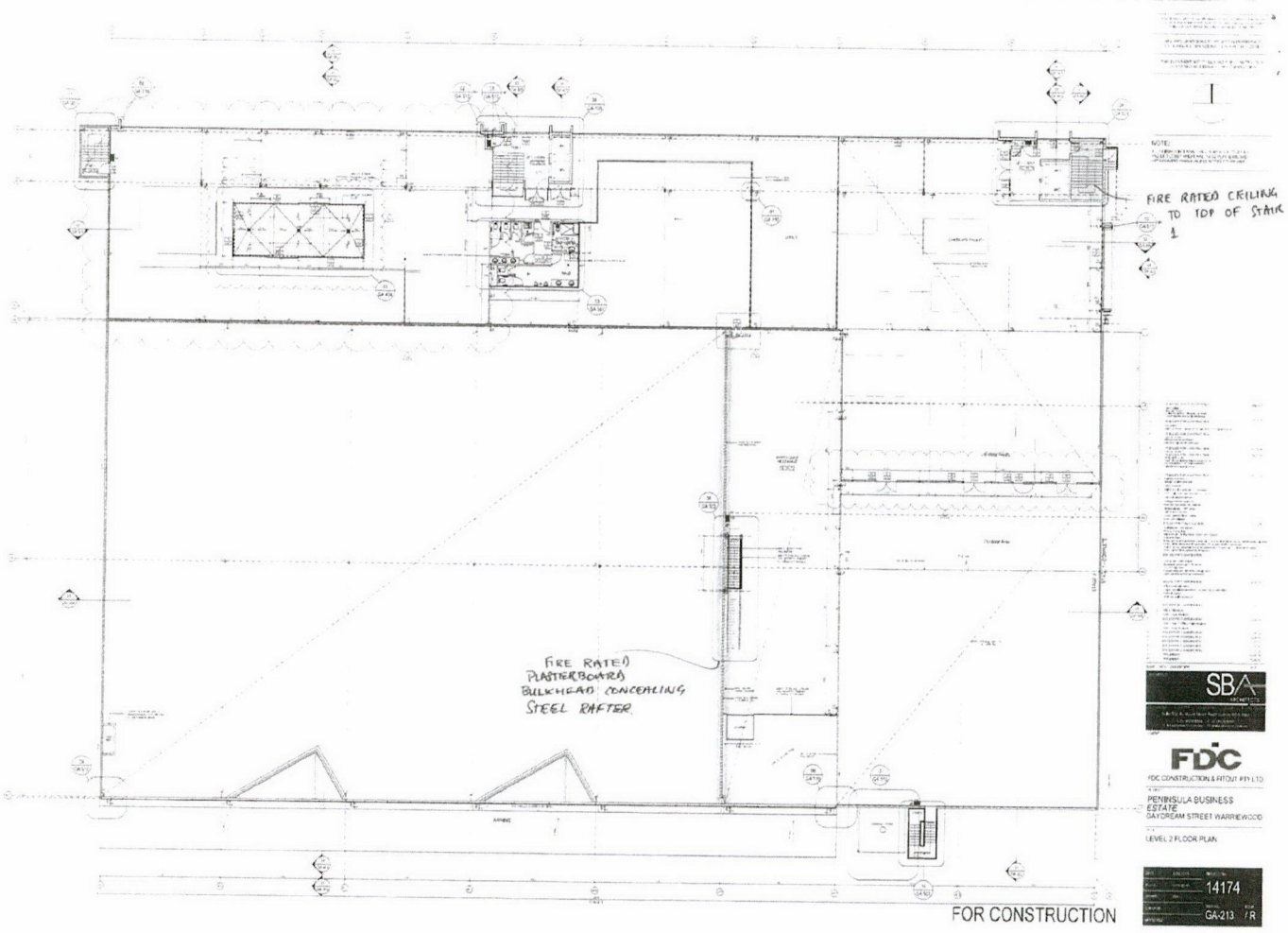
SYSTEM SPECIFICATION	TYPICAL LAYOUT (CSR 992a shown)	ACOUSTIC OPINION
• Ceiling lining as per system table, fixed to framing. • Steel framing maximum 1.6mm BMT at 600mm maximum centres. • Minimum cavity depth 150mm. • Cavity infill as per system table. • Ceiling lining as per system table, fixed to framing.		PKA–052

FRL Report/Opinion	SYSTEM N°	CEILING LININGS	CAVITY INFILL (Refer to Section A)	R_w / R_w+C_{tr}
60/60/60 FAR 2358	CSR 994	*Above & Below* • 1 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil (b) 50 GW Partition – 11kg/m³	41/35 45/37
90/90/90 from below 120/120/120 from above FAR 2358	CSR 992	*Above & Below* • 2 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil (b) 50 GW Partition – 11kg/m³	47/41 51/43
120/120/120 FAR 2358	CSR 993	*Above* • 2 x 16mm GYPROCK FYRCHEK plasterboard. *Below* • 3 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil (b) 50 GW Partition – 11kg/m³	49/43 53/45

SYSTEM SPECIFICATION	TYPICAL LAYOUT (CSR 995a shown)	ACOUSTIC OPINION
• Shaftwall C-H studs at 600mm maximum centres. • Lining to top side as per system table, in framing. • Cavity infill as per system table. • Ceiling lining as per system table, fixed to framing.		PKA–052

FRL Report/Opinion	SYSTEM N°	CEILING LININGS	CAVITY INFILL (Refer to Section A)	R_w / R_w+C_{tr}	
			STUD DEPTH	64	102
60/60/60 from top only FAR 2358	CSR 987	*Above* • 1 x 25mm GYPROCK SHAFT LINER PANEL. *Below* • 1 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil (b) 50 GW Partition – 11kg/m³	38/31 43/34	42/35 47/38
90/90/90 FAR 2358	CSR 995	*Above* • 1 x 25mm GYPROCK SHAFT LINER PANEL. *Below* • 2 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil (b) 50 GW Partition – 11kg/m³	41/34 46/37	46/40 51/43
120/120/120 FAR 2358	CSR 997	*Above* • 1 x 25mm GYPROCK SHAFT LINER PANEL. *Below* • 3 x 16mm GYPROCK FYRCHEK plasterboard.	(a) Nil (b) 50 GW Partition – 11kg/m³	44/37 49/40	48/42 53/45




FIRE RATED CEILING TO TOP OF STAIR 1
FIRE RATED PLASTERBOARD BULKHEAD CONCEALING STEEL RAFTER
SBA
FDC
FDC CONSTRUCTION & FITOUT PTY LTD
PENINSULA BUSINESS ESTATE
DAYDREAM STREET WARRIEWOOD
LEVEL 2 FLOOR PLAN
14174
GA-213
/R
FOR CONSTRUCTION

JLW INTERIORS PTY LTD
ABN 46 058 469 471
Ph: 02 4735 7034 • Fax: 02 4735 7043
Unit 5 / 116 Russell Street, Emu Plains NSW 2750
PO Box 4065, Penrith Westfields, Penrith NSW 2750
eMail: jlw@jlwinteriors.com.au
www.jlwinteriors.com.au

EPS Panel Certification

Project No. 6976

Project Name : LivPac

Address : 2-4 Daydream St Warriewood

Date: 19.06.15

Contact Person: Justin Williams

This is to certify all EPS panels supplied and installed by JLW (Carpark plenum wall) have been installed as per the manufacturers guidelines (Thermal installations)

All EPS Panels supplied by JLW meet AS1366.3

Yours Faithfully

Justin Williams

FDC Construction & Fitout Pty Ltd
ABN 44 120 295 034

22 - 24 Junction Street
Forest Lodge NSW 2037 Australia
T 61 2 9566 2800 | F 61 2 9566 2900
www.fdcbuilding.com.au

Sydney | Melbourne | Brisbane

15th June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: FIRE & SMOKE WALLS

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

I hereby certify that all fire and smoke walls (including concealed spaces) have been installed in accordance with the requirements of the BCA including protection of all penetrations and perimeter gaps.

If you have any queries regarding the above, please do not hesitate to contact the undersigned.

Yours Sincerely,

Joel Andonopoulos
Project Manager
FDC Construction & Fitout Pty Ltd
0403 077 001

DATA 2 ELECTRICAL PTY LTD

12/23 Bay Road, Taren Point NSW 2229
PO Box 2922, Taren Point NSW 2229
Tel. 02 9540 2311
Fax. 02 9540 4311
ABN 82 604 787 519
E: admin@d2e.sydney

Fire Safety Certificate For Emergency and Exit Lighting

Issued under the Environmental Planning and Assessment Regulation 2000, Clauses 170 to 174

Type of Certificate ☐ Interim ☒ Final

Owner / Agent I, Steve Pollard

Address of 12/23 Bay Rd, Taren Point NSW 2229

Certify that:

each of the essential fire safety measures specified in the current fire safety schedule for the building to which the certificate relates:

a) has been assessed by a properly qualified person, and

b) was found, when it was assessed, to be capable of performing to at least the standard required by the current fire safety schedule for the building for which the certificate is issued.

c) All of the electrical design is as per design drawings and specifications issued for this project.

Identification of Building

Street	Stage-2, 2 Daydream St, Warriewood, NSW, 2102
House/Unit No. or Building Name	Stage-2 Peninsula Business Estate
Side of Street	
Nearest Cross Street	

Particulars of Building

Scope	☒ Whole ☐ Part
Description of Part (where applicable)	As per attached drawings showing highlighted areas only. Whole of the Basement, Main switch Room, Ground Floor car park area, Stairwell-1, 2, 3, & 4 including associated lobby areas for each floor, Tenancy-G2, G-3, Whole of Level-1, Part of Level-2 includes, Tenancy L-2-2 and the toilets areas.
House/Unit No. or Building Name	Stage-2 Peninsula Business Estate
Date of Assessment	21-04-15

Owner's Details

Name	
Address	

Essential Fire and Other Safety Measures	Standard of Performance
Emergency Lighting	BCA Clause E4.4 & AS 2293.1-2005 BCA Clause E4.2
Exit Signs	BCA Clause E4.5, E4.6 & E4.8 and AS 2293.1 – 2005

Fire Seals	BCA Clause C3.15, AS1530.4 & AS4072.1 - 2005

Date of Certificate dated this fourth day of *June 2015*

Signature _____

owner/agent

A copy of this certificate together with the relevant fire safety schedule must be forwarded to the Council and the Commissioner of the New South Wales Brigades.

A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.

Notes for completing the Fire Safety Certificate

Note 1

An **interim fire safety certificate or a final fire safety certificate** is required before:

- an interim occupation certificate can be issued to allow a partially completed new building (including and altered portion of, or an extension to, a new building) to be occupied or used, or
- an interim occupation certification can be issued to allow a change of building use for part of an existing building.

A **final fire safety certificate** is required:

- before a final occupation certificate can be issued to allow a new building (including an altered portion of, or extension to, a new building) to be occupied or used, or
- before a final occupation certificate can be issued to allow a change of building use for an existing building, or
- in accordance with a fire safety order given by a council.

An **interim fire safety certificate** is issued for part of the building and may deal only with those essential fire safety measures appearing on the most recent fire safety schedule (see note 3) relevant to the part of the building for which interim occupation certificate will be sought.

A **final fire safety certificate** must deal with all essential fire safety measures appearing on the most recent fire safety schedule (see note 3), subject to the following.

An **interim fire safety certificate or a final fire safety certificate** need not deal with those essential fire safety measures which have been the subject of some other final fire safety certificate or annual fire safety statement within the previous 6 months, unless the person or authority responsible for determining the relevant development consent, complying development certificate, construction certificate or fire safety order, has specified otherwise in the schedule. See also note 3.

Note 2

The person who carries out the assessment:

- must inspect and verify the performance of each fire safety measure being assessed; and
- in the case of a (interim or final) fire safety certificate for a new building (not an alteration to, or enlargement or extension of an existing building) must test the operation of each item of fire safety equipment installed in the building.

Note 3

The relevant essential fire safety measures are those specified in the most recent fire safety schedule, attached to one of the following:

- development consent for a change of building use; or
- complying development certificate for the erection of a building or a change of building use; or
- construction certificate for proposed building work, including building work associated with a change of building use; or
- a fire safety order.

The fire safety schedule will also identify standard of performance for each essential fire safety measure.

Fire Safety Certificate

Issued under the Environmental Planning and Assessment Regulation 2000, Clauses 153(1A) and 170 to 174

Type of Certificate	Final
Agent	I, Sean E Joseph
Address	of Romteck Grid Pty Ltd, 96 Bay Street, Botany 2019

Certify that:

each of the essential fire safety measures listed below for the building to which the certificate relates:

a) has been assessed by a properly qualified person, and

b) was found, when it was assessed, to be capable of performing to at least the standard required by the most recent fire safety schedule for the building for which the certificate is issued.

Identification of Building

Street	2 Daydream Street, Warriewood, NSW 2102
House/Unit No. or Building Name	Peninsula Business Estate
Side of Street	
Nearest Cross Street	Jubilee Avenue

Particulars of Building

Scope	Whole
Description of Part (where applicable)	
House/Unit No. or Building Name	
Date of Assessment	08th March, 2012

Owner's Details

Name	
Address	

SCHEDULE

	Essential Fire and Other Safety Measures	Standard of Performance
	Fire Alarm Communication Link	AS 4428.6 - 1997, AS 1670.3 -2004 & AS 3013 - 1995

Date of Certificate Dated this 08th day of March, 2012

Signature _____

owner/agent

A copy of this certificate together with the relevant fire safety schedule must be forwarded to the Council and the Commissioner of the New South Wales Brigades.

A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.

Notes for completing the Fire Safety Certificate

Note 1

An **interim fire safety certificate or a final fire safety certificate** is required before:

- an interim occupation certificate can be issued to allow a partially completed new building (including and altered portion of, or an extension to, a new building) to be occupied or used, or
- an interim occupation certification can be issued to allow a change of building use for part of an existing building.

A **final fire safety certificate** is required:

- before a final occupation certificate can be issued to allow a new building (including an altered portion of, or extension to, a new building) to be occupied or used, or
- before a final occupation certificate can be issued to allow a change of building use for an existing building, or
- in accordance with a fire safety order given by a council.

An **interim fire safety certificate** is issued for part of the building and may deal only with those essential fire safety measures appearing on the most recent fire safety schedule (see note 3) relevant to the part of the building for which interim occupation certificate will be sought.

A **final fire safety certificate** must deal with all essential fire safety measures appearing on the most recent fire safety schedule (see note 3), subject to the following.

An **interim fire safety certificate or a final fire safety certificate** need not deal with those essential fire safety measures which have been the subject of some other final fire safety certificate or annual fire safety statement within the previous 6 months, unless the person or authority responsible for determining the relevant development consent, complying development certificate, construction certificate or fire safety order, has specified otherwise in the schedule. See also note 3.

Note 2

The person who carries out the assessment:

- must inspect and verify the performance of each fire safety measure being assessed; and
- in the case of a (interim or final) fire safety certificate for a new building (not an alteration to, or enlargement or extension of an existing building) must test the operation of each item of fire safety equipment installed in the building.

Note 3

The relevant essential fire safety measures are those specified in the most recent fire safety schedule, attached to one of the following:

- development consent for a change of building use; or
- complying development certificate for the erection of a building or a change of building use; or
- construction certificate for proposed building work, including building work associated with a change of building use; or
- a fire safety order.

The fire safety schedule will also identify standard of performance for each essential fire safety measure.

FINAL/INTERIM FIRE SAFETY CERTIFICATE

-------(Form 15)--------

issued under the Environmental planning and assessment regulations
clauses 80E and 80F

type of certificate see Note 1 (over leaf)	☐ **interim** ☑ **final**
Certificate name ~~owner~~/agent address see Note 2 (over leaf) assessment requirements	I, Peter Mallouk of Innovative Fire Services Pty Ltd Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208 certify that: (a) each of the essential fire measures listed below: * has been assessed by a person (chosen by me) who was properly qualified to do so, and * was found, when it was assessed, to have been properly implemented and to be capable of performing to a standard not less than that required by the most recent fire safety schedule (copy attached) for the building for which the certificate is issued * (b) the information contained in this certificate is, to the best of my knowledge and belief, true and accurate
Identification of building Location	Street 2 Daydream Street, Warriewood side of street West nearest cross street Ponderosa Pde
Particulars of building	~~whole~~/part Warehouse & Office
date of assessment	29th March 2012
Owner's details name address	Livingstone Group Level 8, 151 Macquarie Street Sydney NSW 2000
Essential fire safety measures see Note 3	Measure — Standard of performance Fire Sprinkler System — AS 2118 Part 1 – 1999 BCA Clause E1.5 FM Data sheets 2-0 Building Occupant Warning System — AS1670.1 Clause 3.22 (b) BCA E2-2a Fire Alarm System (sprinkler interfacing) — AS1670.1 2004 Fire Detection System (ground level tenancy 1, Comms room ground & Level 1) — AS1668.1-1998 BCA E2.2a Clause 5 Alarm Signalling Equipment — AS4428.6 – 1997
Signature **date of certificate**	~~owner~~/*agent* 29th March 2012

- *A copy of this certificate together with the relevant fire safety schedule must be forwarded to the council and the Commissioner of the New South Wales Fire Brigades.*
- *A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.*

Notes for completing Final/Interim Fire Safety Certificate

Note 1 An **interim fire safety certificate** or a **final fire safety certificate** is required before:

- an interim occupation certificate can be issued to allow a partially completed new building (including an altered portion of, or an extension to, a new building) to be occupied or used, or
- an interim occupation certificate can be issued to allow a change of building use for part of an existing building.

A **final fire safety certificate** is required:

- before a final occupation certificate can be issued to allow a new building (including an altered portion of, or extension to, an new building) to be occupied or used, or
- before a final occupation certificate can be issued to allow a change of building use for an existing building, or
- in accordance with a fire safety order given by a Council.

An **interim fire safety certificate** is issued for part of the building and may deal only with those essential fire safety measured appearing on the most recent fire safety schedule (see note 3) relevant to the part of the building for which an interim occupation certificate will be sought.

A **final fire safety certificate** must deal with all essential fire safety measured appearing on the most recent fire safety schedule (see note 3), subject to the following.

An **interim fire safety certificate** or a **final fire safety certificate** need not deal with those essential fire safety measures which have been the subject of some other final fire safety certificate or annual fire safety statement within the previous 6 months, unless the person or authority responsible for determining the relevant development consent, complying development certificate, construction certificate of fire safety order, has specified otherwise in the Schedule.

See also note 3.

Note 2 The person who carried out the assessment:

- must inspect and verify the performance of each safety measure being assessed; and
- in the case of a (interim or final) fire safety certificate for a new building (not an alteration to, or enlargement or extension of a an existing building) must test the operation if each item of fire safety equipment installed in the building.

Note 3 The relevant essential fire safety measures are those specified in the most recent fire safety schedule attached to one of the following:

- development consent for a change of building use,
- complying development certificate for the erection of a building or a change of building use;
- construction certificate of proposed building work, including building work associated with a change of building use; or
- a fire safety order.
  The fire safety schedule will also identify the required standard of performance for each essential fire safety measure.

1st June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: Paths of travel

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

I hereby confirm the design of the above-mentioned development has been designed in accordance with the Clause D1.6 Paths of travel of the BCA 2014, BCA Report prepared by Blackett Maguire and Goldsmith dated 20th October 2014, and Fire Engineering Report prepared by Exova Pty Ltd dated 8th April 2015

If you have any queries regarding the above, please do not hesitate to contact the undersigned.

Yours Sincerely,

Joel Andonopoulos
Project Manager
FDC Construction & Fitout Pty Ltd
0403 077 001

Helcon

Screw Pile Installation

Certificate of Compliance

Form 2

1. Project Information	Builder: FDC Construction Fitout P/L	Builder's Supervisor: Chris Bignell
2. Site address and details **All property details**	Street Address (Include Lot no., street, suburb/locality & postcode) PENINSULA BUSINESS ESTATE 2 DAYDREAM ST (STAGE 2) WARRIEWOOD. N.S.W. 2102 Plan details (Drawing number & sheet numbers) Structural drawings S130449 by Northrop Geotechnical report 24757SB by JK	
3. Scope of Work for Compliance	Scope of work covered and subject of this certification: (tick) - X Screw piles in accordance with AS 2159 X Designed & Constructed in accordance with plans and specifications issued. Other (provide details) Design, Supply & Installation of compression screw piles in accordance with above drawings.	
4. Installation Details	When was the request for installation made? Date: Aug-14 When was the installation started? Date: Aug-14 When was the installation completed? Date: Mar-15	
5. Declaration **Full details and signatu of the responsible perso will need to be provided to verify that the work covered complies with AS 2159 – 2009.**	I hereby certify that the stated Scope of Works has been completed in compliance with AS 2159 – 2009 and constructed in accordance with the relevant plans and specifications as supplied to Helcon for the works and that the information provided on this form is a true and accurate record. Company Name Helcon Contracting Australia Pty Ltd Name: Brian Carpenter Licence Number: 66243S Phone Number: 02 9516 5093 Fax Number: 02 9516 5193 Address Unit 10 / 45-51 Huntley Street, ALEXANDRIA Postcode 2015 Signature Date: 24-4-15	

OFFICE USE ONLY					
Date Received		**Receiving Officer's Name/s**	B.G. Carpenter	**Reference Number/s**	Manual Cert

DHP

DANNY HALL PLUMBING Pty Ltd

Hydraulic and Civil contractors

Danny Hall Plumbing Pty Ltd
PO Box 58, Galston NSW 2159
Ph. 02 9656 1800
Fax. 02 9656 1710
Mob. 0417 525 123
danny@dhphc.com.au

29th May 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street,
Forest Lodge NSW 2037

Attention: Mr Joel Andonopoulos

Dear Sir,

RE: Warriewood (Stage 2) – Base Building
2 Daydream Street, Warriewood NSW 2102

Plumbing & Drainage Certificate

I, Danny Hall, hereby certify that all plumbing and drainage has been installed on the above project in accordance with AS 3500, and Volume 3 of the BCA.

Yours Sincerely,
Danny Hall Plumbing Pty Ltd

Danny Hall
Director

DHP
DANNY HALL PLUMBING Pty Ltd
Hydraulic and Civil contractors

Danny Hall Plumbing Pty Ltd
PO Box 58, Galston NSW 2159
Ph. 02 9656 1800
Fax. 02 9656 1710
Mob. 0417 525 123
danny@dhphc.com.au

29th May 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street,
Forest Lodge NSW 2037

Attention: Mr Joel Andonopoulos

Dear Sir,

RE: Warriewood (Stage 2) – Base Building
2 Daydream Street, Warriewood NSW 2102

Hot Water Supply Certificate

I, Danny Hall, hereby certify that the Hot Water Supply to the above project has been installed in accordance with BCA Part J7, and Section 8 of AS 3500.4.

Yours Sincerely,
Danny Hall Plumbing Pty Ltd

Danny Hall
Director

CLASSIC TILES PTY LTD
PROJECTS

ceramics | granite/marble | mosaics | supply or supplied & fixed

WATERPROOFING - INSTALLATION CERTIFICATE

ADDRESS:	DAYDREAM STREET, WARRIEWOOD
PROJECT:	WARRIEWOOD STAGE 2

I, JOE VALENTI of CLASSIC TILES PROJECTS PTY LTD
183 NEW CANTERBURY ROAD, PETERSHAM NSW 2049

My Qualifications, accreditations, licenses are as follows:

Qualifications and Experience:	Construction Manager
	20 years

Phone Numbers:	Bus:	02-9560 6333	Fax:	02-9550 9658	Mob:	0416 252 041

Hereby certify:

That the following elements / service/s or works have been inspected during construction:

- WATERPROOFING WORKS TO WET AREAS

Have been installed/completed in accordance with the following measures/requirements to comply with:

a. The relevant clauses of the Building Codes of Australia, as follows:
   - AS 3740-2004
   - PART A2.2 of the BCA

b. The design detail submitted at the construction approval stage.

I am a properly qualified person and have a good working knowledge of the standards referenced above. The information contained in this statement is true and accurate to the best of my knowledge.

Signature: _____ **Date:** 28/5/15

showroom & warehouse:
183 new canterbury road petersham nsw 2049
postal address:
p.o. box 283 petersham nsw 2049

t: (02) 9560 6333
f: (02) 9550 9658
email: info@classitiles.net.au
website: www.classictiles.net .au

FDC Construction & Fitout Pty Ltd
ABN 44 120 295 034

22 - 24 Junction Street
Forest Lodge NSW 2037 Australia
T 61 2 9566 2800 | F 61 2 9566 2900
www.fdcbuilding.com.au

Sydney | Melbourne | Brisbane

5th June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: STAIRWAY CERTIFICATION

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

I hereby provide certification that the stairways in the above-mentioned development have been constructed in accordance with relevant standards. Further to this, I confirm that the tread and riser dimensions for each private and public stairway are consistent throughout each respective stair flight.

If you have any queries regarding the above, please do not hesitate to contact the undersigned.

Yours Sincerely,
FDC Construction & Fitout Pty Ltd

Joel Andonopoulos
Project Manager

FDC Construction & Fitout Pty Ltd
ABN 44 120 295 034

22 - 24 Junction Street
Forest Lodge NSW 2037 Australia
T 61 2 9566 2800 | F 61 2 9566 2900
www.fdcbuilding.com.au

Sydney | Melbourne | Brisbane

5th June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: WORKMANSHIP CERTIFICATION

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

I hereby certify in my professional opinion that all building works undertaken on the above-mentioned development have been carried out in a good and workmanlike manner by appropriate licensed contractors, in accordance with all relevant codes and standards and in accordance with the relevant conditions of the development consent and documentation approved under the Construction Certificate

If you have any queries regarding the above, please do not hesitate to contact the undersigned.

Yours Sincerely,
FDC Construction & Fitout Pty Ltd

Joel Andonopoulos
Project Manager

11th May, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

Re: **OCCUPATIONAL CERTIFICATE: DESIGN COMPLIANCE STATEMENT**

SUBJECT PREMISES: **2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)**

DA APPLICATION NO: **N0191/13**

I hereby confirm in our professional opinion after inspection of the construction site for the above-mentioned development the building works appear to have been completed in accordance with the DA approved Plans & Finishes Schedules & is consistent with the conditions of the Development Consent and Construction Certificate.

In addition to the above, the car park and line marking has been designed in accordance with AS 2890.1-2004 Parking facilities - Off-street car parking.

If you have any queries regarding any of the above, please do not hesitate to contact the undersigned.

Yours faithfully
SBA Architects Pty Ltd

Richard Prince

DATA 2 ELECTRICAL PTY LTD

12/23 Bay Road, Taren Point NSW 2229
PO Box 2322, Taren Point NSW 2229
Tel. 02 9540 2311
Fax. 02 9540 4311
ABN 82 604 787 519
E: admin@d2e.sydney

ELECTRICAL CERTIFICATION

Peninsula Business Estate Warriewood Stage 2

2 Daydream St, Warriewood, NSW, 2102

To Whom It May Concern

The Electrical project mentioned above including Emergency lighting and Exit signs covers the electrical installation as per scope of works and is as per and in accordance with the following; The electrical design is as per designed documentation, drawings and specifications.

1. AS3000:2008 and Part J6 of BCA. As per AS/NZS 1680.0 – 2006.
2. BCA Clauses E4.2, E4.4, E4.5/NSW, E4.6, E4.7, E4.8, F4.4, J6, J8, J8.3
3. Design Meetings to date

.....
Steve Pollard

June 4th, 2015

SOUTH WEST
COMMERCIAL WINDOWS AND DOORS

SOUTH WEST ALUMINIUM PTY LTD

PO Box 3479 Narellan DC NSW 2567
Telephone: (02) 46 47 1455 Facsimile: (02) 46 47 6122
Web: www.southwestaluminium.com.au

GLAZING CERTIFICATION

Date: 20.05.2015

FDC Constructions Pty Ltd
Attention: Mr Mathew Hezlett

Re: **Peninsula Business Park, 2 Daydream road, Warriewood**
Installation of windows, doors and glass certificate

I hereby certify that the external glazing has been installed in accordance with J2.4 of the BCA with respect to annual cooling and heating energy use.

All glazing installations, including all windows and doors completed by South West Aluminium (excludes glass balustrades, shower screens and mirrors completed by others) comply to AS1288 2006 (Glass in buildings – selection and installation) including reference to wind loadings and human impact requirements. All glass in sloped overhead glazing assemblies more than 3m above ground floor level and vertical glazed assemblies more than 5m above floor or ground level, to the effect that compliance has been achieved with BCA Clause B1.4(h)(iii) with respect to necessary additional treatment measures to mitigate risk of breakage resulting from nickel sulphide inclusions in the glazed panels.

In addition, we confirm all glass and glazing assemblies (including windows, shopfronts and doors) in external walls to Comply with AS2047 (windows in buildings – selection and installation)

Yours Faithfully,

South West Aluminium Pty Ltd

Joseph Fabricato

Managing Director

FDC Construction & Fitout Pty Ltd
ABN 44 120 295 034

22 - 24 Junction Street
Forest Lodge NSW 2037 Australia
T 61 2 9566 2800 I F 61 2 9566 2900
www.fdcbuilding.com.au

Sydney I Melbourne I Brisbane

12st June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: BUSHFIRE COMPLIANCE STATEMENT

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

I hereby confirm in my professional opinion, the above-mentioned development has been constructed in accordance with AS.3959 'Construction of Buildings in Bushfire Prone Areas' and the requirements listed within the DA Consent and Bushfire Protection Assessment prepared by Australian Bushfire Protection Planners, dated 11.03.2010.

In accordance with the Bushfire Protection Assessment, the following construction measures have been implemented:

- All operable windows to the Office have been fitted with aluminium / stainless steel mesh flyscreens having a maximum aperture size of 2mm;
- Access doors to the building shall be fitted with seals that seal the bottom, stiles and head of he door against the opening/frame to prevent the entry of embers into the building;
- All external vents, grilles and ventilation louvres have been installed with a stainless steel mesh with a maximum aperture of 2mm to prevent the entry of embers into the building or have been fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;
- All roof ventilators have been fitted with stainless steel flymesh to prevent the entry of embers into the building or have been fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;
- All roof gutters have been provided with a protection device which minimizes the accumulation of combustible litter in the gutters. The installed device has a flammability index rating of less than 5 when measured in accordance with the testing procedures of A.S.1503.2

If you have any queries regarding any of the above, please do not hesitate to contact the undersigned.

Yours Sincerely,
FDC Construction & Fitout Pty Ltd

Joel Andonopoulos
Project Manager

Michael Shannon & Associates Pty Ltd
Surveyors, Planners and Land Development Consultants
ABN 73 119 504 237
PO Box 506 CONCORD NSW 2137
Ph: 9708 3660 Fax: 9708 3465
Email: info@msasurveyors.com.au

Our Ref: 0992 ID-02

26th April, 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street
FOREST LODGE NSW 2037

Attention: Joel Andonopoulos

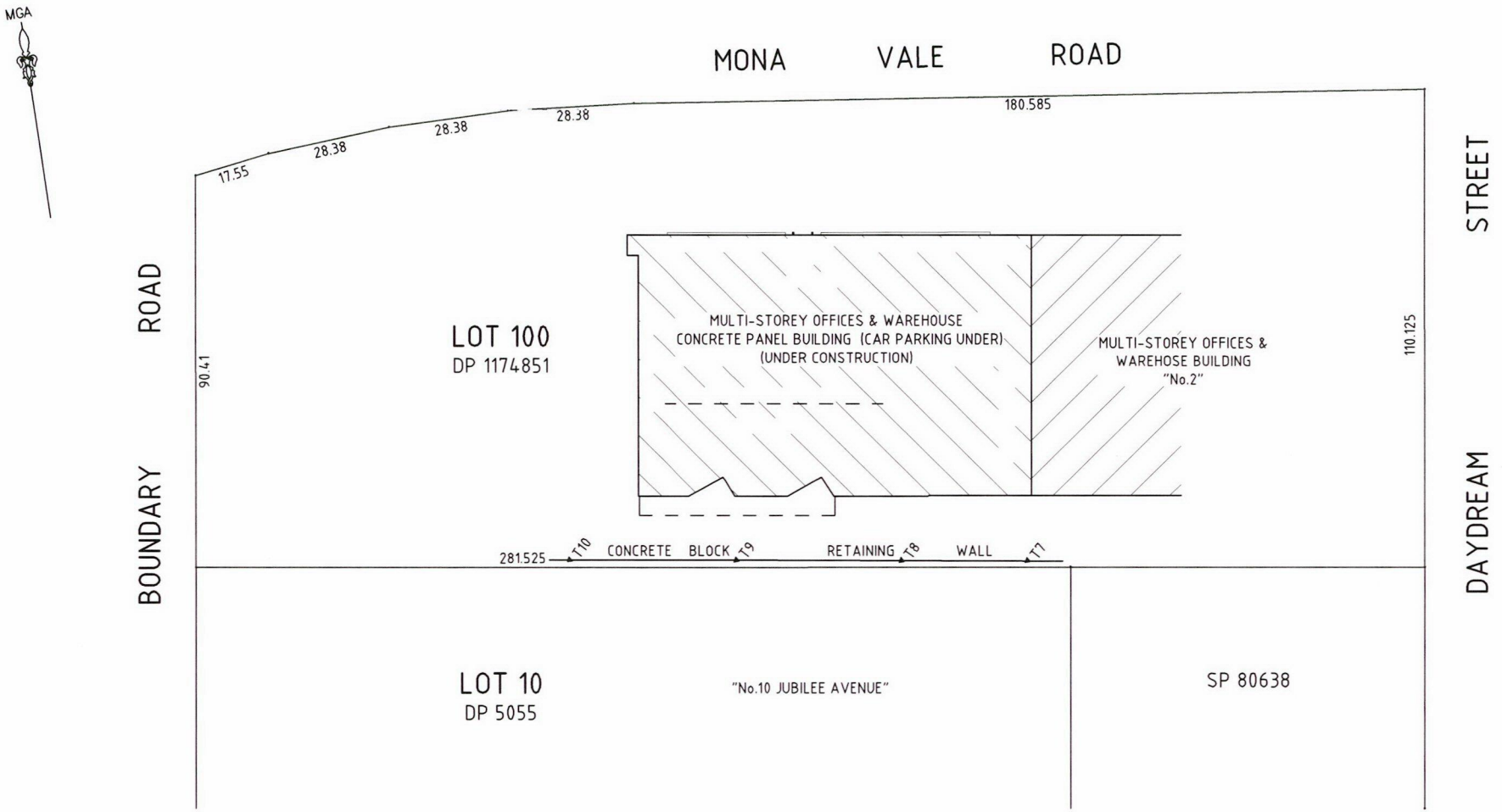
RE: No.2 DAYDREAM STREET, WARRIEWOOD

BUILDING-STAGE 2 DILAPIDATION REPORT

In accordance with your instructions I have surveyed monitoring points located on the face a concrete block retaining wall along the southern boundary of Lot 100 in Deposited Plan 1174851, as shown in the accompanying sketch herewith and edged red.

In my opinion, the positions of the monitoring points (T7-T10 inclusive) are unchanged from initial observations prior to the commencement of works to recent observations dated 24 April 2015.

Phillip J Chamberlain
Surveyor registered under
The Surveying Act 2002



NOTE:

MONITORING POINTS ARE REFLECTIVE TAPES ON FACE OF RETAINING WALL.

THIS SKETCH IS TO BE READ IN CONJUNCTION WITH SURVEY REPORT

Rev	DATE	REVISIONS	Drn	Chk
A	26/04/15	ISSUED TO CLIENT	PC	PC

MICHAEL SHANNON & ASSOCIATES Pty Ltd
SURVEYORS, PLANNERS & DEVELOPMENT CONSULTANTS
ACN: 73 119 564 237
PO Box 506 CONCORD NSW 2137
PH: 9708 3660 Fax: 9708 3465
Email: info@mssurveyors.com.au

A3	
SCALE:	1:1000
DATUM:	AHD
CONT INTERVAL:	
ORIGIN OF LEVELS:	SSM167707
REDUCED LEVEL:	RL32.19
SOURCE:	SCIMS
DATE:	20/06/2014

FDC CONSTRUCTIONS

PLAN SHOWING MONITORING POINTS ALONG RETAINING WALL

LOT 100 IN DP 1174851

No.2 DAYDREAM STREET, WARRIEWOOOD

DATE OF SURVEY:	24/04/15
SURVEYED BY:	PC
DRAWN BY:	PC
DATE ISSUED:	26/04/15
SHEET	1 OF 1

PC

Registered Surveyor

DRAWING No:	Rev
0992 ID-02	A

Michael Shannon & Associates Pty Ltd
Surveyors, Planners and Land Development Consultants
ABN 73 119 504 237
PO Box 506 CONCORD NSW 2137
Ph: 9708 3660 Fax: 9708 3465
Email: info@msasurveyors.com.au

Our Ref: 0992 ID-01

26th April, 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street
FOREST LODGE NSW 2037

Attention: Joel Andonopoulos

RE: No.2 DAYDREAM STREET, WARRIEWOOD

BUILDING-STAGE 2 IDENTIFICATION REPORT

In accordance with your instructions I have surveyed, for identification purposes part of the land comprised in Folio 100/1174851 of the Torrens Title Register being Lot 100 in Deposited Plan 1174851 situated in the Local Government Area of Pittwater, within the Parish of Narrabeen, County of Cumberland, having frontages of 110.125 metres to Daydream Street, 283.275 metres to Mona Vale Road and 90.41 metres to Boundary Road, Warriewood. The land is further shown in the accompanying sketch herewith and edged red.

Erected upon and wholly within the boundaries of the subject land is a multi-storey offices and warehouse concrete panel building under construction, known as No.2 Daydream Street, Warriewood.

The positions of the walls of the buildings, relative to the boundaries of the land, are as shown on the sketch.

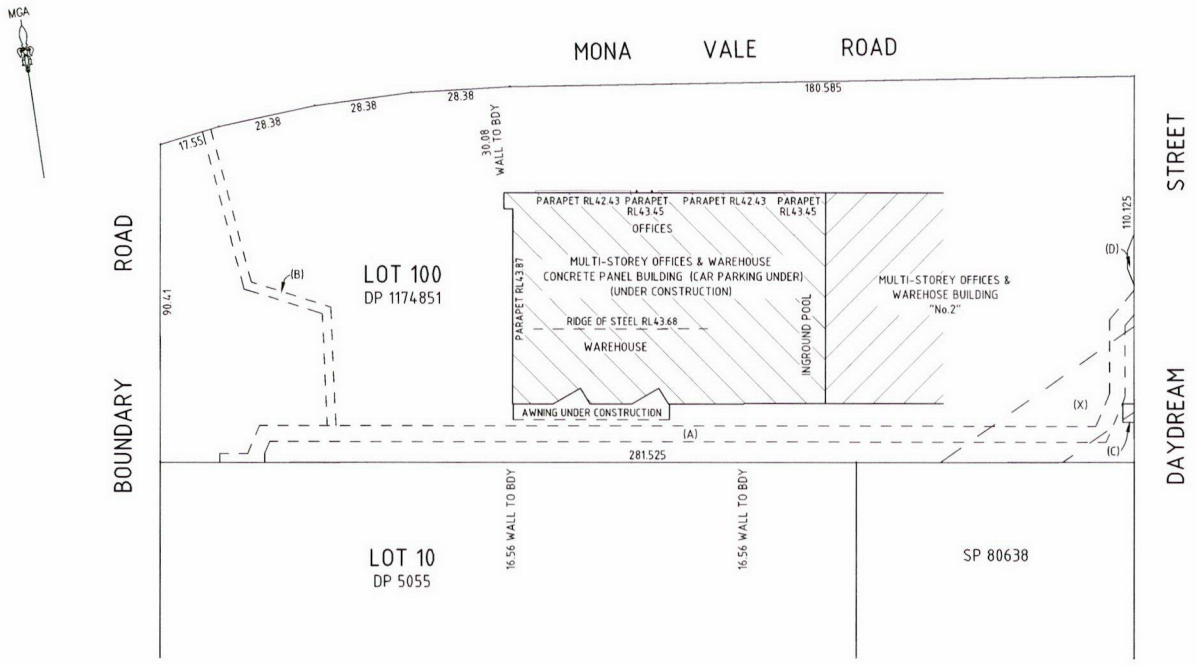
Levels have been taken to determine the height of the concrete floors, parapet and ridge of the building. The Reduced Level of the ridge height under construction is 43.68 metres (AHD), the reduced level of the building parapet under construction is 43.87, 43.45 and 42.43 metres (AHD) as shown in the accompanying sketch.

The Reduced Level of the lower basement is 28.985 metres (AHD), the reduced level of the basement is 29.25 metres (AHD), the reduced level of the ground is 32.1 metres (AHD), the reduced level of the first floor office is 35.1 metres (AHD) and the reduced level of the second floor office is 38.7 metres (AHD). In my opinion, the concrete floor levels are in agreement with issued building plans.

The subject land is affected by the following;

1. Easement to Drain Water 2.5 & 4.5 Wide created by the registration of Deposited Plan 1174851,
2. Easement to Drain Water 2.5 Wide created by the registration of Deposited Plan 1174851,
3. Easement for Electricity and Other purposes 3.3 Wide created by the registration of Deposited Plan 1174851,
4. Easement for Electricity and Other purposes 2 Wide & variable created by the registration of Deposited Plan 1174851,
5. Positive Covenant created by dealing AG848785, and
6. Land Excludes minerals of 2 Acres 1 Rood 20 perches by crown grant,

Phillip J Chamberlain
Surveyor registered under
The Surveying Act 2002



(A) EASEMENT TO DRAIN WATER 2.5 AND 4.5 WIDE (DP1174851)
(B) EASEMENT TO DRAIN WATER 2.5 (DP1174851)
(C) EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 3.3 WIDE (DP1174851)
(D) EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 2 WIDE AND VARIABLE (DP1174851)
(X) LAND EXCLUDES MINERALS OF 2 ACRES 1 ROOD 20 PERCHES BY THE CROWN GRANT

THIS SKETCH IS TO BE READ IN CONJUNCTION WITH SURVEY REPORT

Rev	DATE	REVISIONS	Drn	Chk
A	26/04/15	ISSUED TO CLIENT	PC	PC

MICHAEL SHANNON & ASSOCIATES Pty Ltd
SURVEYORS, PLANNERS & DEVELOPMENT CONSULTANTS
ACN: 73 119 514 737
PO Box 503 CARINGBAH NSW 2137
PH: 9708 3660 Fax: 9708 3465
Email: info@mssurveyors.com.au

A3

SCALE:	1:1000
DATUM:	AHD
CONT INTERVAL:	
ORIGIN OF LEVELS:	SSM167707
REDUCED LEVEL:	RL32.19
SOURCE:	SCIMS
DATE:	20/06/2014

FDC CONSTRUCTIONS

IDENTIFICATION SURVEY

LOT 100 IN DP 1174851

No.2 DAYDREAM STREET, WARRIEWOOOD

DATE OF SURVEY:	24/04/15
SURVEYED BY:	PC
DRAWN BY:	PC
DATE ISSUED:	26/04/15
SHEET	1 OF 1

Registered Surveyor

DRAWING No: 0992 ID-01

Rev A

FDC Construction & Fitout Pty Ltd
ABN 44 120 295 034

22 - 24 Junction Street
Forest Lodge NSW 2037 Australia
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www.fdcbuilding.com.au

Sydney | Melbourne | Brisbane

2nd June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: Off street parking

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

I hereby provide certification that off street parking has been completed comprising of the following as designed by SBA architects

- 248 Business parking spaces;
- 11 service / courier vehicle parking; and
- 7 disabled parking spaces

We trust this meets your approval

Yours Sincerely,
FDC Construction & Fitout Pty Ltd

Joel Andonopoulos
Project Manager

NORTHROP

Level 11, 345 George Street, Sydney NSW 2000
T (02) 9241 4188 F (02) 9241 4324
E sydney@northrop.com.au ABN 81 094 433 100

4th June 2015

Job Number: S130449

Joel Andonopoulos
FDC Construction and Fitout (NSW) Pty Ltd
PO BOX 425
CAMPERDOWN NSW 1450

Dear Joel,

RE: Certification of Construction – Stormwater Engineering Works at Peninsular Business Estate Stage 2, Daydream, Warriewood

We, Northrop Engineers, being professional engineers, have undertaken a review of the Works As Executed information, including;

- Registered Surveyors Certificate prepared by Michael Shannon & Associates Pty Ltd (dated 26/04/15);
- Stormwater and Earthworks Certificate prepared by Jeffsann Excavations Pty Ltd (dated 23/04/15).

The purpose of the review was to confirm the civil works were in accordance with:

- the stormwater engineering elements on civil engineering plans prepared by Northrop Consulting Engineers; Drawing numbers: C55.01[B] & C55.02[C];
- Pittwater Council Modification of Development Consent (No191/13/S96/1) – Conditions E2, E3, E4 & E6;

Northrop has also carried out periodic (limited) visual inspections to confirm;

- the structural adequacy of the driveway, carpark, vehicle maneuvering areas and footpaths.
- the installation of the stormwater drainage system is consistent with the relevant conditions within the S96 (No.191/13/S96/1) Modification of Development Consent – this refers to conditions previously certified within Northrop's CC1 (dated 25/07/14) & CC2 (dated 15/10/14) Design Certificates.

During the course of our review, we did not evaluate the quality of workmanship or materials used for construction of the civil works, as this is the responsibility of others.

Based on our review, Northrop found the works to be in accordance with the above documentation.

This certificate shall not be construed as relieving any other party of their responsibilities.

Yours faithfully,

WJFPlatts

William Platts
Associate Civil Engineer
BE (Hons) MIEAust CPEng NPER
On behalf of Northrop Consulting Engineers Pty Ltd

DHP
DANNY HALL PLUMBING Pty Ltd
Hydraulic and Civil contractors

Danny Hall Plumbing Pty Ltd
PO Box 58, Galston NSW 2159
Ph. 02 9656 1800
Fax. 02 9656 1710
Mob. 0417 525 123
danny@dhphc.com.au

25th May 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street,
Forest Lodge NSW 2037

Attention: Mr Joel Andonopoulos

Dear Sir,

RE: Warriewood (Stage 2) – Base Building
2 Daydream Street, Warriewood NSW 2102

AAA Water Rating

I, Danny Hall, hereby certify that all water supplying fixtures and fittings installed by Danny Hall Plumbing have a AAA Rating for water conservation.

Yours Sincerely,
Danny Hall Plumbing Pty Ltd

Danny Hall
Director

Whiffen & Andrews The Air Conditioning Professionals

28 May 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street
FOREST LODGE NSW 2037

Attention: Nathanael Edwards

Dear Nathanael

RE: Peninsula Business Estate Stage 2
Lot 17, 2 Daydream Street
WARRIEWOOD NSW 2102

CERTIFICATE OF DESIGN ***Mechanical Services***

SUBJECT PREMISES **PENINSULA BUSINESS ESTATE STAGE 2**

DEVELOPMENT APPLICATION **N0191/13**

Pursuant to the provisions of **Clause A2.2 of the Building Code of Australia**, I hereby certify that the design for the above project is in accordance with normal engineering practice and will meet the requirements of the Building Code of Australia, any relevant fire safety engineering report, the Environmental Planning and Assessment Regulation, relevant Australian Standards, relevant conditions of the Development Consent and Engineered Solution. In particular the design intent will be in accordance with the following:

Australian Standard	BCA Clause Reference
AS/NZS 1668 – The use of ventilation and air conditioning in buildings Part 1 – 1998 Fire & smoke control in multi-compartment buildings	C2.5,C2.12,C3.15,D1.7,E2.2,F4.12, Spec E1.8, Spec E2.2a, Spec G3.8
AS1668 Part 2 – 2002 Mechanical ventilation for acceptable indoor air quality	F4.5, F4.11, F4.12
AS3000 – 2007 Amdt 1 2009	
AS 3666 Microbial Control of Air Handling & Water Systems in Buildings	F2.7, F4.5
AS4254.2 – 2012 – Ductwork for air-handling systems in the buildings	Spec C1.10, Spec J5.2
AS 1682.1-1990 & AS 1682.2-1990 Fire Dampers	C3.12, C3.15,
AS1851 – 2005 Maintenance of fire protection systems and equipment Section 18 – Fire and smoke control features of HVAC systems Access for future maintenance of all intumescent fire dampers	

Energy Efficiency (Air Conditioning and Ventilation Systems)	Part J5 Spec J5.2 and 5.4

I am an appropriately qualified and competent person in this area and as such can certify that the design and performance of the design systems comply with the above.

I possess Indemnity Insurance to the satisfaction of the building owner or my principal.

Full Name of Designer: Andrew Short
Qualifications: B.E Mech. Eng. (Hons)
Address of Designer: Unit 5-6 / 16 Narabang Way, Belrose NSW 2085
Business Telephone No: 02 9986 1199
Business Facsimile No: 02 9986 1299
Name of Employer: Whiffen & Andrews Air Conditioning

Yours faithfully,

Whiffen & Andrews Air Conditioning

Andrew Short
Project Engineer

Whiffen & Andrews The Air Conditioning Professionals

Installation Mechanical Services - FINAL

Development consent no	N0191/13
Date of determination	
Construction Certificate no	
Date of issue	28 May 2015
Description of development	Warehouse & Offices
Subject land Address Lot, DP/MPS etc	Peninsula Business Estate Stage 2 Lot 17, 2 Daydream Street WARRIEWOOD NSW 2102
Type of Certificate (nominated type of certificate)	Installation – FINAL
Give details of the classification of the building in accordance with the Building Code of Australia (eg Class 1 (a))	5 & 7a
Give details of the development and specific aspect of the development and the prescribed requirements it complies with	Air Conditioning and Mechanical Ventilation to warehouse, offices, toilets and utility rooms. Designed and installed to the requirements of BCA F4.5 and AS 1668.2 Appendix A.

Certification

Certificate	
Certificate	I, Andrew Short
	Certify that: • The above described aspect of development complies with the prescribed requirement referred to above
Signature	
Date of issue	**28 May 2015**

Whiffen & Andrews The Air Conditioning Professionals

Installation Mechanical Services

Certifier (company details)	**Whiffen & Andrews Air Conditioning**
Name of person signing off	**Andrew Short**
Address	**Unit 5-6, 16 Narabang Way Belrose NSW 2085**
Phone	**02 99861199**
Fax	**02 99861299**

Appendix A
Mechanical Standards

Australian Standard	BCA Clause Reference
AS/NZS 1668 – The use of ventilation and air conditioning in buildings Part 1 – 1998 Fire & smoke control in multi-compartment buildings	C2.5,C2.12,C3.15,D1.7,E2.2,F4.12, Spec E1.8, Spec E2.2a, Spec G3.8
AS1668 Part 2 – 2012 Mechanical ventilation for acceptable indoor air quality	F4.5, F4.11, F4.12
AS3000 – 2007 Amdt 1 2009	
AS 3666 Microbial Control of Air Handling & Water Systems in Buildings	F2.7, F4.5
AS4254.2 – 2012 – Ductwork for air-handling systems in the buildings	Spec C1.10, Spec J5.2
AS 1682.1-1990 & AS 1682.2-1990 Fire Dampers	C3.12, C3.15,
AS1851 – 2005 Maintenance of fire protection systems and equipment Section 18 – Fire and smoke control features of HVAC systems Access for future maintenance of all intumescent fire dampers	
Energy Efficiency (Air Conditioning and Ventilation Systems)	Part J5 Spec J5.2 and 5.4

Whiffen & Andrews Air Conditioning
Unit 5-6/16 Narabang Way, BELROSE NSW 2085 Telephone: (02) 9986 1199 Fax: (02) 9986 1299

NORTHROP | Bringing people, ideas & engineering together

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www.northrop.com.au ABN 81 094 433 100

3 June 2015
Job Number: 130449

Joel Andonopoulos
FDC Construction & Fitout
22-24 Junction Street
Forrest Lodge NSW 2037

Peninsula Business Estate, Warriewood
Stages 2

INSPECTION CERTIFICATION AS TO COMPLIANCE WITH THE STRUCTURAL DOCUMENTATION

Dear Joel,

We, Northrop Engineers, being professional engineers, certify that:

a) We have periodically visited the site to observe the structural components during construction; and
b) The work required by structural engineering drawings and engineering instructions issued up to the time of inspection conformed generally with the drawings and instructions.

The structural engineering drawings referred to in this certification are 130449/S00, S01, S02, S03, S10,S11,S20,S21,S22,S23,S24,S25,S26, S30, S31, S40 ,S41 and S42.

The structural elements covered by this certification are itemised on our structural drawings and include foundations, basement slabs, concrete stairs, lift shafts, concrete precast walls and columns, structural timber framework, stormwater detention tank, driveway slabs, carpark slabs, vehicle manoeuvring areas, parapet structural framework and roof structural steelwork.

We certify that we have designed all the structural components of the building to achieve the fire rated levels requirements of Specification C1.1 of the building Code of Australia, and the external concrete wall panels have been designed in a manner to prevent outward collapse in the event of fire in accordance with specification C1.11 of the building Code of Australia.

We confirm that the structural integrity of the building can withstand immersion and impact velocity and debris up to the Probable Maximum Flood (4.9AHD).

In making this certification, we acknowledge that certain structural elements of the building were provided on a design and construction basis. While we monitored and facilitated the design of these individual elements and they interface with the superstructure by providing the respective designers with the appropriate loadings, deflection and movement criteria, durability requirements and advice on connections to the superstructure we did not carry out the detailed design of these elements. The following components are not covered by this certificate and separate structural certificates are to be provided for each:

- Post-tensioned concrete slabs

- Screw piles
- Swimming pool shell
- Glazing system
- Balustrades
- Waterproofing

This certificate is to be read in conjunction with the structural certificates provided by the companies procured under the design and construct subcontracts.

This certificate shall not be construed as relieving any other party of their responsibility.

Yours faithfully,

Associate Structural Engineer
BE MEngSc MIEAust CPEng NPER
On behalf of Northrop Consulting Engineers Pty Ltd

DHP
DANNY HALL PLUMBING Pty Ltd
Hydraulic and Civil contractors

Danny Hall Plumbing Pty Ltd
PO Box 58, Galston NSW 2159
Ph. 02 9656 1800
Fax. 02 9656 1710
Mob. 0417 525 123
danny@dhphc.com.au

FDC Construction and Fitout Pty Ltd
Attn: Nathanael Edwards
P.O. Box 425
Camperdown NSW 1450.

24/04/15

RE: 2 Daydream St Warriewood - stage 2

I Danny Hall director of Danny Hall Plumbing confirm that trade waste is not required for base build works.

Danny Hall

Director

Sydney WATER

29/05/2015

LIVPAC DEVELOPMENTS PTY LTD
PO BOX R215
ROYAL EXCHANGE NSW 1225

Dear Customer,

Re: Additional Services Agreement No: 5497422
Property address: 2 DAYDREAM ST, WARRIEWOOD 2102

Our records indicate you are the current owner of the above property. We supply non-standard services to your property, and have in place an additional services agreement for these services.

We are writing to ensure that you are aware of the agreement in place for your property. The additional services agreement outlines the services we provide, and if you have any special responsibilities for these services.

The additional services agreement has three sections including:

- Information Schedule
- General terms and conditions
- Schedule of our requirements.

For easy reference, we have just sent you the information schedule, which is the part of the agreement specific to your property. You can view the remaining sections of the agreement at sydneywater.com.au

You must maintain your connections in accordance with the conditions of the additional services agreement.

Further information
For more information you can call our office on 9616 2485.

Yours sincerely

Business Customer Service

LIVINGSTONE GROUP
02 JUN 2015

	SIGHTED	ACTION
AJL		
MAL		
BG		
AW		
GF		✓
MRJ		
FILE TO:		

CC: FDC

Sydney Water Corporation ABN 49 776 225 038
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | sydneywater.com.au
Follow us on:

Sydney WATER

Additional Services Agreement

Part 1: Information schedule

Date of Issue: 29/05/2015

Version Number: 1

Information schedule

This information schedule, together with the 'general terms and conditions' and 'schedule of our requirements' available at sydneywater.com.au make up Our Additional Services Agreement with You.

Please ensure that You read the 'general terms and conditions' and 'schedule of our requirements', because You will be taken to have accepted these as binding on You as soon as any of the following occurs:

You receive the Services from Us

You receive an industrial or other consent from Us relating to the Services

You contact Us in connection with Services supplied to You

You begin performing Your obligations under this Additional Services Agreement.

Please store Your Additional Services Agreement in a safe location for easy reference.

This Additional Services Agreement applies to certain Services that are not covered by the Sydney Water *Customer Contract* (which arises under the Sydney Water Act 1994 (NSW) and Sydney Water's Operating Licence). The Services under this Additional Services Agreement are generally additional to, and more complex than, the basic services covered by the *Customer Contract*.

Below is a description of the types of service that may be provided to You by Us, and an indication whether each service is covered or is not covered by this Additional Services Agreement. Further information about the Services to which this Additional Services Agreement applies is in clause 12.1 of the 'general terms and conditions'.

Property details	
Property	5497422 2 DAYDREAM ST, Warriewood
Owner name	LIVPAC DEVELOPMENTS PTY LTD
Charges	
Drinking water	IPART approved pricing
Wastewater	IPART approved pricing
Alternative water	IPART approved pricing
Stormwater	IPART approved pricing

Service	Connection approved?	Does the Additional Services Agreement apply to this service?	Property specific information
Drinking water			
Drinking water connection	Approved	No, the Customer Contract applies to this service	Meter Size: 1 x 40mm (Meter No. EGBM0022)
Pressure boosting	Not Approved	Yes, this Additional Services Agreement applies to this service	Conditions: N/A
Fire service connection	Not Approved	No, the Customer Contract applies to this service	Connection Size: N/A
Extended private service (sometimes referred to as rural water supply or low pressure water connection)	Not Approved	Yes, this Additional Services Agreement applies to this service	Conditions: N/A
Wastewater			
Domestic wastewater	Approved	No, the Customer Contract applies to this service	Comments:
Trade wastewater	Approved	Yes, this Additional Services Agreement applies to this service	Permit Number: 37904 Pre-treatment-12000L Balance Tank GD05-Municipal Swimming Pool PD24-Coffee Shop- No hot foods
Industrial wastewater	Not Approved	No, the Industrial trade waste consent applies to this service	Consent Number: N/A
Pump to sewer	Not Approved	Yes, this Additional Services Agreement applies to this service	Conditions: N/A
Pressure sewerage system	Not Approved	Yes, this Additional Services Agreement applies to this service	Information: N/A
Priority sewerage system	Not Approved	Yes, this Additional Services Agreement applies to this service	Information: N/A
Alternative water			
Residential recycled water (Mandatory)	Not Approved	No, the Customer Contract applies to this	Meter Size: N/A

Service	Connection approved?	Does the Additional Services Agreement apply to this service?	Property specific information
		service	
Fire service connection	Not Approved	No, the Customer Contract applies to this service	Connection Size: N/A
Other recycled water	Not Approved	No, a Recycled water agreement or Industrial recycled water agreement applies to this service	Agreement Name: N/A
Sewer mining	Not Approved	No, a Sewer mining agreement applies to this service	Agreement Name: N/A
Stormwater harvesting	Not Approved	No, a Stormwater harvesting agreement applies to this service	Agreement Name: N/A
Stormwater			
Discharging stormwater in a declared Sydney Water catchment area	Not Approved	No, the Customer Contract applies to this service	Comments: N/A
Direct physical connection to a Sydney Water owned stormwater pipe or channel	Not Approved	Yes, this Additional Services Agreement applies to this Service	Information: N/A
Direct physical connection to a Sydney Water owned pipe or channel requiring a reflux valve to be installed.	Not Approved	Yes, this Additional Services Agreement applies to this Service	Information: N/A
Other Comments			
No transporter required			

Contact Us:

Connections@sydneywater.com.au

Ph: 8849 6516

From:	Nathanael Edwards
To:	Elsie_Leeder@pittwater.nsw.gov.au
Cc:	tony@bmplusg.com.au; Joel Andonopoulos; Matthew Hezlett
Subject:	N0191/13 - Water management report submission
Date:	Wednesday, 11 March 2015 9:40:00 AM
Attachments:	image001.gif Warick Honour shared 301015-03566-EN-REP-001 Sector 7 Stage 2 March 2015.pdf with you.msg

Hi Elsie

Please find attached email which has a link to the water management report which is required to be submitted as part of item C.2 of the development consent listed in the subject title.

If you have any troubles receiving this please let me know

Nathanael Edwards | Contract Administrator | FDC Construction & Fitout Pty Ltd
22 - 24 Junction Street Forest Lodge NSW 2037
Sydney | **Canberra** | Melbourne | Adelaide | Brisbane | Perth
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Accreditations: QA | WHS | EMS | FSC | NSW Government

FDC Building Logo

WOOD & GRIEVE ENGINEERS

MEMO

TO: Nathanael Edwards

FROM: Sean Matthews

PROJECT: Warriewood Swim School

PROJECT NUMBER: 27864-SYD-N DATE: 11 June 2015

SUBJECT: Warriewood Stage 2 OC Compliance Measurements

This technical memorandum presents the results of the compliance measurements for stage 2 of the Warriewood development at 2 Daydream Street, Warriewood. The measurements were conducted in accordance with the requirements of the Pittwater Council condition of consent. The testing was carried out on the 9th of June 2015 between 7:00pm and 8:00pm on site. The background noise and criteria for this assessment was adopted from the Wilkinson Murray report dated 26 June 2013 (ref. L260613 NG).

1.1 Council Conditions and Criteria

Pittwater Council Condition E.8 states the following:
"Prior to the release of the Occupation Certificate, an Acoustic report is to be submitted to verify that any plant or equipment and operation of the proposed business will not cause any sleep disturbance or noise nuisance issues to nearby residences."

Wilkinson Murray report dated 26 June 2013 (ref. L260613 NG) has assigned criteria to be used for the assessment for Occupation Certificate in accordance with condition E.8. The criteria used for this compliance assessment is as follows:

- The intrusiveness criteria is an $L_{Aeq,15min}$ 42dB(A) at the nearest residential receiver. Due to the steady state nature of the mechanical equipment, an L_{A90} will be used as it is most representative of the noise from the units.
- The sleep disturbance criteria is an $L_{A1,1min}$ 52dB(A) at the nearest residential receiver.

1.2 Methodology and Equipment

The measurements were conducted on site at 2 Daydream Street, Warriewood on the 9th of June 2015 between 7:00pm and 8:00pm. The nearest residential receivers are located approximately 100 metres to the north across Mona Vale Road. Measurements were taken at a representative location as shown in Figure 1, to avoid the influence of traffic and other noises from the measurements. The measurement location is representative of what the residential receivers are exposed and has line of sight to the car park exhaust fan, which was generating the most noise.

Level 6, Building B, 207 Pacific Highway, St Leonards NSW 2065
Phone +61 2 8484 7000 Fax +61 2 8484 7100 Email sydney@wge.com.au Web www.wge.com.au
Wood & Grieve Engineers Limited ACN 137 999 609 trading as Wood & Grieve Engineers ABN 97 137 999 609
Albany Brisbane Busselton Darwin Melbourne Perth Shenzhen Sydney

The measurements were conducted with a B&K 2250 sound spectrum analyzer (S/N 2709742), and a B&K Type 4231 sound calibrator (S/N 2709826). The B&K 2250 was calibrated before and after the measurements and no significant drift was noted.

The mechanical plant consisted of the following:

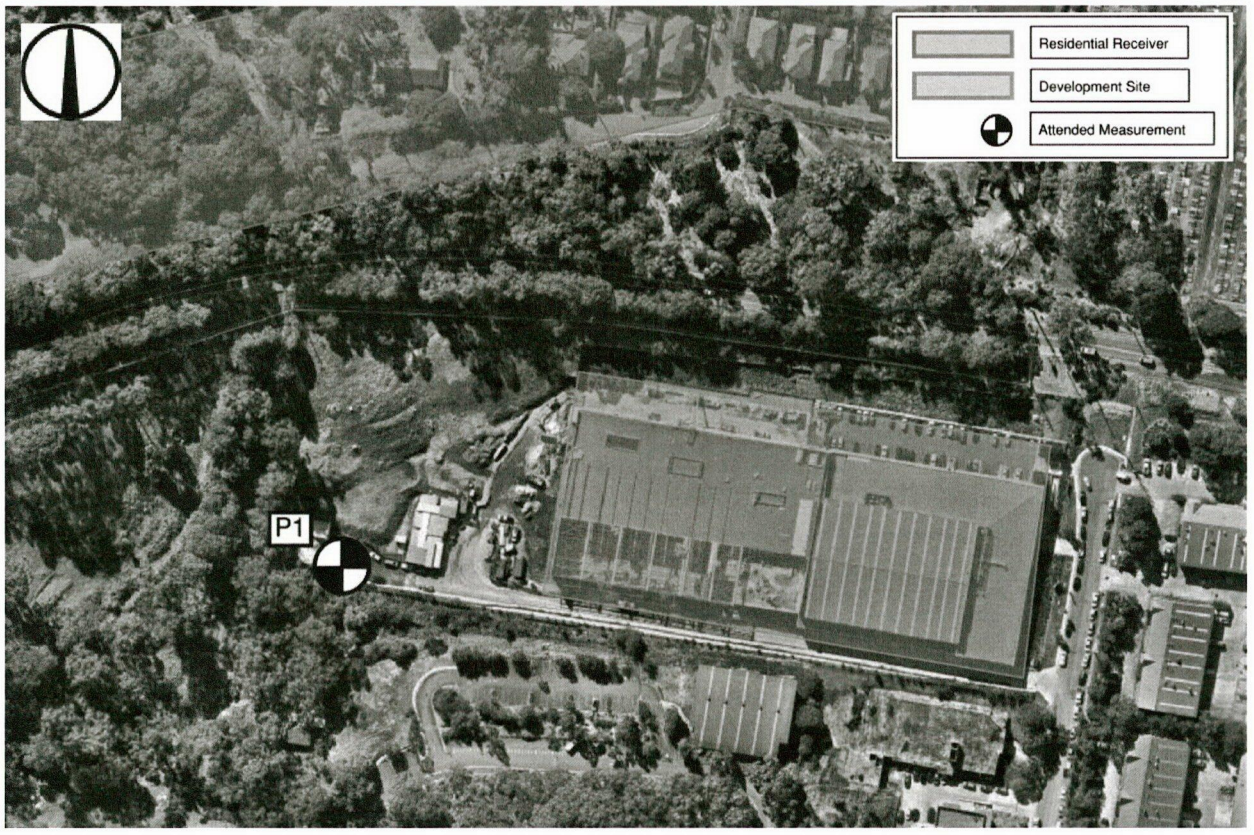
- Two roof top plant decks for condenser units (CU), each with approximately 6 units operating
- Car park exhaust fan

The measurements were conducted under two conditions:

- With all the mechanical plant operating (All applicable condenser units and the car par exhaust fan)
- With all the mechanical plant turned off to account for the background noise during the measurement

Refer to Figure 1 for the site and measurement locations. Measurements were also conducted on the roof at close proximity to the units in order to conduct the sleep disturbance assessment by determining the L_{A1} and calculating back to the residential receivers.

Figure 1: Measurement locations



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1.3 Measurement Results

Refer to Table 1 for the results of the measurements of the intrusiveness assessment. Measurements of 15 minute duration were conducted at location P1. The measured levels have been corrected for the background during the time of the measurements, and corrected for the distance to the nearest receiver.

Table 1: Measurement results for intrusiveness

Location	Operating condition	Measured L_{A90} dB(A)	Corrected Mechanical noise L_{A90}	Criteria	Compliance (Yes/No)
P1	All running	44.8	37.4	42.0	Yes
	All off / background	43.9			

The noise from all the mechanical plant operating complies with the intrusiveness criteria at the nearest residential receivers.

Refer to Table 2 for the results of the measurements for the sleep disturbance assessment, which was based on measurements taken in close proximity to the equipment to determine the L_{A1}. The measured levels have been corrected for background during the time of the measurements, and corrected for the distance to the external façade of the nearest receivers. The total noise for the sleep disturbance assessment has taken into account the sum of all the condenser units and the exhaust fan operating at the same time.

Table 2: Measurement results for sleep disturbance

Location	Operating condition	Measured L_{A1} dB(A)	Corrected Mechanical noise L_{A1} dB(A)	Total noise L_{A1} dB(A)	Criteria	Compliance (Yes/No)
Exhaust fan at 2 metres	Running	71.9	34.4	36.0	52.0	Yes
CUs at 2 metres	Running	63.5	28.1			

The noise from all the mechanical equipment running complies with the sleep disturbance requirements to the nearest residential receivers.

1.4 Conclusion

Based on the measurement results, the roof top mechanical plant for stage 2 at 2 Daydream Street, Warriewood development complies with the requirements of Pittwater Council Condition E.8, in regards to noise intrusiveness and sleep disturbance to the nearest most affected residential receivers.

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FDC Construction & Fitout Pty Ltd
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www.fdcbuilding.com.au

Sydney | Melbourne | Brisbane

2nd June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: Condition E.09

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

As discussed with council no other application to council is required other than the application for occupation certificate.

I hereby declare that we are satisfying this condition of the DA by making application for occupation certificate.

If you have any queries regarding any of the above, please do not hesitate to contact the undersigned.

Yours Sincerely,

Nathanael Edwards

FDC Construction & Fitout Pty Ltd
ABN 44 120 295 034

22 - 24 Junction Street
Forest Lodge NSW 2037 Australia
T 61 2 9566 2800 | F 61 2 9566 2900
www.fdcbuilding.com.au

Sydney | Melbourne | Brisbane

2nd June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: Condition E.11

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

Council have confirmed that the inspection by the health office is for parts of the building where food is being prepared and served, this relates directly to the café area within the swim school area of the project.

This condition is not relevant for IOC as we are not applying for occupation of this area at this stage.

If you have any queries regarding any of the above, please do not hesitate to contact the undersigned.

Yours Sincerely,

Nathanael Edwards

FDC Construction & Fitout Pty Ltd
ABN 44 120 295 034

22 - 24 Junction Street
Forest Lodge NSW 2037 Australia
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Sydney | Melbourne | Brisbane

2nd June, 2015

Principal Certifying Authority
Blackett Maguire + Goldsmith
PO Box 167
BROADWAY NSW 2007

Attention: Tony Heaslip

Dear Tony,

RE: OCCUPATIONAL CERTIFICATE: Condition E.14

SUBJECT PREMISES: 2 DAYDREAM STREET, WARRIEWOOD (Lot 100 DP 1174851)

DA APPLICATION NO: N0191/13

As part of the interim Occupation Certificate there are no food business premises that need to be registered to NSW food authority. This condition relates to the childcare area beyond the designated areas for IOC therefore this condition is not relevant.

If you have any queries regarding any of the above, please do not hesitate to contact the undersigned.

Yours Sincerely,

Nathanael Edwards

WorleyParsons
resources & energy

EcoNomics

FDC CONSTRUCTION & FITOUT PTY LTD

FLOOD EMERGENCY RESPONSE PLAN

2 Daydream Street, Warriewood
Stage 2

5th June 2015

rp301015-03566eh_wjh150604-2 Daydream St Warriewood FERP.doc

Water Resources
Level 10, 141 Walker Street
North Sydney 2060 Australia
Tel: +61 2 8456 6866
Fax: +61 2 8923 6877
www.worleyparsons.com
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

WorleyParsons
resources & energy

EcoNomics

Disclaimer

This report has been prepared on behalf of and for the exclusive use of FDC Construction & Fitout Pty Ltd, and is subject to and issued in accordance with the agreement between FDC Construction & Fitout Pty Ltd and WorleyParsons. WorleyParsons accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this report by any third party.

Copying this report without the permission of FDC Construction & Fitout Pty Ltd and WorleyParsons is not permitted.

Project No 301015-03566 – 2 DAYDREAM STREET FLOOD EMERGENCY RESPONSE PLAN

REV	DESCRIPTION	AUTHOR	REVIEWER	WORLEY-PARSONS APPROVAL	DATE
A	Issued for Internal Review	EJH Edmund Han	WJH Warick Honour		15-05-15
1	Draft Issued for Client Review	EJH Edmund Han	WJH Warick Honour		15-05-15
2	Final Report	EJH Edmund Han	WJH Warick Honour	WJH Warick Honour	05-06-15

CONTENTS

WorleyParsons
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FDC CONSTRUCTION & FITOUT PTY LTD
2 DAYDREAM STREET, WARRIEWOOD
STAGE 2 – FLOOD EMERGENCY RESPONSE PLAN

1 INTRODUCTION

WorleyParsons has been engaged by FDC Construction & Fitout Pty Ltd to prepare a Flood Emergency Response Plan for the Stage 2 development at 2 Daydream Street, Warriewood NSW.

The subject site is located at the corner of Daydream Street and Mona Vale Road (*refer* **Figure 1**), Warriewood. The site consists of three individual lots; Lots 16, 17 and 18. Stage 2 of the development occupies Lot 17.

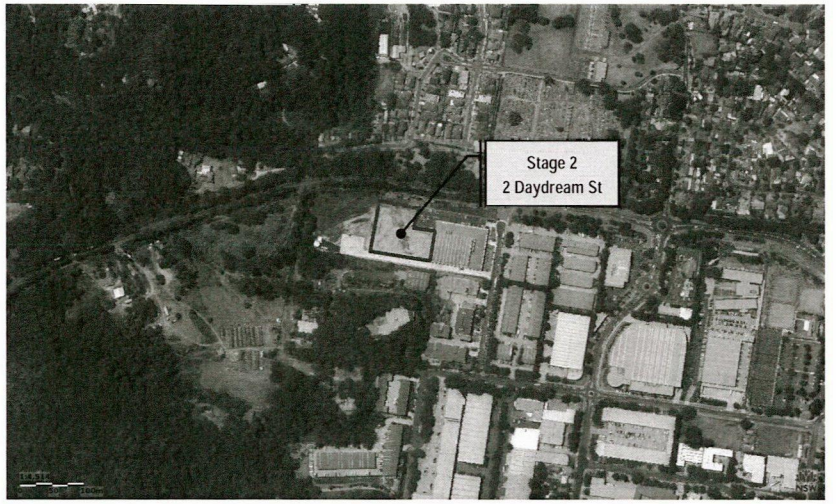

Figure 1 – Location of Stage 2 Development, Warriewood (*Source: SIX Maps, NSW Government*)

The development has resulted in an increase in the number of staff and visitors that may need to be evacuated in the case of a flooding emergency.

Accordingly, as per Conditions E19 and E20 of DA N0191/13/S96/1, and Conditions E2 and E3 of DA N0293/14, Pittwater Council has requested that a flood emergency response plan be prepared to address the emergency response for all floods up to and including the Probable Maximum Flood (PMF) prior to issue of the Occupation Certificate.

The following report addresses the associated requirements. It focusses on the internal evacuation procedures and routes within the Stage 2 development. Although advice is also provided for

evacuation procedures beyond the site, it is largely assumed that wider-scale evacuation procedures established by SES are to be followed once site workers reach Mona Vale Road.

Note that the following Flood Evacuation Plan does not address the prevention of flood damages of the Stage 2 development, such as measures to raise warehouse stock above the floor level or to relocate office equipment. The tenants of the Stage 2 development may wish to undertake additional preparatory actions upon receipt of a Flood Watch or Flood Warning from the Bureau of Meteorology or the NSW State Emergency Service (SES); however, any such actions should not compromise the implementation of the evacuation measures outlined below.

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2 ASSESSMENT OF FLOOD RISK

2.1 SITE TOPOGRAPHY

The site topography originally consisted of a "V" shaped valley with gentle to moderate slopes for the majority of the area, rising up to a steep slope at the north-western corner. Ground elevations reach up to 49 mAHD at the north-western corner of the site. The upstream catchment rises sharply, with slopes of between 15% and 18%.

2.2 DESCRIPTION OF THE DEVELOPMENT

Stage 2 has a finished floor level of 32.1 mAHD. Two bio-retention basins are located at the northern side of the site. A driveway with a grated drain runs along the southern border of the site, and grades down toward the eastern end of the site into Daydream Street.

The ground floor of Stage 2 of the development will contain industrial warehousing units, and a swimming pool at the eastern end. The first floor will be occupied by offices, and the second floor largely by a proposed childcare facility.

On the northern side of the building there is undercroft car parking below two levels of offices similar in design and appearance to the Stage 1 development. The basement car park extends to the north below the on-grade car parking.

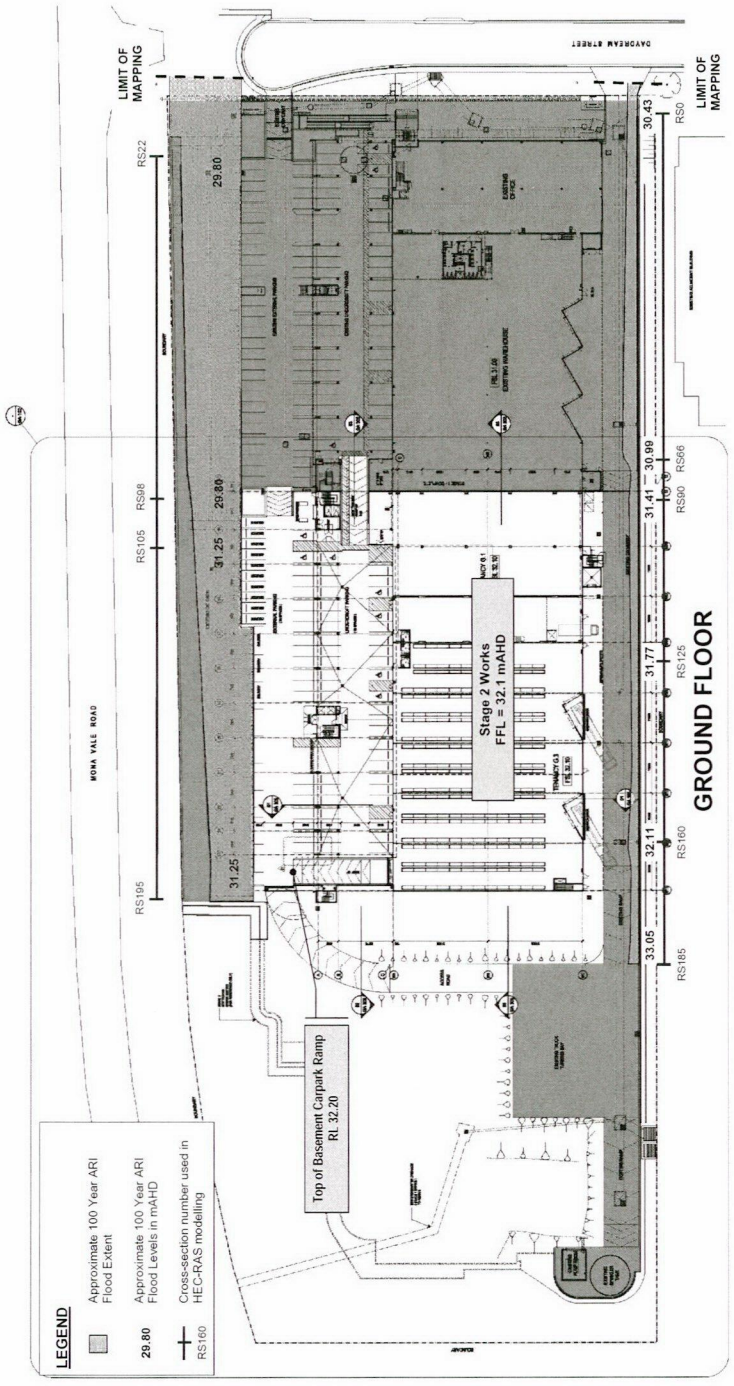
2.3 FLOOD CHARACTERISTICS AT THE SITE

Hydraulic modelling in HEC-RAS had shown that the two bio-retention basins located at the north side of the site will accommodate the majority of site-generated flows during the 100 year ARI event (*refer* **Figure 2**). Flows from the western portion of the site are directed into a swale that runs along a ramp located to the west of the Stage 2 building. The swale feeds into 300mm and 375mm culverts, which drain into the bio-retention basins.

A rock swale directs flows from upstream catchments, from the west of the site, into a large grated pit and then to the 1800mm pipe that flows along the southern boundary of the site. The southern driveway will mainly convey site-generated flows, until the capacity of the 1800mm pipe below the driveway reaches its capacity, at which point any overflows or surcharge from the upstream catchment will be directed along the driveway.

Hydraulic modelling has also demonstrated that during a 100 year ARI event, the majority of flow from upstream areas will be conveyed via the 1800mm pipe, and the southern driveway is expected to experience only minor local flows, as shown in **Figure 2**.

FIGURE 2



APPROXIMATE 100 YEAR ARI FLOOD EXTENT

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301015-03566 - Warriewood Valley Sector 7, 2 Daydream Street, Warriewood
Figure 2 - Extent of Flooding for 100 Year ARI Event (Post-Development).doc

2.4 FLOOD RISK

Both above mentioned 100 year ARI flowpaths along the northern and southern boundaries of the property have been determined to represent low to medium flood hazard, or equivalent to a Flood Category 1 as per Section B3 of Council's DCP (*i.e. low to the south and medium to the north, primarily due to the depth of ponding only*).

The Probable Maximum Flood (*PMF*) level is expected to exceed the capacity of the designated overland flowpaths on the north and south sides of the development, leading to significant inundation of the site, including the ground floor level of Stage 2. Accordingly, there is a risk that staff and visitors to the site will be exposed to a significant flood risk during extreme storm events.

It should be noted that flooding during the PMF is not expected to exceed a maximum level of 34.5 mAHD, which is 600mm below the Stage 2 first floor FFL.

3 FLOOD EVACUATION PROCEDURES

3.1 EXISTING EMERGENCY RESPONSE PLANNING

It is understood that no specific Local Flood Plan has been prepared by the SES for this area, which is likely a function of the localised nature of flooding that can be experienced, as opposed to widespread flooding from a large river.

3.2 ROLES AND RESPONSIBILITIES

A designated Flood Warden is to be assigned to the Stage 2 development. The Flood Warden is to be a full-time employee of the childcare centre on the 2nd floor, and is to have a stand-in warden available for times when they are not at the workplace.

The Flood Warden is responsible for implementing the actions outlined in the following sections in the case of a flood emergency. It may be appropriate to assign the same personnel responsible for response actions during a fire emergency.

The Flood Warden (*and designate*) is to hold a set of keys to allow access to designated flood refuge areas.

3.3 FLOOD EVACUATION ROUTE AND FLOOD REFUGE

3.3.1 Flooding Up to the 100 Year ARI Event

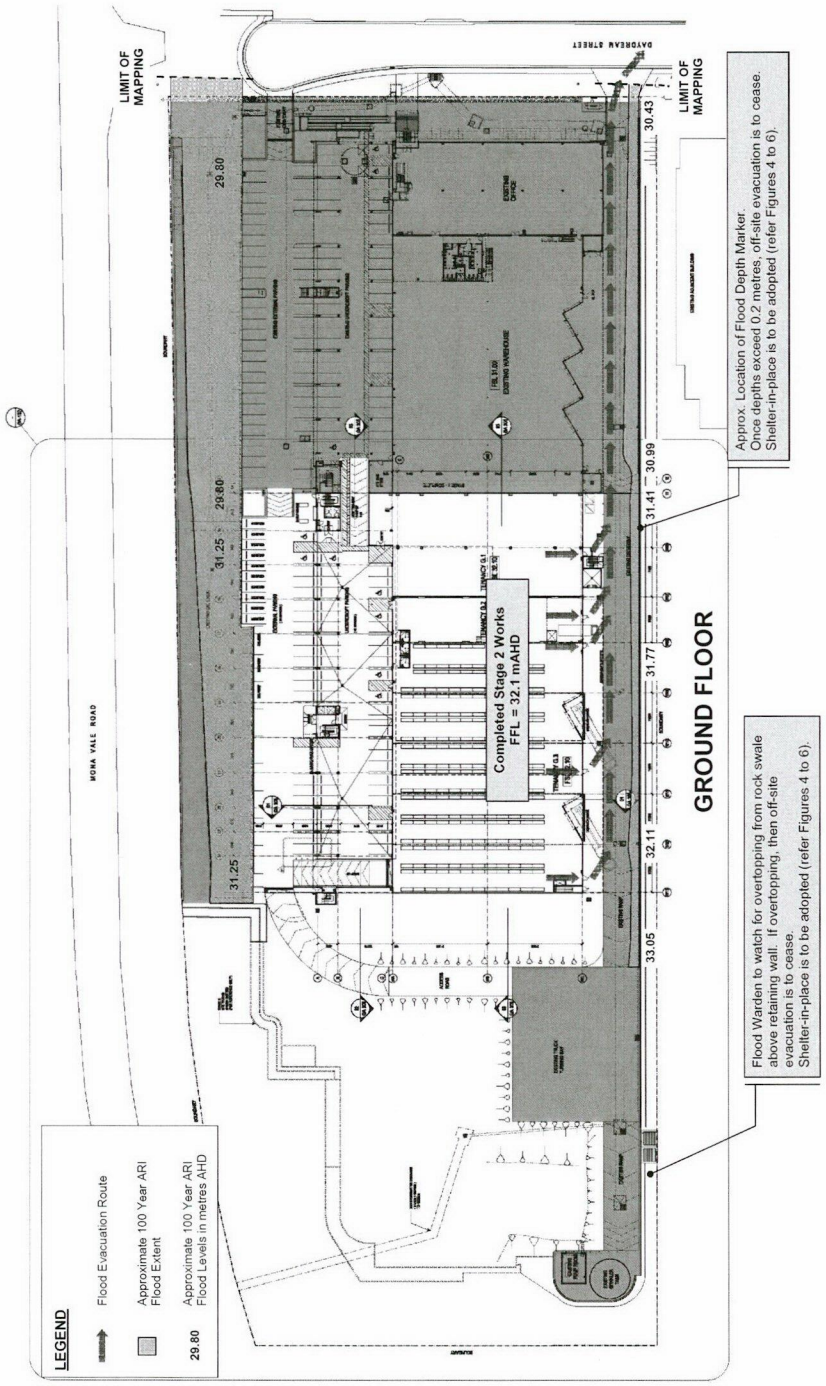
In the event of flooding up to the 100 year ARI event, it is proposed that the occupants of the site are evacuated to Daydream Street via the southern driveway (*refer* **Figure 3**). It is envisaged that evacuation would be undertaken on foot or in vehicles. The movement of vehicles should be in a controlled manner and coordinated by the Flood Warden (*or delegate*) to minimise any safety risk to occupants evacuating by foot.

The car park exit on the northern side of the development leads into a low point in Daydream Street and therefore, flood evacuation via the northern exit is potentially hazardous and will be unsuitable.

Once occupants have evacuated the site, a suitable evacuation route via Jubilee Avenue and Ponderosa Parade would provide flood-free access to Mona Vale Road. The Pittwater RSL Club would be a suitable flood evacuation refuge, and is located 1.2 km to the east on Mona Vale Road.

FIGURE 3

FLOOD EVACUATION ROUTE
FOR FLOODING UP TO THE 100 YEAR ARI EVENT



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301015-03566 – Warriewood Valley Sector 7, 2 Daydream Street, Warriewood
Figure 3 - Proposed Flood Evacuation Routes – Up to 100yr.doc

3.3.2 Flooding in Excess of the 100 Year ARI Event

For flooding in excess of the 100 year ARI event, evacuation from the site to off-site areas will be unsuitable due to the flood risk along the overland flow-paths within the site and due to the potential for significant flood depths in Daydream Street (*e.g., over 1 metre would occur during the Probable Maximum Flood*).

In such conditions it is proposed that all occupants from the car park levels and the ground floor are evacuated vertically to designated on-site flood refuge areas on the first and second floors of the building, until the flooding has passed and it is safe to evacuate the site via Daydream Street. Independent structural analysis has confirmed that the warehouses will be structurally sound during flows up to and including the PMF.

The total number of occupants for Stage 2 at any one time will be a maximum of 900 persons.

The childcare centre and second floor office are proposed to be designated as on-site flood refuge areas (*refer* **Figures 4** *to* **6**). They have a combined capacity to temporarily accommodate up to 1,000 evacuees (*according to a maximum density of 2 m^2 per person*).

Flooding at the site is expected to be of short duration and temporary refuge for such number of persons is considered acceptable. According to the response time of the local catchment (*critical duration of approximately 1.5 to 2 hours*), it is not expected that persons will need to shelter-in-place for extended periods (*i.e., not more than 3 to 4 hours*).

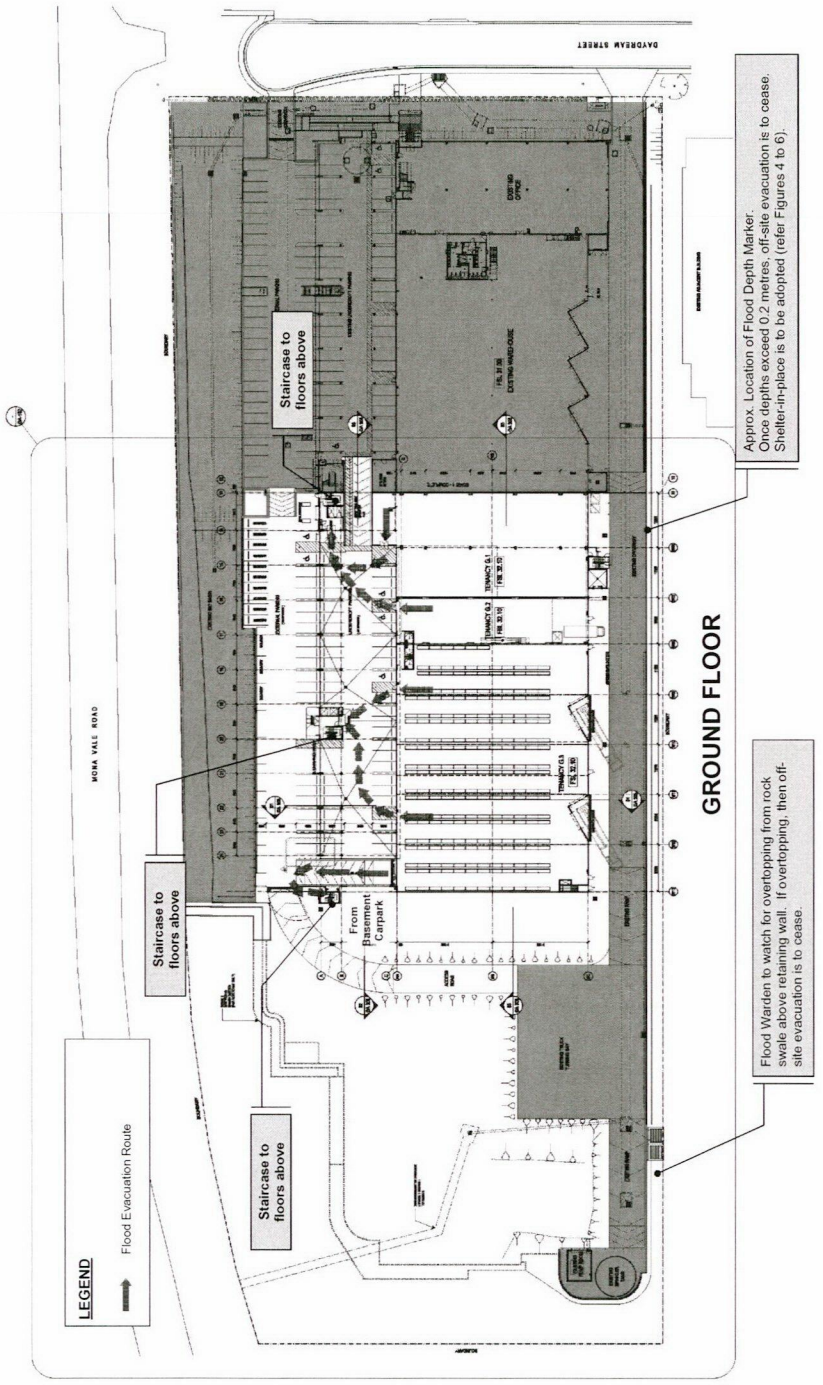
Access to the childcare centre and second floor office is via staircases located in the carpark levels, adjacent to a two-way ramp in the undercroft carpark.

Another suitable on-site flood refuge area is the office space located on the first floor, which has capacity to temporarily accommodate up to 600 evacuees and is also located above the PMF level. Access to the offices from lower levels is via a staircase located at the border of the undercroft and outdoor carpark.

The two suggested on-site flood refuge areas are likely to have sufficient capacity to accommodate the estimated maximum of 900 occupants on the site, in the event of flooding in excess of the 100 year ARI event. The proposed flood evacuation routes for flooding in excess of the 100 year ARI event are shown in **Figures 4** to **6**.

Access points to the refuge areas on the first and second floors are to remain unlocked during normal business hours (*i.e., at the stair wells and lift wells*).

FIGURE 4



FLOOD EVACUATION ROUTE
FOR FLOODS IN EXCESS OF THE 100 YEAR ARI EVENT
[GROUND FLOOR AND BASEMENT LEVELS]

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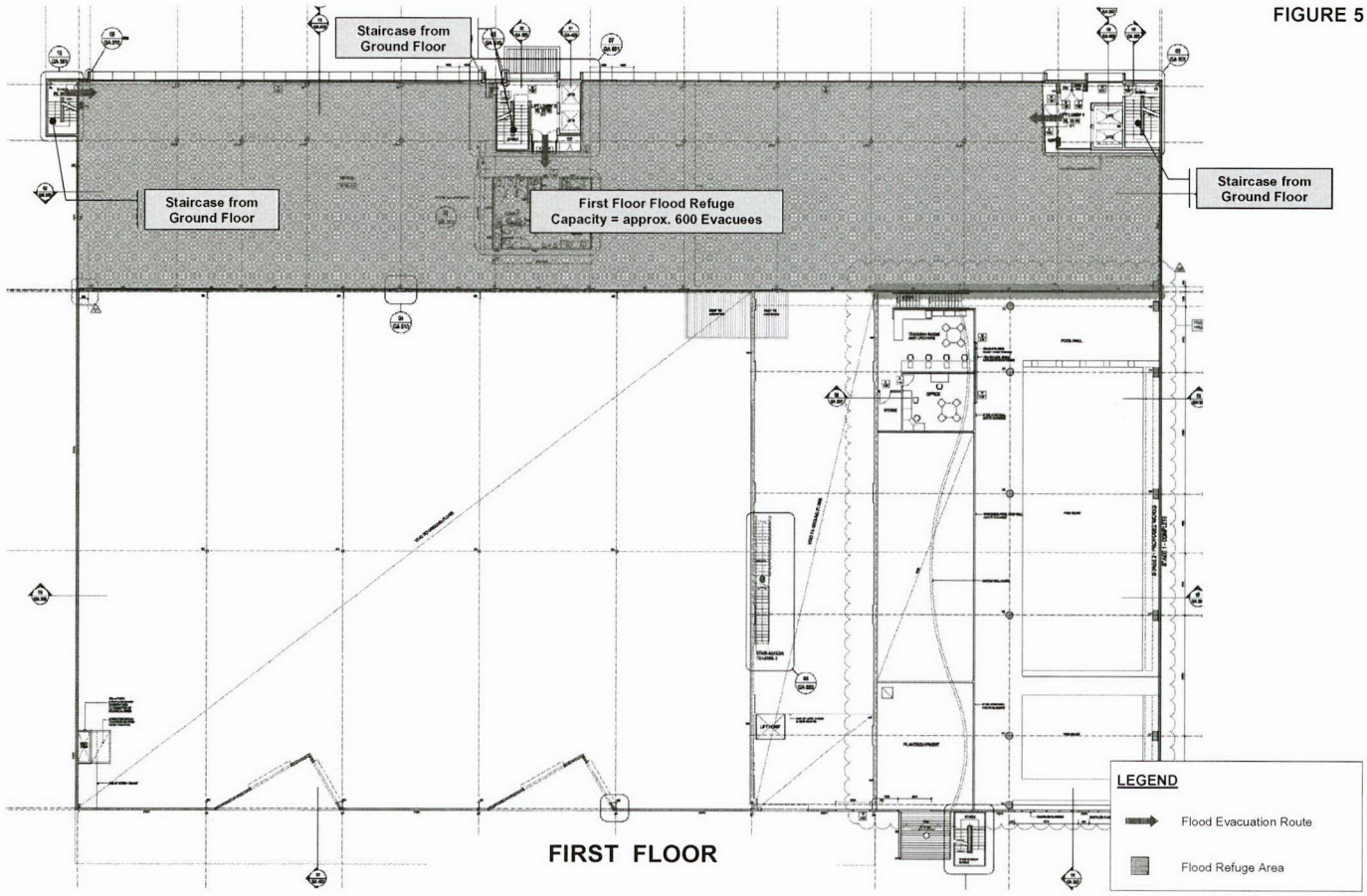
301015-03566 - Warriewood Valley Sector 7, 2 Daydream Street, Warriewood
Figure 4 - Proposed Evacuation Route - Exceeding 100yr Ground Floor.doc

FIGURE 5



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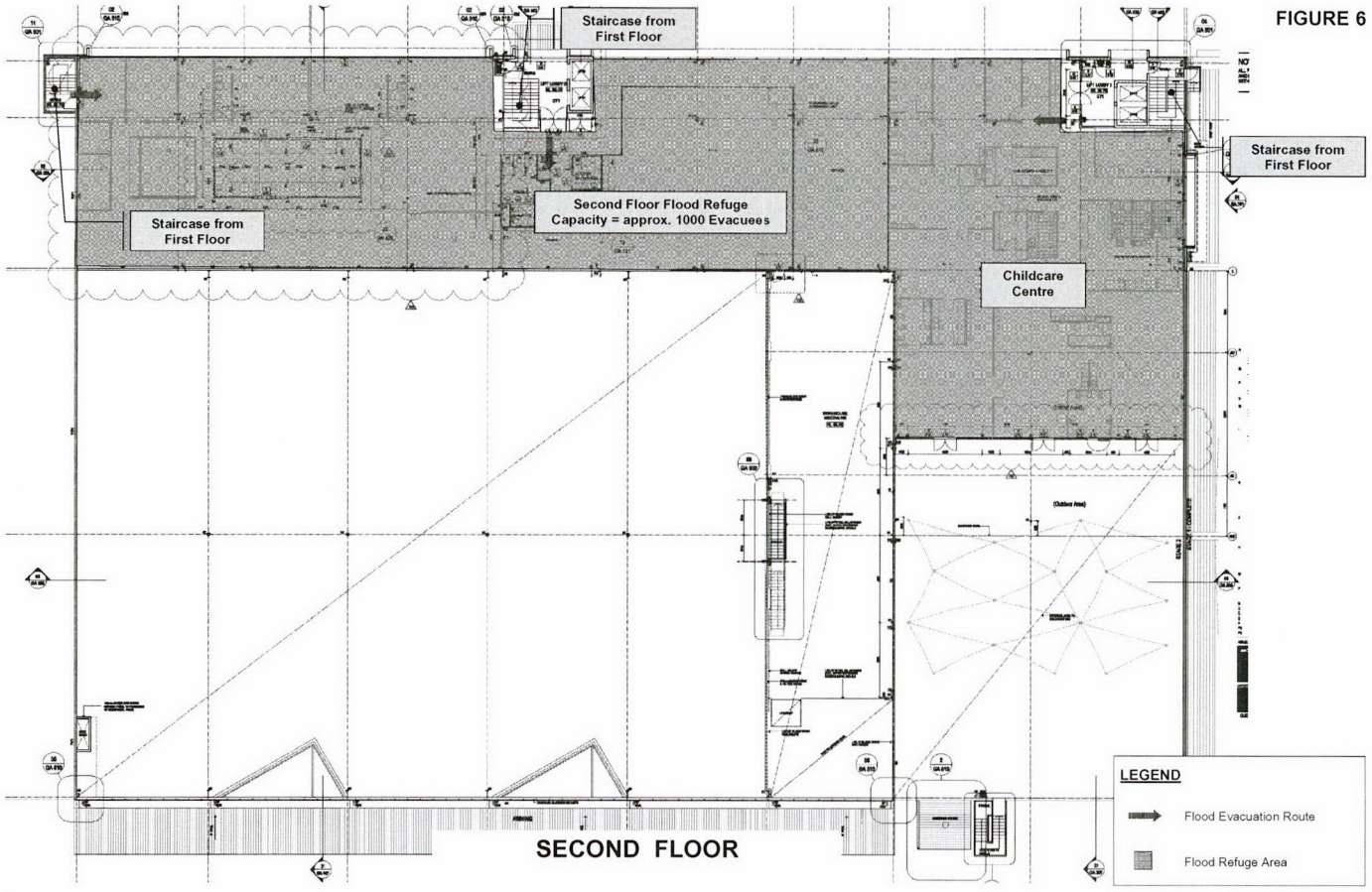
301015-03566 – Warriewood Valley Sector 7, 2 Daydream Street, Warriewood
Figure 5 - Proposed Evacuation Route - Exceeding 100yr 1st Floor.doc

INTERNAL FLOOD EVACUATION ROUTE FOR FLOODS IN EXCESS OF THE 100 YEAR ARI EVENT [FIRST FLOOR]

FIGURE 6



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301015-03566 – Warriewood Valley Sector 7, 2 Daydream Street, Warriewood
Figure 6 - Proposed Evacuation Route - Exceeding 100yr 2nd Floor.doc

INTERNAL FLOOD EVACUATION ROUTE FOR FLOODS IN EXCESS OF THE 100 YEAR ARI EVENT [SECOND FLOOR]

The ramp entry / exit to the basement carpark will be protected from flooding up to the FPL by localised grading of the carpark to achieve a threshold level of 32.2 mAHD at the top of the ramp. Notwithstanding, suitable flood evacuation measures will need to be implemented for occupants of the site from the basement carpark to the designated congregation areas above. These measures include:

- The posting of flood warning signs at all stair wells and lift wells (*refer to* **Appendix A**).
- The vertical flood evacuation routes shown in **Figures 4** to **6** should also be posted in these locations.
- Clear 'Exit' signage at the egress stairs between the basement carpark and the ground level carpark.

3.4 FLOOD WARNINGS AND EVACUATION

3.4.1 Flood Watches

The BoM is able to issue a Flood Watch if flood-producing rain is expected to happen in the near future. Severe Thunderstorm Warnings or Severe Weather Warnings also identify weather systems that have the potential to lead to flash flooding.

3.4.2 Flood Warnings, Bulletins and Evacuation Warnings

The quick-response of flooding from the local catchment upstream of the site means there will be little chance for the BoM to issue a specific Flood Warning for the area.

When localised flooding is likely to cut evacuation routes or inundate property, the SES issues an Evacuation Warning to indicate that persons should be prepared to evacuate. SES will then issue an Evacuation Order.

SES Flood Bulletins provide information on likely flood consequences and what actions are required to protect yourself and your property.

3.4.3 Activation of the Flood Evacuation Plan

It will be the responsibility of the Flood Warden to be aware of any Flood Watches (or Flood Warnings) that may affect the site.

The warden is to check weather conditions and potential threats on a daily basis using the following sources:

- The Bureau of Meteorology website: www.bom.gov.au
  (*view the current warnings for New South Wales*)
- SES bulletin website: http://www.ses.nsw.gov.au/news/

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- Recorded telephone messages from the BoM – ph: 1900 926 113 (*National Directory*) (*charges apply*);
- Direct enquiry with the BoM Sydney office on ph: (02) 9296 1555;
- Warnings on local radio stations (*FM or AM*);
- Warnings on local TV stations; and
- Warnings via other media, such as News websites.

The Flood Emergency Response protocols are to be activated by the Flood Warden on receipt of the following:

- a Flood Watch or Severe Weather Warning issued by the BoM; or
- a Flood Warning issued by the BoM; or
- a Flood Bulletin from the SES; or
- a direct flood Evacuation Warning or Evacuation Order from the SES or the Police or other emergency services personnel (*if the protocols are not already activated*).

Upon activation, the Flood Warden is to monitor warnings on the BoM and SES websites, and also the on-ground drainage conditions at the site and in Daydream Street.

3.4.4 Flood Evacuation Triggers

Evacuation from the site during flooding up to the 100 year ARI event is to be triggered by the Flood Warden according to evacuation warnings or orders from the SES or Police.

Evacuation can occur sooner, subject to the Flood Warden confirming that safe passage is provided along the southern driveway (*i.e., that no significant overland flow is occurring*).

A flood depth marker (*or markers*) is to be painted on the retaining wall along the southern side of the site (*adjacent to the southern driveway*) at a depth of 200mm above the base of the pavement. The Flood Warden is to monitor overland flow along the southern driveway from a safe vantage point on the first or second floor.

Once the level of flow reaches the marker(s), it is likely that the event is approaching the 100 year ARI flood. At this time the Warden is to advise all occupants that it is now unsafe to evacuate from the site and to instruct occupants to shelter-in-place at the designated refuge areas on the first and second floors until the flood threat has passed (*refer* **Figures 4** *to* **6**).

The warden is to provide similar directions for shelter-in-place if the following conditions are met:

- If floodwaters from the upstream catchment (*to the west*) are surcharging from the grated pits feeding into the 1800mm pipe and hence causing flow over the retaining wall and into the southern driveway.
- If overland flow depths exceed 200mm across the northern car park areas.
- If flood depths in Daydream Street are greater than 300mm.

At the time when off-site evacuation is cut-off and shelter-in-place is adopted, the childcare operator is to phone parents and guardians to advise them against attempting to enter the site to evacuate children. The parents are to be reassured that their children are safe within the childcare centre facility on the second floor.

3.4.5 Deactivation of the Flood Evacuation Plan

When a flood emergency has subsided and no longer poses a risk to the area, the SES will issue an "All Clear".

At this time, and if safe to do so, at the direction of the Flood Wardens any remaining workers or patrons of the site will be able to exit via Daydream Street.

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STAGE 2 – FLOOD EMERGENCY RESPONSE PLAN

4 FLOOD AWARENESS AND PREPAREDNESS

The successful implementation of emergency response measures is highly dependent on the flood awareness of the Stage 2 development occupants, and on their knowledge of the protocols that need to be followed during a flash flood.

Flood education and emergency response training should be undertaken for all occupants of the Stage 2 development. This should include the identification of Flood Wardens and general training in appropriate flood evacuation routes and protocols. Subject to the specific requirements of each tenancy, the training may also include additional actions for workers to relocate stock and equipment so that it is not damaged during a major flood.

Flood awareness workshops for the workforce are to be held at regular 6 month intervals to allow for staff turnover and to remind staff of evacuation procedures.

The childcare centre operator is to practice flood evacuation procedures with all children in care every 3 months. The operator is to educate parents that they should not attempt to drive through floodwaters to collect children during times of flood. This should include a flood information brochure provided to each parent at enrolment of their child.

As discussed above, flood warning signs are to be posted in the stair wells and lift wells, which will provide continued awareness for occupants and visitors. A sample sign is provided in **Appendix A**.

In addition, a current version of the SES Business Floodsafe Tool Kit available from http://floodsafe.ses.org.au/floodsafe/businesstoolkit/ is to be compiled and printed for each tenant and kept on the premises at all times. All employees/tenants are to be made aware of the Floodsafe Toolkit.

5 IMPLEMENTATION OF THIS PLAN

- A copy of this Flood Evacuation Plan (*including the plans of proposed evacuation routes*) is to be printed and made available at the office/ reception area of each tenancy of Stage 2.
- The designated Flood Warden is to be assigned as each new tenancy of the second floor commences (*which will be initially occupied by the childcare centre*).
- This Plan is to be activated and implemented by the Flood Warden according to the instructions in Section 3.
- This Plan is to be reviewed at least once every five years, and if any of the following occurs:
  - Any significant change in access arrangements to Stage 2; or
  - Any new tenancy that may involve significantly higher number of staff or visitors; or
  - Any subdivision of the tenancies; or
  - Any new flood information is provided by Council by way of a revised Flood Study or Floodplain Risk Management Plan.

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Appendix A Sample of Flood Warning Sign

2 DAYDREAM STREET, WARRIEWOOD

FLOOD WARNING NOTICE

THE CAR PARK LEVELS AND
GROUND FLOOR AREAS MAY BE
INUNDATED IN TIMES OF HEAVY RAINFALL

If flooding occurs:

- Please follow the directions of the Flood Warden(s). They are trained to assist during times of flood.
- If safe to do so, evacuate the site in an orderly manner to Daydream Street via the southern driveway.
- In the case of significant overland flow along routes to Daydream Street, evacuate to the designated flood refuge areas on the first and second floors.

Thank you for your cooperation.

Niky Makroglou

From: Nathanael Edwards <nathanaele@fdcbuilding.com.au>
Sent: Friday, 12 June 2015 10:46 AM
To: Elsie_Leeder@pittwater.nsw.gov.au
Cc: Tony Heaslip; Joel Andonopoulos; Matthew Hezlett
Subject: N0191/13 - Condition E.21 submission
Attachments: 130449 Structural Inspection Certificate (Stage 2).pdf

Hi Elsie
In accordance with condition E.21 of DA consent N0191/13 we hereby submit certification that the structural integrity of the building can withstand immersion and impact velocity and debris up to the level of probable maximum flood.

Please let me know if we can assist with anything else

Nathanael Edwards | Contract Administrator | FDC Construction & Fitout Pty Ltd
22 - 24 Junction Street Forest Lodge NSW 2037
Sydney | Canberra | Melbourne | Adelaide | Brisbane | Perth
T 02 8117 5052 | M 0466 773 095 | F 61 2 9566 2900 | www.fdcbuilding.com.au
Accreditations: QA | WHS | EMS | FSC | NSW Government

Please consider the environment before printing this email

From: Nathanael Edwards
To: "Elsie_Leeder@pittwater.nsw.gov.au"
Cc: tony@bmplusg.com.au; Joel Andonopoulos; Matthew Hezlett
Subject: N0191/13 - Condition E.21 submission
Date: Friday, 12 June 2015 10:45:00 AM
Attachments: 130449 Structural Inspection Certificate (Stage 2).pdf

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T 02 8117 5052 | M 0466 773 095 | F 61 2 9566 2900 | www.fdcbuilding.com.au
Accreditations: QA | WHS | EMS | FSC | NSW Government

arrow

CORPORATE FLOORING SYSTEMS PTY LTD

Letter of Compliance

Prepared by Craig Davenport
Phone: (02) 9979 9600
Fax: (02) 9979 9866
Email: craig@arrowcorp.com.au

Phone: 02 8117 5052
Email: nathanaele@fdcbuilding.com.au

Attention: Nathanael Edwards

RE: FLOORING INSTALLATION COMPLIANCE
PROJECT: WARRIEWOOD STAGE 2 – BASE BUILD
TRADE: CARPET AND VINYL

Please be advised the test reports for materials used and statement of compliance that the fire hazard properties of all new materials finishes and lining are in accordance with clause C1.10 of the BCA

Please be advised that the carpet and vinyl installed in the above project and nominated areas have been installed in accordance with the following Australian Standards. AS 2455.1: 2007 & AS 1884-2012

Yours faithfully,
ARROW CORPORATE FLOORING SYSTEMS

CRAIG DAVENPORT
PROJECT MANAGER

FDC

Finishes Schedule

2 Daydream St, Warriewood

Level	Area	Wall / Floor	Finish
Ground Floor	Lift Lobby 1 + 2	Lift lobby walls	Zenolite
Ground Floor	Warehouse Amenities	Walls	Plasterboard
Level 1	Office	Carpet Floor Covering	Broadloom Carpet
Level 1	Office	Walls	Plasterboard
Level 1	Office + Amenities	Ceiling Tile + Set Ceiling	Ceiling Tile + Set Ceiling
Level 1	Lift Lobby 1 + 2	Lift lobby walls	Zenolite
Level 2	Office	Carpet Floor Covering	Broadloom Carpet
Level 2	Office	Walls	Plasterboard
Level 2	Office + Amenities	Ceilings	Plasterboard & Ceiling tiles
Level 2	Lift Lobby 1 + 2	Lift lobby walls	Zenolite

Zenolite®

Zenolite® LE LUXURY EDITION

Zenolite® HC HARD COATED

Zenolite® Ten Year Limited Warranty

EGR Zenolite® panels are manufactured and designed as a decorative finish for indoor use only. Zenolite is designed to be attached on to a solid wall or structure in accordance with local building regulations and the **Zenolite Installation Guide**. Zenolite is not suitable for backlighting or for use as a structural building element.

The Zenolite warranty covers faulty materials and workmanship only for a period of ten years from the date of sale by EGR subject to the terms, conditions and exclusions contained within this warranty document.

Should a valid warranty claim be made, EGR will provide replacement panels and/or a refund based on 100% of the original purchase price for the first two years and then a reducing value of the original purchase price of 10% per year after the first two years.

In the event of a valid warranty claim, EGR will supply replacement panels of equal value and compensate the purchaser (if requested) to a limit of $200 AUD, for any fabrication, installation or transportation costs incurred for the replacement of the faulty panel. EGR accepts no other liability, consequential loss or damages of any kind related to a valid warranty claim.

Usage behind cooktops

Please refer to the **Splashback installation behind a cooktop** guide available on ***zenolite.com*** for detailed instructions. Zenolite is not suitable for use as a wall finish behind gas cooktops.

Zenolite can be used as a splashback wall finish behind electric and induction cooktops with a minimum clearance of 50mm between the rear edge of the cooktop and the face of the Zenolite panel in its installed position.

Colour Change

Within ten years of the date of sale by EGR, Zenolite installed indoors will not change colour beyond a Delta E of 5 measured by reflection from the clear side of the panel.

Warranty Exclusions

The Zenolite warranty specifically excludes the following claims:

- damage by abrasion of any kind
- damage by impact of any kind
- poor handling, incorrect fabrication or installation techniques
- use of inappropriate cleaning agents or methods (refer to *'Recommended Cleaning Procedure'* in this document)
- surface damage of any kind from cookware or cooking utensils
- exposure to aggressive chemicals of any kind.

Validation of a Claim

For a warranty claim to be validated the affected panel may be required to be returned to EGR at *40 Machinery Street, Darra, QLD 4076, Australia* for evaluation.

Warranty Case

Warranty claims shall only be considered if the following conditions have been met:

a) It can be proven that the panels have been used as set out in this warranty and that the panels have been installed as set out in the **Zenolite Installation Guide.**

b) The claim is made immediately upon the detection of a defect in the panel.

c) The invoice from the supplier of the Zenolite panel can be produced. The invoice should show the purchase date, and the supplier's name, address and details.

To the extent permitted by law this written warranty for Zenolite is in lieu of all other warranties and conditions (express or implied) including without limitation, any written or verbal statement or representation.

EGR shall, to the extent permitted by law, not be liable for any damages arising out of the use or application of Zenolite panel, nor shall EGR be liable for any amount greater than the original invoice value for the Zenolite panel.

This warranty represents, to the extent permitted by law, the purchaser's sole and exclusive recourse.

Recommended Cleaning Procedure

Zenolite panels should be cleaned regularly. A regular cleaning program will reduce the effects of ageing but will not eliminate them.

Cleaning Steps:

1. Using a soft microfibre cloth or soft sponge, lightly wash the panels with luke-warm water and mild detergent only.
2. Do not scrub or use brushes, scourers or harsh instruments at any time. Zenolite panels are not scratchproof.
3. Rinse off the panel with clean lukewarm water.
4. Dry with a soft clean microfibre cloth to prevent water spotting.
5. Do not clean in direct sunlight.

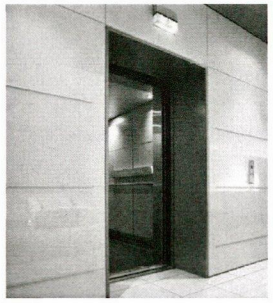
EGR

Download the Zenolite Installation Guide from *zenolite.com*

Oakmoore Pty Ltd trading as EGR ABN: 13 056 159 570 7/14-1/O-00850

Zenolite

PANEL PROPERTIES



Zenolite® is a next-generation high gloss wall panel. Vivid, lightweight and stronger than glass, it's a sophisticated solution that improves any room. Designed and manufactured in Australia, it's suitable for both residential and commercial applications.

Zenolite is available in a wide range of colours, and is suitable for a multitude of applications – from kitchen splashbacks and feature walls, to entire hotel foyers. It can also bend to form gentle curves.

ALSO AVAILABLE:

Zenolite HC

Zenolite HC is a Hard Coated version of Zenolite. It's designed to accommodate more demanding environments, including bathrooms and shower walls, high-traffic areas, and public amenities.

Zenolite LE

Zenolite LE is the special Luxury Edition of Zenolite. Incorporating a range of designer patterns, including metallics and woodgrains, it combines the beauty of exotic materials with the practicality of Zenolite.

EGR

zenolite.com

ZENOLITE® PANEL PROPERTIES	Test Method	Result	
GENERAL PROPERTIES			
Specific Gravity	ASTM D-792	1.19	
Water Absorption	ASTM D-570	<0.5%	
Gloss	AS/NZS 1580.602	>80%	
MECHANICAL PROPERTIES			
Tensile Strength, Max.	ASTM D-638	70 MPa	(10,000 psi)
Elongation at Break	ASTM D-638	4%	
Tensile Modulus	ASTM D-638	3,000 MPa	(435,000 psi)
Flexural Strength	ASTM D-790	100 MPa	(15,000 psi)
Flexural Modulus	ASTM D-790	3,000 MPa	(435,000 psi)
Izod Impact Strength, Milled Notch	ASTM D-256	15 J/m	(0.28 ft-lb/in)
Pencil Hardness	ASTM D-3363	4H	
THERMAL PROPERTIES			
HDT, 264 psi, 1.82 MPa	ASTM D-648	96°C	(203°F)
CTE, -30°C to 30°C	ASTM D-696	7×10^{-5} mm/(mm.°C)	(4×10^{-5} in/(in.°F))
Continuous Service Temperature		77°C	(170°F)
Max temperature, Short Term		95°C	(202°F)
Degradation Temperature		>275°C	(>530°F)
FIRE BEHAVIOUR			
Flame Spread Index	ASTM E84	130*	
Australia BCA 2006	AS/NZS 13837:1998	Rating 4	
U.K.	BS476	Rating 4	
U.S.A.	UL94	HB	
Europe	EN 13501	Class E	

ZENOLITE® CHEMICAL RESISTANCE			
Kerosene	No Effect	Shampoo – Pantene®	No Effect
Mineral Turpentine	No Effect	Mouthwash – Listerine®	No Effect
Hot Sodium Hydroxide Solution	No Effect	Toothpaste – Macleans®	No Effect
General Cleaner – Easy-Off BAM®	No Effect	10% Citric Acid	No Effect
General Cleaner – Spray n' Wipe®	No Effect	Hot Tomato Sauce	No Effect
General Cleaner – Cloudy Ammonia	No Effect	Lemon Juice	No Effect
Bleach – White King®	No Effect	Hot Coffee	No Effect
Bleach – Domestos®	No Effect	Vinegar	No Effect
Glass Cleaner – Windex®	No Effect	Cleaning Cream – Jif	Mild Effect
Fragrance Spray – Air Wick®	No Effect	Isopropyl Alcohol	Severe Damage
Shower Gel – Health Basics®	No Effect	Acetone	Severe Damage

* As tested by Bodycote – Report 08-002-719.

GreenStuf® QuietStuf®

AUTEX Insulation

AUTEX MATERIAL SAFETY DATA SHEET

Product Names:
Autex GreenStuf® and QuietStuf® 100% polyester fibre insulation

Trade Names:
GreenStuf® Wall & Ceiling Pads
GreenStuf® Blanket/Roll Form
GreenStuf® Building Insulation Blanket (BIB)
GreenStuf® Masonry Wall Blanket (MWB)
GreenStuf® Underfloor
QuietStuf® Sound Solution®
QuietStuf® Autex Sound Blanket (ASB)
QuietStuf® BaffleBlock®
QuietStuf® Autex Acoustic Blanket (AAB)

Intended Product Uses:
Thermal and acoustic insulation of buildings, and original equipment.

Manufacturer:
Autex Industries Ltd, 702-718 Rosebank Road, Avondale, Auckland
Ph (09) 828 9179, Fax (09) 828 4049, www.autex.co.nz

Hazards Identification:
Autex GreenStuf® and QuietStuf® products are non-hazardous and non-dangerous goods.
There are no known hazards relating to the handling or use of polyester fibres or Autex polyester insulation materials. No protective clothing is required to handle or install the products. GreenStuf® and QuietStuf® products are non-irritant, non-toxic, non-allergenic and completely safe and user-friendly.

Information on Ingredients:
GreenStuf® and QuietStuf® products are manufactured using only100% polyester fibres. Fibres are bonded using heat (thermal bonding) to form the structural integrity of the finished material without the need for chemical binders.

Chemical Entity
Polyester Fibre from
PET (Polyethylene Terephthalate)

Odour:	No Odour
pH.	7.8 (pH 7 being neutral)
Boiling Point:	N/A
Melting Point:	250°C
Max. Recommended Service Temp:	160°C
Vapour Pressure:	N/A
Specific Gravity:	Polyester 1.38
Flash point:	N/A
Explosive limits:	N/A
Solubility in water:	Not soluble
Moisture Absorption:	less than 0.03% by weight
Relative Vapour Density:	N/A
Per Cent Volatiles:	Nil
Corrosiveness:	Non-corrosive

AUTEX MATERIAL SAFETY DATA SHEET

AUTEX Insulation

AUTEX MATERIAL SAFETY DATA SHEET

Indoor Environment Quality (IEQ)/ VOC Emissions:

Autex polyester well exceeds the current leading world standards established by 'Good Environmental Choice Australia' (GECA) and The GreenGuard Environmental Institute.

GreenGuard VOC standards are the recommended maximum exposure for airborne volitile organic chemical levels established by the US National Toxicology Program (NTP), the International Association for Research on Cancer (IARC) and the World Health Organisation (WHO).

Autex GreenStuf® and Quietstuf® polyester has been tested by Cetec Pty Ltd (Report: RCV080408) for chemical emission as follows;

VOC concentration:	0.01 mg/m³ (7days)
GECA/ GreenGuard Limit:	0.25 mg/m³ (7days)

Ecological Information:

Autex GreenStuf® and QuietStuf® products are made from 100% polyester fibres (from PET plastic). GreenStuf® and QuietStuf® products contain a minimum of 45%, and up to 85% recycled polyester fibre (from already recycled PET plastic bottles).

All Autex Insulation products are manufactured under Autex's Environmental Management System (EMS) which incorporates Waste Reduction, Energy Efficiency, Environmental Purchasing, and a Zero Waste Policy where all insulation manufacturing off-cuts and waste is recycled back into the production process. More information regarding Autex's EMS is available on the Autex website (www.autex.co.nz)

Fire Hazard:

GreenStuf® and QuietStuf® are self-extinguishing. All Autex Insulation products conform to all NZ Building Code (NZBC) requirements as tested under AS1530.3. Typical results for GreenStuf® and QuietStuf® products are as follows;

Ignitability Index (0-20)	0
Heat Evolved Index (0-10)	0
Spread of Flame Index (0-10)	0
Smoke Developed Index (0-10)	3

(Refer to individual Product Data Sheets for specific product information)

Extinguishing Media:

Water spray of fog, foam, dry chemical, and carbon dioxide. Material will shrink from flame and may drip.

Health Effects/ Personal Protection

There are no known hazards relating to the use or handling of Greenstuf® or QuietStuf® or other forms of thermally bonded 100% polyester insulation produced by Autex. No protective clothing or gloves are required when handling or installing Autex insulation. There is no dust content in the products and any free fibres which may be present are not of respirable size.

Storage and Transport:

Packaging as recommended by the manufacturer. Keep dry and clean. GreenStuf® and QuietStuf® are not classified as dangerous goods. No special transport or storage requirements are necessary.

UN Number:	N/A
Class:	N/A
Hazchem Code:	N/A

This MSDS was correct at the time it was prepared (see below for the date). Autex Industries, as part of its ISO 9001 Quality Systems, updates MSDS's when its ongoing review process indicates a need for a change to be made. You should make sure that the MSDS you are reading and relying on is current. You can do this by contacting Autex Customer Services on free phone 0800 428 839, or by visiting our website www.autex.co.nz

AUTEX

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Freephone 0800 428 839
www.autex.co.nz

Issue Date: Feb 2009

AUTEX MATERIAL SAFETY DATA SHEET

APL

Att Mr George Naguib
M/s Feltex Carpets Pty Ltd,
8 Scotland St,
Bravbrook Vic 3019

TEST REPORT No. 093470

LABORATORY REF: P093470

CUSTOMER REFERENCE

REACTIVATE

Sample description as provided by customer Order No. **FTX 1025**
Mass/unit area **22** oz/yd² g/m² Pile Fibre Content **100% SOLUTION DYED NYLON**
Construction Details **Tufted** Secondary Backing **Jute** Colour **Black**
Style **LOOP** Pile Height / mm

TEST METHOD AS/ISO 9239.1 2003 Reaction To Fire Tests For Floorings Part 1 Determination of the Burning Behaviour Using a Radiant Heat Source. *As required by specification C1.10a of the Building Code of Australia.*

Tested in accordance with the Carpet Institute Code of Practice for AS/ISO 9239 Testing Version 10 / 0805.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use. Clause 9 of AS/ISO 9239 Part 1

Conditioning as specified in BS EN 13238.2001
Sample submitted Date **3/8/2009** Test Date **21/8/2009**

ASSEMBLY SYSTEM OVER UNDERLAY details below.

The UNDERLAY used was BRIDGESTONE STANDARD BLACK RUBBER

Substrate : Non-combustible
Substrate - 6mm Fibre Reinforced Cement Board to simulate a Non-Combustible Flooring.
Sample Cleaned as Specified in ISO 11379.1997

Initial Test Specimen 1 Length Direction Critical Radiant Flux **1.5** kW/m²
Specimen 1 Width Direction Critical Radiant Flux **1.3** kW/m²
Full tests carried out in the **Width** Direction

SPECIMEN	Width #1	Width #2	Width #3	Mean
Critical Radiant Flux (kW/m²)	1.3	1.2	1.4	1.3
Smoke Development Rate (%.min)	236	230	314	260

The values quoted below are as required by Specification C1.10a Fire Hazard Properties (Floors) of the Building Code of Australia. The Critical Radiant Flux quoted is the value at Flame-Out.

MEAN CRITICAL RADIANT FLUX 1.3 kW/m²

MEAN SMOKE DEVELOPMENT RATE 260 %.min

OBSERVATIONS **The samples shrunk away from the heat source ,ignited then burnt**

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Authorised Signatory **M. B. Webb**
Technical Manager
DATE 26/8/2009
Measurement Science and Technology No. 15393

PAGE 1 of 2
Page 2 only shows the time required in seconds for the flame front to reach each time marker, the total test time and the CHF value at 30 minutes (if applicable).
The laboratory allows the use of this page of the report without the use of page 2.

1003.05.07

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ABN 69 468 849 319

TEST REPORT No. 93470
LABORATORY REF: P093470

THE INFORMATION PROVIDED ON THIS PAGE OF THE TEST REPORT IS FOR THE SPONSORS USE ONLY AND WILL MEET THE REQUIREMENTS OF THE STANDARD. IT IS NOT REQUIRED UNDER CLAUSE C1.10A OF THE BUILDING CODE OF AUSTRALIA

Pyrometer temperature
On calibration 576.6°C
Start of test run 576.9
During test run 577.6

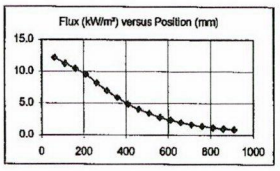
Chamber temperature
On calibration 99.2°C
Start of test run 100.1
During test run 100.6

Clause 7.2.2 AS/ISO 9239 The pyrometer should be ± 5° of calibration temperature.
The Chamber temperature should be ±10° of calibration temperature
The Holding Tension on Specimen Frame was 2 Nm

TIME FOR EACH SPECIMEN TO REACH EACH MARKER IN SECONDS

Specimen	50	60	110	160	210	260	310	360	410	460	510	560	610	660	710	760	810	860
1	155	158	188	216	255	278	320	344	438	611	772	953	1392	1802	2336	2718		
2	136	140	152	211	279	293	325	358	479	653	816	1097	1579	1905	2485	2745	3295	
3	158	161	198	224	259	282	313	379	576	695	1012	1297	1804	2172	2871	3301		

FLUX CALIBRATION: FLX08001



TESTS

Specimen	SMOKE PRODUCTION: Maximum Light Attenuation (%)	SMOKE PRODUCTION: Smoke Development Rate (%.min)	BURNING CHARACTERISTICS: Burn Length at Flame Out (mm)	BURNING CHARACTERISTICS: Time To Burn Out (s)	BURNING CHARACTERISTICS: Critical Heat Flux at 30min (kW/m²)
Initial Test: **Length**	69	228	740	3,548	2.1
Specimen Tests: **Width**					
1	67	236	782	3,565	2.0
2	66	230	810	3,304	(n/a)
3	66	314	770	3,469	2.0
Mean	66	260	787	3,446	2.0

NATA
ACCREDITED FOR TECHNICAL COMPETENCE
Measurement Science and Technology No. 15393
Authorised Signatory
M B Webb
Date **21/8/2009**

PAGE 2 of 2
The laboratory does not allow the use of this page of the report without the use of page 1.
This page alone has no validity under specification C1.10a Fire Hazard Properties (Floors) of the Building Code of Australia.

2002 05 07 45586

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CEILING SYSTEMS

Between us, ideas become reality®

Material Safety Data Sheet

NON-Hazardous Substance, NON-Dangerous Goods

1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

- **Product name:** ARMSTRONG CEILING PANELS: Fine Fissured, Dune, Textura, Ultima, Eris, Second Look, ANF, Cortega, Bioguard & Dune Max – Sabbia.
- **Use:** In ceilings of commercial, industrial and domestic buildings in order to reduce noise, improve thermal comfort and enhance protection from fire.
- **Supplier:** Armstrong World Industries Pty Ltd
- **ABN:** 58 000 361 679
- **Street Address:** 99 Derby Street, Silverwater NSW 2128
- **Telephone:** +612 9748 1588
- **Facsimile:** +612 9748 7244
- **Emergency telephone number: 0412 736 154**

2. HAZARDS IDENTIFICATION

This material, or some of its components, is on the List of ASCC Designated Hazardous Substances without risk and safety phrases. According to an assessment of health effects against the ASCC Approved Criteria for Classifying Hazardous Substances, no risk and safety phrases are applicable.

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail.

Poisons Schedule (Aust): Not applicable.

3. COMPOSITION INFORMATION

Mineral wool (slagwool) – 30-70%
Ingredients determined to be non-hazardous – Balance

4. FIRST AID MEASURES

If poisoning occurs, contact a doctor or Poisons Information Centre (Telephone Australia 131 126, New Zealand 0800 764 766).

- **Inhalation:** Remove victim from exposure – avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.
- **Skin contact:** If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. If swelling, redness, blistering or irritation occurs seek medical assistance
- **Eye contact:** If in eyes wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.
- **Ingestion:** Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water to drink. If vomiting occurs give further water. Seek medical advice.
- **Notes to physician:** Treat symptomatically.

5. FIRE-FIGHTING MEASURES

- **Specific hazards:** Non-combustible material.
- **Fire fighting further advice:** Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition.
- **Hazchem Code:** Not applicable.
- **Suitable extinguishing media:** Not combustible, however, if material is involved in a fire use water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder).

6. ACCIDENTAL RELEASE MEASURES

Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation. Collect and seal in properly labelled containers or drums for disposal. If contamination of sewers or waterways has occurred advise local emergency services.

Dangerous Goods – Initial Emergency Response Guide No: Not applicable.

7. HANDLING AND STORAGE

Handling: Avoid skin and eye contact.

Storage: Store in a cool, dry, well-ventilated place and out of direct sunlight. Store away from incompatible materials described in Section 10. Handle these materials carefully to minimise airborne dust.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

National occupational exposure limits:

No value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC Australia). However for:

Synthetic mineral fibres 0.5 fibres/ml.

As published by the National Occupational Health & Safety Commission (NOHSC Australia).

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept too as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity. If the directions for use on the product label are followed, exposure of individuals using the product should not exceed the above standard. The standard was created for workers who are routinely potentially exposed during product manufacture.

- **Biological Limit Values:** As per the "National Model Regulations for the Control of Workplace Hazardous Substances [NOHSC: 1005 (1994)]" the ingredients in this material do not have a Biological Limit Allocated.
- **Engineering measures:** Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. Avoid generating and inhaling dusts. Use with local exhaust ventilation or while wearing dust mask. Natural ventilation should be adequate under normal use conditions.
- **Personal protection equipment:** OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES, DUST MASK.

Wear overalls, safety glasses and impervious gloves. Avoid generating and inhaling dusts. If dust exists, wear dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Available information suggests that gloves made from leather should be

suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. PHYSICAL AND CHEMICAL PROPERTIES

- **Form / Colour / Odour:** Ceiling panels, white with light grey substrate with no odour.
- **Solubility:** Insoluble in water
- **Specific Gravity (20°C):** *N Av*
- **Relative Vapour Density (air=1):** *N App*
- **Vapour Pressure (20°C):** *N App*
- **Flash Point (°C):** *N App*
- **Flammability Limits (%):** *N App*
- **Autoignition Temperature (°C):** *N App*
- **Melting Point/Range (°C):** *N App*
- **Boiling Point/Range (°C):** *N App*
- **pH:** *N App*

(Typical values only – consult specification sheet)
N Av = Not available
N App = Not applicable

10. STABILITY AND REACTIVITY

Chemical stability: This material is thermally stable when stored and used as directed.

Conditions to avoid: Elevated temperatures and sources of ignition.

Incompatible Materials: Oxidising agents.

Hazardous decomposition products: Oxides of carbon and nitrogen, smoke and other toxic fumes.

Hazardous reactions: No known hazardous reactions.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

- **Acute Effects**
  - **Inhalation:** Material may be irritant to mucous membranes and respiratory tract.
  - **Skin contact:** Repeated or prolonged skin contact may lead to irritation.
  - **Eye contact:** May be an eye irritant. Exposure to the dust may cause discomfort due to particulate nature. May cause physical irritation to the eyes.
  - **Ingestion:** Swallowing can result in nausea, vomiting and irritation of the gastrointestinal tract.
- **Long Term Effects**

  No information available for product.
- **Acute toxicity/Chronic toxicity**

  No LD50 data available for the product.

12. ECOLOGICAL INFORMATION

Avoid contaminating waterways. No data available for the product. However, for the constituent:

Ecotoxicity: No information available.

Persistence and degradability: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Refer to State/Territory Land Waste Management Authority.

14. TRANSPORT INFORMATION

- **Road and Rail Transport**

  Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail.
- **Marine Transport**

  Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.
- **Air Transport**

  Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

15. REGULATORY INFORMATION

Poisons Schedule (Aust): Not applicable.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Literary reference:

This material safety data sheet has been prepared by Chemicals Data Services Pty Ltd on behalf of its client.

Reason(s) for Issue: Change to address.

Material Safety Data Sheets are updated frequently. Please ensure that you have a current copy.

This MSDS summarises at the date of issue our best knowledge of the health and safety hazard information of the product, and in particular how to safely handle and use the product in the workplace. Since Armstrong World Industries Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must. Prior to usage, review this MSDS in the context of how the user intends to handle and use the product in the workplace. If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company. Our responsibility for product as sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.

Armstrong

GYPROCK
Everything else is just plasterboard

CSR MATERIAL SAFETY DATA SHEET
CSR Plaster-Based Cements and Adhesives

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name:	**CSR Plaster-Based Cements and Adhesives**
Other Names:	Gyprock Base Coat 25/45/60/90, Gyprock Cornice Cement, Gyprock Cornice Cement 45/60, Gyprock Drywall Adhesive 100, Gyprock Masonry Adhesive, Gyprock Patching Cement, Gyprock Back Blocking Cement
Product Codes/Trade Names:	n/a
Recommended Use:	Adhesive, jointing cement, patching compound
Applicable In:	Australia
Supplier:	CSR Building Products Limited ABN 55 008 631 356
Address:	9 Help Street, Chatswood NSW 2067, AUSTRALIA
Telephone:	+61 2 9235 8000 (or 1800 807 668 (available in Australia only))
Email Address:	http://www.csr.com.au/Common/Contactus.asp
Web Site:	www.csr.com.au
Facsimile:	+61 2 9372 5819
Emergency Phone Number:	000 Fire Brigade and Police (available in Australia only)
Poisons Information Centre:	13 11 26 (available in Australia only)

This Material Safety Data Sheet (MSDS) is issued by the Supplier in accordance with National standards and guidelines from the Australian Safety and Compensation Council (ASCC, formerly National Occupational Health and Safety Commission - NOHSC). The information in it must not be altered, deleted or added to. The Supplier will not accept any responsibility for any changes made to its MSDS by any other person or organization. The Supplier will issue a new MSDS when there is a change in product specifications and/or ASCC standards, codes, guidelines, or Regulations.

SECTION 2: HAZARD IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE: Classified as **Non-Hazardous** according to the criteria of the Australian Safety and Compensation Council ASCC (formerly NOHSC) Approved Criteria For Classifying Hazardous Substances [NOHSC:1008] 3rd Edition.

Plaster-Based Cements and Adhesives is classified as **Non-Dangerous** Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Cutting, breaking, drilling, sawing, grinding and finishing may generate dust (calcium sulphate) which is classified as **Hazardous.** The following Risk and Safety phrases apply to airborne dust of this product:

Risk Phrases	Safety Phrases
R36/37/38: Irritating to eyes, respiratory system and skin.	**S22:** Do not breathe dust.
R66: Repeated exposure may cause skin dryness or cracking.	**S24/25:** Avoid contact with skin and eyes.
	S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

CSR MSDS Reference: LWS-SDS-015

Date Issued: 1/07/2008

CSR

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Synonyms:	Proportion:	CAS Number:
Calcium sulphate hemihydrate	Gypsum	65-98%	-
Calcium carbonate	n/a	<31%	1317-65-3
Mica	n/a	<10%	12001-26-2
Perlite	n/a	<10%	-
Talc	n/a	<3%	14807-96-6
Ethylene vinyl acetate copolymer	n/a	<2%	-
Calcium hydroxide	n/a	<2%	-
Polyvinyl alcohol	PVA	<2%	9002-89-5
Starch	n/a	<2%	9005-25-8

Note: The crystalline silica (quartz) content (if any) is less than 0.1%.

SECTION 4: FIRST AID MEASURES

Swallowed:	Rinse mouth and lips with water. Do not induce vomiting.
Eyes:	Flush thoroughly with flowing water, while holding eyelids open, for 15 minutes to remove all traces.
Skin:	Wash off skin thoroughly with water. Use a mild soap if available.
Inhaled:	Remove to fresh air. If symptoms persist, seek medical attention.
Advice to Doctor:	Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flammability:	Non-flammable
Suitable extinguishing media:	Use carbon dioxide, foam, dry chemical or water spray to extinguish, as required for fire in surrounding materials.
Hazards from combustion products:	None
Special protective precautions and equipment for fire fighters:	None
HAZCHEM Code:	None

SECTION 6: ACCIDENTAL RELEASE MEASURES

Clean Up Procedure:	Dust and waste should be cleaned up by bagging, wet sweeping and/or vacuuming.

SECTION 7: HANDLING AND STORAGE

Handling:	Manual handling should be in accordance with Manual Handling Regulations and Codes.
Storage:	This product should be stored in its factory packaging in a dry area.
Incompatibilities:	Incompatible with aluminium, strong acids.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:	**National Occupational Exposure Standard (NES), Australian Safety & Compensation Council, ASCC (formerly NOHSC)** Calcium sulphate: TWA - 10 mg/m^3 as inspirable dust Total dust (of any type, or particle size): TWA - 10 mg/m^3
Notes on Exposure Standards:	All occupational exposures to atmospheric contaminants should be kept to as low a level as is workable (practicable) and in all cases to below the National Standard. TWA (Time Weighted Average): the time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.
Biological Limit Values:	No biological limit allocated.
ENGINEERING CONTROLS	
☐ **Ventilation:**	Keep exposures to dust as low as practicable. General room ventilation should be adequate, but local mechanical ventilation may be required if dust is generated, particularly in confined spaces. If engineering controls and work practices are not effective in controlling dust, then personal protective equipment may be required.
☐ **Special Consideration for Repair &/or Maintenance of Contaminated Equipment:**	Work areas should be cleaned regularly by damp sweeping or vacuuming. Recommendations on Exposure Control and Personal Protection should be followed.
PERSONAL PROTECTION	
☐ **Personal Hygiene**	Wash work clothes regularly. Wash hands before eating, drinking, using the toilet, or smoking.
☐ **Skin Protection:**	Wear loose comfortable clothing. Direct skin contact should be avoided by wearing long sleeved shirts and long trousers, a cap or hat, and gloves (standard duty leather or equivalent AS 2161).
☐ **Eye Protection:**	Ventilated non-fogging goggles (dust resistant AS/NZS 1336) should be worn when working in a dusty environment.
☐ **Respiratory Protection:**	None required if engineering and handling controls are adequate. Where engineering and handling controls are not enough to minimise exposure to total dust, personal respiratory protection may be required. The type of respiratory protection required depends primarily on the concentration of dust in the air, and the frequency and length of exposure time. Amount of exertion required during the work, and personal comfort are other considerations in choice of respirator. A suitable P1 or P2 particulate respirator chosen and used in accordance with AS/NZS 1715 and AS/NZS 1716 may be sufficient for many situations, but where high levels of dust are encountered, more efficient cartridge-type or powered respirators or supplied-air helmets or suits may be necessary. Use only respirators that bear the Australian Standards mark and are fitted and maintained correctly, and kept in clean storage when not in use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off white powder
Odour:	Slight plaster odour

pH, at stated concentration:	7.5 - 8.5
Vapour Pressure:	Not applicable
Vapour Density:	Not applicable
Boiling Point/Range (°C):	Not determined
Melting Point (°C):	1450°C (Calcium sulphate)
Solubility in water	Insoluble
Specific Gravity (H_2O = 1):	2.3 - 2.4
FLAMMABLE MATERIALS	
☐ **Flash Point:**	Not applicable
☐ **Flash Point Method:**	Not applicable
☐ **Flammable (Explosive) Limit - Upper:**	Not applicable
☐ **Flammable (Explosive) Limit - Lower:**	Not applicable
☐ **Autoignition Temperature:**	Not applicable
ADDITIONAL PROPERTIES	
☐ **Evaporation Rate:**	Not applicable
☐ **% Volatiles:**	0%
☐ **Volatile Organic Compounds Content (VOC):** (as specified by the Green Building Council of Australia)	0%

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable
Incompatible Materials:	Incompatible with aluminium, strong acids.
Conditions to avoid:	None
Hazardous Decomposition Products:	Releases oxides of sulphur when heated to decomposition.
Hazardous Reactions:	None

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicology data: Not available on this product, but anticipated to be very low with LD50 >5000 mg/kg.

Health Effects: Acute (short term)

Swallowed:	Unlikely under normal industrial use, but swallowing may result in nausea or abdominal discomfort.
Eyes:	Dust is irritating to the eyes causing watering and redness. Exposure to dust may aggravate pre-existing eye conditions.
Skin:	The dust from this product, particularly in association with heat and sweat, may cause mild irritation and drying to the skin due to its physical characteristics.
Inhaled:	Can cause irritation of the nose, throat and lungs resulting in excess mucus and coughing.

Health Effects: Chronic (long term)

Eyes:	Dust may cause irritation and inflammation of the eyes and aggravate pre-existing eye conditions.
Skin:	Repeated heavy contact with the dust may cause drying of the skin and can result in skin rash (dermatitis) typically affecting the hands. Over time this may become chronic and can also become infected.
Inhaled:	Repeated exposure to the dust may result in increased nasal and respiratory secretions and coughing. Inhaling dust may aggravate pre-existing respiratory conditions.

SECTION 12: ECOLOGICAL INFORMATION

Eco-toxicity:	The physical and chemical nature of the product, and toxicological data on ingredients, indicate that this product is a relatively low risk.
Persistence and Degradability:	Product is persistent and would have a low degradability.
Mobility:	A low mobility would be expected in a landfill situation.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste should be placed in containers and disposed of with other construction waste in accordance with local authority guidelines. Measures should be taken to prevent dust generation during disposal and exposure and personal precautions should be observed (see Section 8).

SECTION 14: TRANSPORT INFORMATION

Proper Shipping Name:	None allocated
UN number:	None allocated
DG Class:	None allocated
Subsidiary Risk 1:	None allocated
Packaging Group:	None allocated
HAZCHEM code:	None allocated
Marine Pollutant:	No
Special Precautions for User:	None

SECTION 15: REGULATORY INFORMATION

Poisons Schedule:	Not scheduled

SECTION 16: OTHER INFORMATION

For further information on this product, please contact:

CSR Building Products Limited (ABN 55 008 631 356), 9 Help Street, Chatswood NSW 2067, Australia.

Phone: +61 2 9372 5888 or 1800 807 668 (available in Australia only)

Fax: +61 2 9372 5877

ADDITIONAL INFORMATION

Australian Standards References:

AS/NZS 1336	Recommended Practices for Occupational Eye Protection
AS/NZS 1715	Selection, Use and Maintenance of Respiratory Protective Devices
AS/NZS 1716	Respiratory Protective Devices
AS 2161	Industrial Safety Gloves and Mittens (excluding electrical and medical gloves)

Other References:

NOHSC:2011(2003)	National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition, April 2003, National Occupational Health and Safety Commission.
NOHSC:10005(1999)	List Of Designated Hazardous Substances, April 1999, National Occupational Health and Safety Commission, Sydney.
NOHSC:2007(1994)	National Code of Practice for the Control of Workplace Hazardous Substances (Australian States have similar Codes of Practice in each State).
NOHSC: 2012(1994)	National Code of Practice for the Labelling of Workplace Substances, March 1994, Australian Government Publishing Service, Canberra.
NES	National Occupational Exposure Standards for Workplace Atmospheric Contaminants (NES) Australian Safety and Compensation Council, ASCC (formerly NOHSC) 1995 as amended.
ADG Code	Australian Dangerous Goods Code 6th Edition.

AUTHORISATION

Reason for Issue: New CSR format, general review

Authorised by: Tim Ohlback

Date of Issue: 1/07/2008

END OF MSDS

GYPROCK
Everything else is just plasterboard

CSR MATERIAL SAFETY DATA SHEET
CSR GYPROCK Plasterboard, Cornices and Panels

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name:	**CSR GYPROCK Plasterboard, Cornices and Panels**
Other Names:	GYPROCK Aquachek, GYPROCK Bracechek, GYPROCK Fyrchek, GYPROCK Fyrchek MR, GYPROCK Flexible Plasterboard, GYPROCK RE/SE, Plasterboard CD, GYPROCK Soundchek, GYPROCK Supaceil, GYPROCK Shaft Liner Panels, GYPROCK Cornice (Cove, Classic, Tempo, Symphony, Concerto, ShadowSet, Jazz), GYPROCK Impactchek, GYPROCK Flamechek MR, GYPROCK Freshtone (Ultramatt, Diamond White), GYPROCK Supatone, GYPROCK Perforated Plasterboard, GYPROCK Perforated Panel, GYPROCK EC08
Product Codes/Trade Names:	N/A
Recommended Use:	Interior linings for walls and ceilings
Applicable In:	Australia
Supplier:	CSR Building Products Limited ABN 55 008 631 356
Address:	Triniti 3, 39 Delhi Road, North Ryde, NSW 2113, Australia
Telephone:	+61 2 9235 8000 (or 1800 807 668 (available in Australia only))
Email Address:	http://www.csr.com.au/Pages/ContactUs.aspx
Web Site:	www.csr.com.au
Facsimile:	+61 2 9372 5819
Emergency Phone Number:	000 Fire Brigade and Police (available in Australia only)
Poisons Information Centre:	13 11 26 (available in Australia only)

This Material Safety Data Sheet (MSDS) is issued by the Supplier in accordance with National standards and guidelines from the Australian Safety and Compensation Council (ASCC, formerly National Occupational Health and Safety Commission - NOHSC). The information in it must not be altered, deleted or added to. The Supplier will not accept any responsibility for any changes made to its MSDS by any other person or organization. The Supplier will issue a new MSDS when there is a change in product specifications and/or ASCC standards, codes, guidelines, or Regulations.

SECTION 2: HAZARD IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE: Classified as **Non-Hazardous** according to the criteria of the Australian Safety and Compensation Council ASCC (formerly NOHSC) Approved Criteria For Classifying Hazardous Substances [NOHSC:1008] 3rd Edition.

CSR GYPROCK Plasterboard is classified as **Non-Dangerous** Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Cutting, breaking, drilling, sawing, grinding and finishing may generate dust (calcium sulphate) which is classified as **Hazardous**. The following Risk and Safety phrases apply to airborne dust of this product:

Risk Phrases	Safety Phrases
R36/37/38: Irritating to eyes, respiratory system and skin.	**S22:** Do not breathe dust.
R66: Repeated exposure may cause skin dryness or cracking.	**S24/25:** Avoid contact with skin and eyes.
	S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Synonyms:	Proportion:	CAS Number:
Calcium sulphate dehydrate	Gypsum	>95%	10101-41-4
Paper lining	N/A	4–9%	-
Clay	N/A	0–33%	-
Paraffin wax	N/A	0–6%	8002-74-2
Vermiculite	Mica	0–4%	12001-26-2
Starch	N/A	<1%	9005-25-8
Paper pulp	N/A	<1%	-
Continuous filament glass fibre	N/A	<0.2%	65997-17-3

Note: The crystalline silica (quartz) content of CSR GYPROCK Plasterboard, Cornices and Panels is less than 0.1%.

SECTION 4: FIRST AID MEASURES

The following applies to dust from these products:

Swallowed:	Rinse mouth and lips with water. Do not induce vomiting. If symptoms persist, seek medical attention.
Eyes:	Flush thoroughly with flowing water, while holding eyelids open, for 15 minutes to remove all traces. If symptoms such as irritation or redness persist, seek medical attention.
Skin:	Wash off skin thoroughly with water. Use a mild soap if available.
Inhaled:	Remove to fresh air, away from dusty area. If symptoms persist, seek medical attention.
Advice to Doctor:	Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flammability:	The gypsum plaster core is non-flammable. The paper lining will smoulder and burn in a fire.
Suitable extinguishing media:	Use carbon dioxide, foam, dry chemical or water spray to extinguish, as required for fire in surrounding materials.
Hazards from combustion products:	None
Special protective precautions and equipment for fire fighters:	As required for fire in surrounding materials.
HAZCHEM Code:	None

SECTION 6: ACCIDENTAL RELEASE MEASURES

Clean Up Procedure:	Dust and waste should be cleaned up by bagging, wet sweeping and/or vacuuming.

SECTION 7: HANDLING AND STORAGE

Handling:	Manual handling should be in accordance with Manual Handling Regulations and Codes.
Storage:	This product should be stored in its factory packaging in a dry area.
Incompatibilities:	None

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:	**National Occupational Exposure Standard (NES), Australian Safety & Compensation Council, ASCC (formerly NOHSC)** Calcium sulphate: TWA - 10 mg/m^3 Vermiculite (mica): TWA – 2.5 mg/m^3 Total dust (of any type, or particle size): TWA - 10 mg/m^3
Notes on Exposure Standards:	All occupational exposures to atmospheric contaminants should be kept to as low a level as is workable (practicable) and in all cases to below the National Standard. TWA (Time Weighted Average): the time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.
Biological Limit Values:	No biological limit allocated.
ENGINEERING CONTROLS	
☐ **Ventilation:**	Work practices should minimise the release of, and exposure to, dust. Work areas should be cleaned regularly by wet sweeping or vacuuming. Work in the open air and external openings (such as doors and windows in buildings) where it generally provides adequate ventilation. Local mechanical ventilation or extraction may be required in areas where dust exposures could become excessive. Local dust extraction and collection may be used, if necessary, to control airborne dust levels. If generated dust cannot be avoided, follow personal protection recommendations.
☐ **Special Consideration for Repair &/or Maintenance of Contaminated Equipment:**	Where possible vacuum or wash down all gear, equipment or mobile plant prior to maintenance and repair work. Recommendations on Exposure Control and Personal Protection should be followed.
PERSONAL PROTECTION	
☐ **Personal Hygiene**	Wash work clothes regularly. Wash hands before eating, drinking, using the toilet, or smoking.
☐ **Skin Protection:**	Wear loose comfortable clothing. Direct skin contact should be avoided by wearing long sleeved shirts and long trousers, a cap or hat, and gloves (standard duty leather or equivalent AS 2161).
☐ **Eye Protection:**	Ventilated non-fogging goggles (dust resistant AS/NZS 1336) should be worn when working in a dusty environment.
☐ **Respiratory Protection:**	If engineering controls and work practices are not effective in controlling dust,

	then personal protective equipment may be required. The type of respiratory protection required depends primarily on the concentration of dust in the air, and the frequency and length of exposure time. Amount of exertion required during the work, and personal comfort are other considerations in choice of respirator. A suitable P1 or P2 particulate respirator chosen and used in accordance with AS/NZS 1715 and AS/NZS 1716 may be sufficient for many situations, but where high levels of dust are encountered, more efficient cartridge-type or powered respirators may be necessary. Use only respirators that bear the Australian Standards mark and are fitted and maintained correctly, and kept in clean storage when not in use.
☐ **Thermal Protection:**	None should be needed under normal circumstances.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	A rigid sheet of plasterboard or cornice consisting of a gypsum core encased in a paper plasterboard liner
Odour:	Slight plaster odour
pH, at stated concentration:	7.5-8.5
Vapour Pressure:	Not applicable
Vapour Density:	Not applicable
Boiling Point/Range (°C):	Approximately 1200°C
Freezing/Melting Point (°C):	1450°C (Calcium sulphate hemihydrate)
Solubility in water:	Not soluble
Specific Gravity (H_2O = 1):	Approximately 2.3
FLAMMABLE MATERIALS	
☐ **Flash Point:**	Not applicable
☐ **Flash Point Method:**	Not applicable
☐ **Flammable (Explosive) Limit - Upper:**	Not applicable
☐ **Flammable (Explosive) Limit - Lower:**	Not applicable
☐ **Autoignition Temperature:**	Not applicable
ADDITIONAL PROPERTIES	
☐ **Evaporation Rate:**	Not applicable
☐ **% Volatiles:**	0%
☐ **Volatile Organic Compounds Content (VOC):** (as specified by the Green Building Council of Australia)	0%

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable

Incompatible Materials:	None
Conditions to avoid:	Dust generation
Hazardous Decomposition Products:	None
Hazardous Reactions:	None

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicology data: Not available on this product, but anticipated to be very low with LD50 >5000 mg/kg.

Health Effects: Acute (short term)

Swallowed:	Unlikely under normal industrial use, but swallowing may result in nausea or abdominal discomfort.
Eyes:	Dust is irritating to the eyes causing watering and redness. Exposure to dust may aggravate pre-existing eye conditions.
Skin:	The dust from this product, particularly in association with heat and sweat, may cause mild irritation and drying to the skin due to its physical characteristics.
Inhaled:	Can cause irritation of the nose, throat and lungs resulting in excess mucus and coughing.

Health Effects: Chronic (long term)

Eyes:	Dust may cause irritation and inflammation of the eyes and aggravate pre-existing eye conditions.
Skin:	Repeated heavy contact with the dust may cause drying of the skin and can result in skin rash (dermatitis) typically affecting the hands. Over time this may become chronic and can also become infected.
Inhaled:	Repeated exposure to the dust may result in increased nasal and respiratory secretions and coughing. Inhaling dust liberated from product may aggravate pre-existing respiratory conditions.

SECTION 12: ECOLOGICAL INFORMATION

Eco-toxicity:	The physical and chemical nature of the product, and toxicological data on ingredients, indicate that this product is a relatively low risk.
Persistence and Degradability:	Product is persistent and would have a low degradability.
Mobility:	A low mobility would be expected in a landfill situation.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste should be placed in containers and disposed of with other construction waste in accordance with local authority guidelines. Measures should be taken to prevent dust generation during disposal, and exposure and personal precautions should be observed (see Section 8).

SECTION 14: TRANSPORT INFORMATION

Proper Shipping Name:	None allocated

UN number:	None allocated
DG Class:	None allocated
Subsidiary Risk 1:	None allocated
Packaging Group:	None allocated
HAZCHEM code:	None allocated
Marine Pollutant:	No
Special Precautions for User:	None

SECTION 15: REGULATORY INFORMATION

Poisons Schedule:	Not scheduled

SECTION 16: OTHER INFORMATION

For further information on this product, please contact:

CSR Building Products Limited (ABN 55 008 631 356), Triniti 3, 39 Delhi Road, North Ryde, NSW 2113, Australia.

Phone: +61 2 9372 5888 or 1800 807 668 (available in Australia only)

Fax: +61 2 9372 5877

ADDITIONAL INFORMATION

Australian Standards References:

AS/NZS 1336	Recommended Practices for Occupational Eye Protection
AS/NZS 1715	Selection, Use and Maintenance of Respiratory Protective Devices
AS/NZS 1716	Respiratory Protective Devices
AS 2161	Industrial Safety Gloves and Mittens (excluding electrical and medical gloves)

Other References:

NOHSC:2011(2003)	National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition, April 2003, National Occupational Health and Safety Commission.
NOHSC:10005(1999)	List Of Designated Hazardous Substances, April 1999, National Occupational Health and Safety Commission, Sydney.
NOHSC:2007(1994)	National Code of Practice for the Control of Workplace Hazardous Substances (Australian States have similar Codes of Practice in each State).
NOHSC: 2012(1994)	National Code of Practice for the Labelling of Workplace Substances, March 1994, Australian Government Publishing Service, Canberra.
NES	National Occupational Exposure Standards for Workplace Atmospheric Contaminants (NES) Australian Safety and Compensation Council, ASCC (formerly NOHSC) 1995 as amended.
ADG Code	Australian Dangerous Goods Code 6th Edition.

AUTHORISATION

Reason for Issue: CSR new address.

Authorised by: Kylie Peterson

Date of Issue: 1/09/2010

END OF MSDS

arrow

CORPORATE FLOORING SYSTEMS PTY LTD

Letter of Compliance
Prepared by Craig Davenport
Phone: (02) 9979 9600
Fax: (02) 9979 9866
Email: craig@arrowcorp.com.au

Phone: 02 8117 5052
Email: nathanaele@fdcbuilding.com.au

Attention: Nathanael Edwards

RE: FLOORING INSTALLATION COMPLIANCE
PROJECT: WARRIEWOOD STAGE 2 – BASE BUILD
TRADE: CARPET AND VINYL

Please be advised the test reports for materials used and statement of compliance that the fire hazard properties of all new materials finishes and lining are in accordance with clause C1.10 of the BCA

Please be advised that the carpet and vinyl installed in the above project and nominated areas have been installed in accordance with the following Australian Standards. AS 2455.1: 2007 & AS 1884-2012

Yours faithfully,
ARROW CORPORATE FLOORING SYSTEMS

CRAIG DAVENPORT
PROJECT MANAGER

CERASIA
INTERNATIONAL

TILE SPECIALIST

September 8th, 2014.

To Whom It May Concern,

Letter of confirmation – Zanzibar Series

Slip Resistance Classification:

AS 4586:2013 – Appendix A (Wet Pendulum Test)

This is to confirm in writing that the slip resistance rating of our premier quality CerAsia Zanzibar Series in size 20x20cm, 30x30cm, 30x60cm and 60x60cm have all attained Class P3 slip resistance rating based on the AS 4586:2013 Appendix A (Wet Pendulum Test).

CerAsia Zanzibar Code	Slip Resistance Rating Based on Wet Pendulum Test
1) ZANCR-MT (Cream)	P3
2) ZANBK-MT (Black)	P3
3) ZANGY-MT (Grey)	P3
4) ZANMO-MT (Mocha)	P3
5) ZANWN-MT (Walnut)	P3
6) ZANWH-MT (White)	P3
7) ZANBR-MT (Brown)	P3
8) ZANLG-MT (Light Grey)	P3

Thank you and please do not hesitate to contact the undersigned should you require any further clarification.

Yours faithfully,

CERASIA INTERNATIONAL SDN BHD 615712-K

JUDE FERNANDEZ

CEO – CerAsia International Sdn. Bhd.

No. 2-2, Jalan Metro Pudu 1, Fraser Business Park, Off Jalan Yew, 55100 Kuala Lumpur, Malaysia.

CSIRO

Industrial Research Services

Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: http://www.cmse.csiro.au

Registered Testing Authority - CSIRO

6 February 2009 Our Ref. EN13 / 1153 03/0212

TEST REPORT No. 4708.2s

Requested by: Everstone Pty Ltd
on (date): 27 January 2009
Manufacturer: Everstone Pty Ltd
Product Desc.: Everstone Durastone Porcelain Tiles, Brushed 300x600mm
Sampling details:
Where: Delivered
Date: 30 January 2009
By whom: Courier
How (methods): N/A

This test report consists of 5 pages

SUMMARY OF SLIP RESISTANCE TESTS PERFORMED:

		Result	Class
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials Appendix A: WET Pendulum (Four S slider): Mean BPN:	47	W [LOW*]
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials Appendix C: WET/BAREFOOT Ramp Mean angle of inclination:	21°	B
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials, Appendix D: OIL-WET Ramp Mean overall acceptance angle:	23.7°	R 11 [MEDIUM*]

* = CSIRO classification

In order to interpret the classifications, please refer to Standards Australia Handbook 197, An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials, which recommends minimum classifications for a wide variety of locations.

It is important to realise that test results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface.

This test report is for reference only and product result may vary from one batch to another and from colour to colour. For strict application requirement, we recommend to have product retested for compliance.

CSIRO

Industrial Research Services

Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: http://www.cmse.csiro.au

REPORT NO: 4708.2s
ISSUE DATE: 6 February 2009
MANUFACTURER: Everstone Pty Ltd
PRODUCT DESC: Everstone Durastone Porcelain Tiles, Brushed 300x600mm

SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET PENDULUM TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix A)

Test Date: 5 February 2009

RESULTS: Location: Slip Resistance Laboratory
Sample: Unfixed
Cleaning: Acetone
Temperature: 23°C

Rubber slider used: Four S
Conditioned with grade P400 paper, dry

Pendulum Friction Tester: Munro-Stanley (S/N: 9234, calibrated 13/09/07)
Test conducted by: David Weeks

	Specimen 1	2	3	4	5
Last 3 swings	**46**	**47**	**47**	**47**	**47**
	46	**46**	**47**	**47**	**47**
	45	**46**	**47**	**47**	**47**
Averages	**46**	**46**	**47**	**47**	**47**

Mean BPN : 47

CLASS : W [LOW*]

* = CSIRO classification

**This test report is for reference only and product result may vary from one batch to another and from colour to colour. For strict application requirement, we recommend to have product retested for compliance.*

CSIRO

Industrial Research Services

Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: http://www.cmse.csiro.au

REPORT NO: 4708.2s
ISSUE DATE: 6 February 2009
MANUFACTURER: Everstone Pty Ltd
PRODUCT DESC: Everstone Durastone Porcelain Tiles, Brushed 300x600mm

SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET/BAREFOOT RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix C)

Test Date: 6 February 2009

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure:
[ ] Smooth
[X] Profiled
[ ] Structured

RESULTS

		Actual mean	Reported mean
Mean angle of inclination:	**Calibration Board A:**	**12.96 °**	**13 °**
	Calibration Board B:	**18.44 °**	**18 °**
	Calibration Board C:	**24.28 °**	**24 °**
Mean angle of inclination of Test Board:		**20.60 °**	**21 °**

CLASSIFICATION:

Quality Group: **B**

**This test report is for reference only and product result may vary from one batch to another and from colour to colour. For strict application requirement, we recommend to have product retested for compliance.*

CSIRO

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Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: http://www.cmse.csiro.au

REPORT NO: 4708.2s
ISSUE DATE: 6 February 2009
MANUFACTURER: Everstone Pty Ltd
PRODUCT DESC: Everstone Durastone Porcelain Tiles, Brushed 300x600mm

SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

OIL-WET RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix D)

Test Date: 6 February 2009

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure:
[ ] Smooth
[X] Profiled
[ ] Structured

RESULTS

Mean overall acceptance angle: **23.7 °**

Displacement space: **not tested**

CLASSIFICATION:

Slip Resistance Assessment Group: **R 11 [MEDIUM*]**

Displacement Space Assessment Group: **-**

* = CSIRO classification

**This test report is for reference only and product result may vary from one batch to another and from colour to colour. For strict application requirement, we recommend to have product retested for compliance.*

CSIRO

Industrial Research Services

Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: http://www.cmse.csiro.au

REPORT NO: 4708.2s
ISSUE DATE: 6 February 2009
MANUFACTURER: Everstone Pty Ltd
TILE DESC: Everstone Durastone Porcelain Tiles, Brushed 300x600mm

Date and Place 6 February 2009, Highett, Vic

Name, Title and Digital Signature:

DAVID WEEKS
Technical Officer
Tel: 61 3 92526064
Fax: 61 3 92526011
Email: David.Weeks@csiro.au

***CSIRO recommended classification of Slip Resistance as determined from:**
AS/NZS 4586: 2004 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).

Wet Pendulum Class	BPN 4S Rubber	CSIRO Class LOW	CSIRO Class MEDIUM	CSIRO Class HIGH
V	>54	54-57	58-61	>61
W	45-54	45-48	49-51	52-54
X	35-44	35-38	39-41	42-44
Y	25-34	25-28	29-31	32-34
Z	<25	<18	18-21	22-25
Oil Wet Ramp Class	**Angle (degrees)**	**CSIRO Class LOW**	**CSIRO Class MEDIUM**	**CSIRO Class HIGH**
R9	≥6 to <10	≥6 to 7.5	7.6 to 9	9.1 to 9.9
R10	≥10 to <19	≥10 to 12	12.1 to 15	15.1 to 18.9
R11	≥19 to <27	≥19 to 21	21.1 to 24	24.1 to 26.9
R12	≥27 to <35	≥27 to 29	29.1 to 32	32.1 to 34.9
R13	≥35	≥35 to 36	36.1 to 38	≥38.1
This table should not be read or relied upon without reference to the CSIRO/Standards Australia publication: AS/NZS 4586 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).				

CSIRO has categorized the AS4586 classifications into sub-groups Low, Medium & High. The slip resistance test classification is still determined according to AS 4586 Australian Standard (Appendices A & D). The added information of Low, Medium and High allows professionals to make a better judgement of pedestrian floor requirements.

This test report is for reference only and product result may vary from one batch to another and from colour to colour. For strict application requirement, we recommend to have product retested for compliance.

PR:W060209-14:53:52

CSIRO

Industrial Research Services

Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: http://www.cmse.csiro.au

REPORT NO: 4708.2s Addendum
ISSUE DATE: 6 February 2009
MANUFACTURER: Everstone Pty Ltd
PRODUCT DESC: Everstone Durastone Porcelain Tiles, Brushed 300x600mm

DETERMINATION OF Rz SURFACE ROUGHNESS

(Using a Taylor-Hobson Surtronic Duo roughness meter using a 0.8mm cut off length)

Test Date: 5 February 2009

RESULTS

Location: Slip Resistance Laboratory

	Rz values
1	23.2
2	25.8
3	23.6
4	15.0
5	22.2
6	28.6
7	20.0
8	22.0
9	19.3
10	24.8

Surface Roughness (Rz) mean = 22.5 microns

BS 7976:2002, Pendulum Testers, requires a different test foot preparation (lapping paper) for pedestrian surfaces that have a Rz roughness of less than 15 microns. This lapping paper tends to reduce the pendulum result, sometimes appreciably. CSIRO recommends the use of this procedure (CSIRO COF1) as an adjunct to AS/NZS 4586. It helps to discriminate among products that have marginal wet slip resistance and to identify those that may be dangerous if wet.

The measurement of the various aspects of surface roughness is complex given the number of potential roughness parameters. While there is still some uncertainty as to exactly what type of roughness needs to be measured, peak-to-trough roughness (Rz) gives a useful guide to the likely slip resistance in wet conditions. Research has suggested that hard floors need to have a slightly higher Rz roughness than polymeric floors for the same degree of safety in wet conditions, but whatever flooring material is used an Rz roughness value of at least 10 microns is required where wet slip resistance may be required. In circumstances where wetness is normal or expected, this figure should be increased by a factor of 2 or more.

Greater peak surface roughnesses are likely to be required where floors slope or where the floor is likely to become contaminated with high viscosity liquids.

This test report is for reference only and product result may vary from one batch to another and from colour to colour. For strict application requirement, we recommend to have product retested for compliance.

SafeEnvironments
MANAGING PROPERTY RISK

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Slip Check to AS 4586:20132013

3ZANMO 300x300 300x300

NATA Accreditation Number 17139

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Accredited for compliance with ISO/IEC 17025

NATA is a signatory to the APLAC mutual recognition arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports

Safe Environments Pty Ltd
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SlipCHECK
A division of Safe Environments Pty Ltd
www.SafeEnvironments.com.au

4/40 Bessemer Street
Blacktown NSW 2148
Phone 02 9621 3706
ABN 80 118 534 768

19 September 2014

Test Report No. R7347a

Slip Resistance Classification of New Pedestrian Surface Materials

AS 4586:2013 Appendix A (Wet Pendulum Test)

The slip resistance Classification has been determined for unused surfaces using specific conditions. Factors such as usage, cleaning systems, applied coatings and patterns of wear may affect the characteristics of the surface.

Requested by:	GNS Ceramics
Client Address:	3 Coxplace Glendenning NSW 2761
Product Manufacturer:	CerAsia
Product Description:	3ZANMO 300x300
Test conducted according to:	AS 4586:2013 Appendix A
Location:	Slip Check Pty Ltd Test Facilities, Blacktown NSW 2148
Conducted by:	Martin Daniel

Date:	18 September 2014	Temperature:	20°C
Sample:	Unfixed	Cleaning:	None
Rubber slider used:	Slider 96	Conditioned:	Grade P 400 paper dry followed by wet lapping film
Slope of specimen:	Tested on a flat level surface		
Direction of Test:	NA		

	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5
Mean BPN of last 3 swings:	37	36	35	35	36

Reported SRV of Sample:	**36**
Class:	**P3**

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Martin Daniel
Materials Scientist

CERASIA
INTERNATIONAL

TILE SPECIALIST

September 8th, 2014.

To Whom It May Concern,

Letter of confirmation – Zanzibar Series

Slip Resistance Classification:

AS 4586:2013 – Appendix D (Oil-Wet Inclining Platform Test)

This is to confirm in writing that the slip resistance rating of our premier quality CerAsia Zanzibar Series in size 20x20cm, 30x30cm, 30x60cm and 60x60cm have all attained R10 slip resistance rating based on the AS 4586:2013 Appendix D (Oil-wet Inclining Platform Test).

CerAsia Zanzibar Code	Slip Resistance Rating Based on Oil-Wet Inclining Platform Test
1) ZANCR-MT (Cream)	R10
2) ZANBK-MT (Black)	R10
3) ZANGY-MT (Grey)	R10
4) ZANMO-MT (Mocha)	R10
5) ZANWN-MT (Walnut)	R10
6) ZANWH-MT (White)	R10
7) ZANBR-MT (Brown)	R10
8) ZANLG-MT (Light Grey)	R10

Thank you and please do not hesitate to contact the undersigned should you require any further clarification.

Yours faithfully,

CERASIA INTERNATIONAL SDN. BHD. 615712-K

JUDE FERNANDEZ

CEO – CerAsia International Sdn. Bhd.

No. 2-2, Jalan Metro Pudu 1, Fraser Business Park, Off Jalan Yew, 55100 Kuala Lumpur, Malaysia.

Ceramic Research Company

A Member of the Berjaya Group

YOUR REF	: STB/PLANT/R&D/2009/008	OUR REF.	: 147&09
CLIENT	: SEACERA TILES BERHAD	DATE RECEIVED	: 18/8/2009
	Lot 16428, 14km, Jalan Ipoh,	DATE TESTED	: 19/8/2009
	Kawasan Perindustrian Selayang,	DATE REPORTED	: 20/8/2009
	68100 Batu Caves,		
	Selangor Darul Ehsan.		
	(Attn. : Encik Mohd. Faizal b. Md. Amin)		

SAMPLE ID : 30 x 30 cm FULLY VITRIFIED PORCELAIN TILES
CODE : ST3-10AM SMT (13/08/09)
BRAND : SEACERA

SUBJECT : Testing in accordance with
AS/NZS 4586 (2004) : Slip resistance classification of new pedestrian surface materials (Appendix D, Oil-Wet Ramp Test Method)

TEST RESULT:

Surface structure	Smooth
Mean overall acceptance angle $\alpha_{a,c}$ (°)	11.1°
Slip resistance assessment group	R10
Displacement space	Not tested

Assignment Of Corrected Mean Overall Acceptance Angles To Slip Resistance Assessment Groups

Corrected mean overall acceptance angle ($\alpha_{a,c}$)	Slip resistance assessment group
6° to 10°	R9
Over 10° to 19°	R10
Over 19° to 27°	R11
Over 27° to 35°	R12
Over 35°	R13

REPORTED BY

HARMIZA BT ZAINUDIN

APPROVED SIGNATORY

TAN CHIN CHU

Ceramic Research Company Sdn. Bhd. (xxxxx-x)
Lot 7110, 5½ Miles, Jalan Kapar, 42100 Kapar, Selangor Darul Ehsan, Malaysia.
Tel: 603-3281 1122, 3281 7125, 3281 7654 Fax: 3281 7655
Email: crc@crc.com.my

Service Penetrations/Fire Rating Schedule

2 Daydream St, Warriewood

#	Level	Location	Service	Method used
1	Basement	Electrical Risers	Electrical	Fire Pillows with Fire mastic
2	Basement	Fire stair 4	Sprinkler	Fire mastic
3	Basement	Fire stair 4	Hydrant	Fire mastic
4	Basement	Fire stair 2	Sprinkler	Fire mastic
5	Basement	Fire stair 2	Hydrant	Fire mastic
6	Ground floor	Stair 2	Sprinkler / Drencher	Fire mastic
7	Ground floor	Electrical Risers	Electrical	Fire Pillows with Fire mastic
8	Ground floor	Fire stair 2	Hydrant	Fire mastic
9	Ground floor	Fire stair 2	Sprinkler	Fire mastic
10	Ground floor	Warehouse slab	Sprinkler	Fire mastic
11	Ground floor	Warehouse block wall	Mechanical WC exhaust	Fire dampers
12	Ground floor	Bassike warehouse wall	Mechanical WC exhaust	Fire dampers
13	Level 1	Electrical Risers	Electrical	Fire Pillows with Fire mastic
14	Level 1	Stair 1 redundant riser	Redundant	Fire Pillows with Fire mastic
15	Level 1	Amenities risers	Hydraulic	Fire collars
16	Level 1	Slabs	FHR & Hydrant	Fire mastic
17	Level 2	Warehouse H/L	Sprinkler mains	Fire mastic
18	Level 2	Electrical Risers	Electrical	Fire Pillows with Fire mastic
19	All	Various	Refer attached	Multiple - refer attached

Schindler Lifts Australia Pty. Ltd.
New South Wales

FDC Construction & Fitout Pty Ltd
22 - 24 Junction Street Forest
Lodge NSW 2037

From David Natoli
Telephone 0402332067
E-mail david.natoli@au.schindler.com

Reference No. NA0790
Date 12-06-2015
Subject **Lift Code Compliance – Daydream St, 2 Warriewood**

Nathanael,

With respect to the elevators designed as passenger lifts at the above site, I confirm the lifts to be compliant with the following codes and regulations on final testing;

1) Complies with Australian Standards;
   i. AS1735.1- General Requirements
   ii. AS1735.11-1986 – Fire Rated landing Doors --/60/--
   iii. AS1735.12 – Facilities For Persons with Disabilities
   iv. AS1530.4-1997 – Landing Doors
   v. AS1428.1 – Access for persons with Disabilities

2) Complies with BCA clause
   i. E3.3 – Warning Against use of lifts in Fire
   ii. E3.6 – Facilities for Disabled Lifts
   iii. E3.7 – Fire Service Controls
   iv. C3.10 – Openings in Fire – Isolated Lift Shafts

Regards,
David Natoli

Project Manager

responsive people, smart products

Schindler Lifts Australia Pty. Ltd.
ABN 19 005 838 773
Building D
Sir Joseph Banks Corporate Park
36-38 Lord St,
Botany NSW 2019
Australia

Tel. +02 9931 9900
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www.au.schindler.com

P O Box 7153
Alexandria NSW 2015
Australia

AUSTRALIAN URETHANE & STYRENE

TECHNICAL DATA

Expanded Polystyrene

(EPS)

EPS

Expanded Polystyrene is designated by plastic resin identification code 6.

Australian Urethane & Styrene
25 Garling Road
Kings Park NSW 2148
Ph: (02) 9676 8444
Fax: (02) 9676 8555
headoffice@ausurethane.com
www.ausurethane.com

Australian Urethane & Styrene VIC
13/9 Ashley Street
West Footscray VIC 3012
Ph: (03) 9687 7500
Fax: (03) 9687 7399
headoffice@ausurethane.com
www.ausurethane.com

What is Expanded Polystyrene (EPS)

EPS is a closed cell lightweight cellular plastics material produced from polystyrene. The material has been modified by the addition of flame retardant additives.

Polystyrene literally translated is "polymerised styrene". That is, the single styrene molecules are chemically joined together to form a large molecule which is called the polymer. Styrene is produced from benzene and ethylene, and polymerisation is accomplished in the presence of catalysts, usually organic peroxides. The expandable form is produced as small beads containing a blowing agent.

The Manufacturing Process

Pre-Expansion

The small expandable beads are subjected to steam, which causes the thermoplastic polystyrene to soften. Increasing vapour pressure caused by the blowing agent causes the beads to expand to up to 40 times their original volume. It is this prefoam stage which determines the final density of the expanded polystyrene block.

Aging

After pre-expansion the prefoam is transferred via to fluidized drying bed to large silos for aging. This process is designed to allow for the replacement of expanding agent by air in the cells of the bead. Aging also allows for stabilization and cooling of the prefoam.

Moulding

Once conditioned by aging, the prefoam is blown into a mould where further steaming causes the expanded beads to fuse into a block.

Drying

To provide dimensionally stable dry blocks it is necessary to pass them through a temperature controlled oven. This process also ensures that any residual blowing agent has been removed.

Finishing

For most customers the manufacturing process is not complete until the EPS blocks have been cut into various shapes. This process is mainly carried out using a hot wire cutting machine that gives a fine finish to the product and enables very fine cutting tolerances to be achieved.

Australian Standard

Australian Standard 1366, Part 3 – 1992 Physical Properties of Rigid Cellular Polystyrene – sets out minimum properties for six classes (see table 1) and methods for determination and compliance. Flexibility in production allows EPS to be produced to this standard or to other requirements that specialized applications may demand.

Quality Control

To ensure compliance with customer requirements our Quality Assurance process monitors and tests various key properties.

Acoustic Properties

As EPS has a closed cell structure it offers only a limited absorption of airborne sound. Structure borne sound, transmitted though such structures as walls, may be effectively isolated by the use of floating floor systems. For this type of insulation EPS with the required dynamic stiffness can be obtained by compressing the sheets by 50 to 60 percent and then allowing them to recover to 80 or 90 percent of their original thickness.

Table 1

Physical Properties of EPS, according to AS 1366, Part 3 – 1992

Physical Property	Unit	Class						Test Method
		L	SL	S	M	H	VH	
Nominal Density (kg/m3)		11	13.5	16	19	24	28	N/a
Compressive stress at 10% deformation (min)	kPa	50	70	85	105	135	165	AS2498.3
Cross-breaking strength (min)	kPa	95	135	165	200	260	320	AS2498.4
Rate of water vapour transmission (max) measured parallel to rise at 23°C	$\mu g/m^2 s$	710	630	580	520	460	400	AS2498.5
Dimensional stability of length, width, thickness (max) at 70°C, dry condition 7 days	%	1.0	1.0	1.0	1.0	1.0	1.0	AS2498.6
Thermal resistance (min) at a mean temperature of 25°C (50mm sample)	M^2K/W	1	1.13	1.17	1.20	1.25	1.28	AS2464.5 or AS2464.6
Flame propagation characteristics:								
- median flame duration; max	S	2	2	2	2	2	2	AS2122.1
- eighth value; max	S	3	3	3	3	3	3	
- median volume retained;	%	15	18	22	30	40	50	
- eighth value; min.	%	12	15	19	27	37	47	

Thermal Properties

EPS gains its exceptional insulating properties from the stabilised air trapped within its cellular structure. Since it contains no CFCs or any other gas that may leak out, it will not harm the ozone layer or decrease its insulation properties.

As Australian Standard 1366 Part 3 is a minimum conformance standard the thermal resistances quoted will be achieved as a minimum in 97.5% of cases in a statistical sample, when tested at a mean sample temperature of 25°C.

For design purposes the average thermal resistance is a better guide than the minimum thermal resistance (refer table 3).

Moisture Resistance

Of all the materials used for insulation applications, EPS is one of the most resistant to the adverse effects of moisture content. At ten times its dry weight, EPS has been found to maintain 80% of its R value.

Floatation Properties

The density of EPS is low compared to water, with a normal density range of 11 to 32 kg/m3 compared to water at 100 kg/m3. The water buoyancy per cubic metre of EPS is determined by subtracting its kg/m3 density from 1000. The result is the weight in kilograms that a cubic metre of EPS can support when fully submerged in water.

Temperature Cycling

EPS is able to withstand the effects of temperature cycling thereby providing long term performance in low temperature applications.

Core specimens of EPS removed from freezer walls in place for twenty years have demonstrated no deterioration in the structural integrity or physical properties.

The K Value of EPS decreases at lower average mean temperatures, hence its popularity and success in sub-zero applications.

Toxicity

Extensive research programs have been conducted overseas [i] to determine if thermal decomposition products of EPS present a toxicity hazard. The test results have revealed that these decomposition products are less harmful than those of burning wood.

Gases released during combustion are predominantly carbon monoxide and, to a lesser extent, carbon dioxide. A CSIRO report [ii] comments that the toxicity of the gases associated with the burning of EPS is no greater than that associated with timber.

Combustibility

As with all other organic material, EPS insulation products must be considered combustible and to constitute a fire hazard if improperly used or installed.

EPS products should not be exposed to open flames or other ignition sources.

The material contains a flame retardant additive to inhibit accidental ignition from small fire sources. Table 2 shows test results for ES and other common building materials to provide a good guide as to how these products compare.

(i) H.Hoffmann & H Oettel "Comparative Toxicity of Thermal Decomposition Products

(ii) P.R.Nicholl & K.G. Martin "Toxicity Considerations of Combustion Products from Cellular Plastics."

Table 2

Comparative testing of some materials to AS 1530, Part 3 – Early Fire Hazard Test

Material	Ignitability Index (0-20)	Spread of Flame Index (0-10)	Heat Evolved Index (0-10)	Smoke developed index (0-10)
EPS	12	0	3	5
Australian Softboard	16	9	7	3
Oregon	13	6	5	3
Bluegum	11	0	3	2

Source: EBS Notes on the Science of Building NSB66

Table 3

Thermal Conductivity Design Values – W/mK

(a) Determine mean temperature of insulation in °C

The simplest way to determine the mean temperature is to add the insulation warm side temperature to the insulation cold side temperature and divide by two

(b) Select the Class of EPS from AS1366.3

(c) Look up the relevant K value in the table for the mean temperature

Class Temperature	L	SL	S	M	H	VH
0	.0389	.0370	.0360	.0349	.0337	0321
1	.0391	.0372	.0361	.0350	.0338	.0322
2	.0393	.0374	.0363	.0351	.0339	.0323
3	.0394	.0375	.0364	.0353	.0341	.0325
4	.0396	.0377	.0366	.0354	.0342	.0326
5	.0397	.0378	.0367	.0356	.0343	.0327
6	.0399	.0380	.0369	.0359	.0344	.0328
7	.0401	.0382	.0370	.0358	.0346	.0330
8	.0402	.0383	.0372	.0360	.0347	.0331
9	.0404	.0385	.0373	.0361	.0348	.0332
10	.0406	.0386	.0375	.0362	.0349	.0333
11	.0407	.0388	.0376	.0364	.0351	.0335
12	.0409	.0389	.0378	.0365	.0352	.0336
13	.0410	.0391	.0379	.0367	.0353	.0337
14	.0412	.0393	.0381	.0368	.0354	.0338
15	.0414	.0394	.0382	.0369	.0356	.0340
16	.0415	.0396	.0384	.0371	.0357	.0341
17	.0417	.0397	.0385	.0372	.0358	.0342
18	.0419	.0399	.0387	.0373	.0359	.0343
19	.0420	.0401	.0388	.0375	.0361	.0345
20	0422	.0402	.0390	.0376	.0362	.0346
21	.0423	.0404	.0391	.0378	.0363	.0347
22	.0425	.0405	.0393	.0379	.0364	.0348
23	.0427	.0407	.0394	.0380	.0366	.0350
24	.0428	.0408	.0396	.0382	.0367	.0351
25	.0430	.0410	.0397	.0383	.0368	.0352
26	.0432	.0412	.0399	.0384	.0369	.0353
27	.0433	.0413	.0400	.0386	.0371	.0355
28	.0435	.0415	.0402	.0387	.0372	.0356
29	.0437	.0416	.0403	.0388	.0373	.0357
30	.0438	.0418	.0405	.0390	.0374	.0358
31	.0440	.0419	.0406	.0391	.0376	.0360
32	.0441	.0421	.0408	.0393	.0377	.0361
33	.0443	.0423	.0409	.0394	.0378	.0362
34	.0445	.0424	.0411	.0395	.0379	.0363
35	.0446	.0426	.0412	.0397	.0381	.0365
36	.0448	.0427	.0414	.0398	.0382	.0366
37	.0450	.0429	.0415	.0399	.0383	.0367
38	.0451	.0431	.0416	.0401	.0384	.0368
39	.0453	.0432	.0418	.0402	.0386	.0370
40	.0454	.0434	.0420	.0404	.0387	.0371
41	.0456	.0435	.0421	.0405	.0388	.0372
42	.0458	.0437	.0423	.0406	.0389	.0373
43	.0459	.0438	.0424	.0408	.0391	.0375
44	.0461	.0440	.0426	.0409	.0392	.0376
45	.0463	.0442	.0427	.0410	.0393	.0377
46	.0464	.0443	.0429	.0412	.0394	.0378
47	.0466	.0445	.0430	.0413	.0396	.0380
48	.0467	.0446	.0432	.0415	.0397	.0381
49	.0469	.0448	.0433	.0416	.0398	.0382
50	.0471	.0450	.0435	.0417	.0399	.0383
51	.0472	.0451	.0436	.0419	.0401	.0385
52	.0474	.0453	.0438	.0420	.0402	.0386
53	.0476	.0454	.0439	.0421	.0403	.0387
54	.0477	.0456	.0441	.0423	.0404	.0388
55	.0479	.0457	.0442	.0424	.0406	.0390
56	.0481	.0459	.0444	.0425	.0407	.0391
57	.0482	.0461	.0445	.0427	.0408	.0392
58	.0484	.0462	.0447	.0428	.0409	.0393
58	.0485	.0464	.0448	.0430	.0411	.0395
60	.0487	.0465	.0450	.0431	.0412	.0396

Technical Specifications

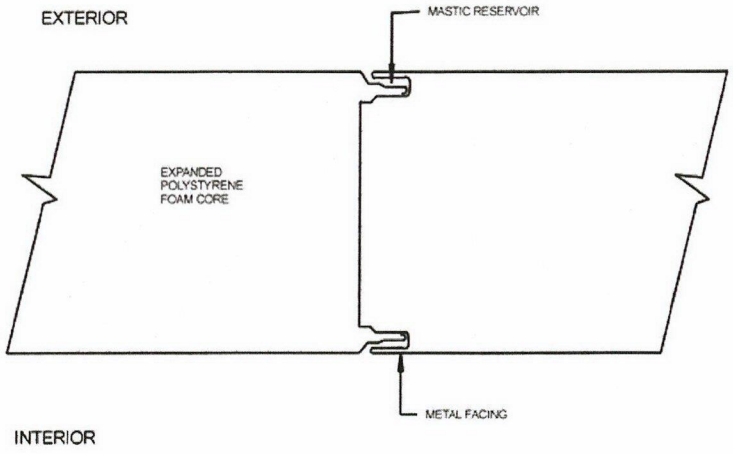
Product Description

Thermlock panel is a lightweight, structural, continuously manufactured insulated sandwich panel with a range of thicknesses of internal & external skins of colorbond steel laminated to a core of expanded polystyrene (EPS) insulation in a variety of densities.

Thermlock panel is available in a range of thickness, length, with a standard width of 1200 mm with either flat or ribbed surface finish & a variety of colors.

Thermal insulated panel doors are manufactured in a wide range of types, slide, hinged, up lift, bi part any type is achievable. All doors are manufactured using many of Thermal's exclusively designed extrusions, tracks rollers, guides, locks, handles, gaskets etc to a extremely high quality finish all heavy duty construction.

Panel Joint detail:



Recommended Maximum Spans for Ceiling Panels

The recommended maximum span table below is for Thermlock sandwich panel ceiling with 0.6mm thick steel skins bonded to an expanded polystyrene foam core.

The span table is for a panel ceiling which is subjected to a live load only, which is not in excess of the 'Roof Live Loads' for non trafficable roofs as set out in clause 3.8.1.1 of AS 1170 part 1, which makes an allowance for a minor live loading occurring in maintenance and repair operations.

Ceiling subjected to wind loads, or other dead or live loads are not covered by this table.

Ceiling support or suspension systems must be adequate for the applied loads.

THICKNESS	MAXIMUM SPAN
50mm	3500
75mm	4800
100mm	6000
125mm	6700
150mm	7600
175mm	8500
200mm	9200
250mm	10400

Ceiling panels in low temperature cold room applications could be subjected to internal pressure conditions which would require a reduction in these maximum recommended spans.

Table 1
Physical Properties of EPS, according to AS 1366, Part 3 – 1992

Physical Property	Unit	Class						Test
		L	SL	S	M	H	VH	Method
Nominal Density (kg/m3)		11	13.5	16	19	24	28	N/a
Compressive stress at 10% deformation (min)	kPa	50	70	85	105	135	165	AS2498.3
Cross-breaking strength (min)	kPa	95	135	165	200	260	320	AS2498.4
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m2s	710	630	580	520	460	400	AS2498.5
Dimensional stability of length, width, thickness (max) at 70°C, dry condition 7 days	%	1.0	1.0	1.0	1.0	1.0	1.0	AS2498.6
Thermal resistance (min) at a mean temperature of 25°C	M2K/W1		1.13	1.17	1.20	1.25	1.28	AS2464.5 or

CERTIFICATE OF COMPLIANCE – INSTALLED SYSTEM

HEIGHT ACCESS SPECIALISTS

Partners in Safety

Certificate No : 02-02-16084

CLIENT	FDC Constructions			Peninsula Business Park
ADDRESS	22-24 Junction Street			2 Daydream Street, Warriewood
Forest Lodge		POSTCODE	NSW, 2037	
PHONE	02 9566 2800	FAX	02 9566 2900	**INTERIM CERTIFICATION**

ASSET TYPE	BAR CODE	COMISSION DATE	NEXT SERVICE	RATING	*COMPLYING STANDARDS	MANUFACTURED & INSTALLED BY	COMMENTS
Aluminium Walkway	WW	28.05.2015	28.05.2016	150kg	AS1657-2013	RIS/RIS	40m Walkway Installed, visually inspected **pass**
Single Anchorage Points	SA141) (SMAP6)	28.05.2015	28.05.2016	15kN	AS1891.4.2009 / AS5532.2013	RIS/RIS	25 Anchor Points Installed, visually inspected **pass**

*Design and location of the Height Safety System is in accordance with AS/NZS 1891-4 / AS5532.2013 / AS1657-2013 and local Regulatory Authorities

AUTHORISED BY: Dean Harrison DATE: 28.05.2015 SIGNATURE:

Roofsafe-T-Systems
ABN 46 008 445 458

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	Melbourne	Canberra	Brisbane	Mackay	Adelaide	Perth	Hobart	Darwin
Ph:	(03) 9330 4911	(02) 6280 7200	(07) 3216 6413	(07) 4998 5533	(08) 8268 3766	(08) 9418 2600	(03) 6228 2155	0407 533 918
Fx:	(03) 9330 4977	(02) 6239 1066	(07) 3216 7745	(07) 4998 5544	(08) 8243 0638	(08) 9418 2622	(03) 6228 2177	
Em:	melbourne@RISsafety.com	canberra@RISsafety.com	brisbane@RISsafety.com	mackay@RISsafety.com	adelaide@RISsafety.com	perth@RISsafety.com	hobart@RISsafety.com	Darwin@rissafety.com

Glidevale

ROOFING PTY LTD

Contract Authority A. 3346 Lic. No. L8238 ABN 78 003 415 405

INSTALLATION CERTIFICATE-ROOF CONSTRUCTION AND PENETRATION

Warriewood Stage 2 - Lot 17, 2 Day Dream Street, Warriewood 2102

Certificate No: 2180-b

Date of Determination: 04 June 2015

I hereby certify that:

b) The works have been inspected during construction and have been completed in accordance with the architectural drawings, specifications and the nominated Standards of Performance.

Measure and/or System	Standards of Performance
Roof construction and covering	BCA 2014 Clauses B1.4 and F1.5 AS 1562.1 (Metal Roofing)
Installing Roof Penetrations	In accordance with J3 of the BCA

c) I am properly qualified person and have a good working knowledge of the relevant codes and standards referenced above. (my qualifications and accreditations are listed below)

Relevant qualifications and accreditations:

- Licensed roof plumber: 196184 C
- Qualified supervisor: 49573 S

d) The information contained in this statement is true and accurate to the best of my knowledge.

Name of Certifier: **Michael Teskantas**

Company: **Glidevale Roofing P/L**

Address: **P.O. Box 6730, Silverwater, 1811**

Phone No. **02 9748 4422** *Fax No.* **02 9748 3756**

Signature

04/06/2015

Date

Glidevale

ROOFING PTY LTD

Contract Authority A. 3346 Lic. No. L8238 ABN 78 003 415 405

INSTALLATION CERTIFICATE - INSULATION

Warriewood Stage 2 - Lot 17, 2 Day Dream Street, Warriewood 2102

Certificate No: 2180-c

Date of Determination: 04 June 2015

I hereby certify that:

e) The works have been inspected during construction and have been completed in accordance with the architectural drawings, specifications and the nominated Standards of Performance.

Achieved	Standard of Performance
Roof Insulation: Warehouse – Rating: R 1.5 (75mm insulation blanket with foil) Office – Rating: R 2.5 (110mm insulation blanket with foil + Glidevale Roof Spacer System)	That the roof insulation and sarking complies with 1. BCA 2014 Clause F1.5 and F1.6. 2. Australian Standards AS 2627, AS 3999 and AS 4859. 3. Part J1 of the BCA.

f) I am properly qualified person and have a good working knowledge of the relevant codes and standards referenced above. (my qualifications and accreditations are listed below)

Relevant qualifications and accreditations:

- Licensed roof plumber: 196184 C
- Qualified supervisor: 49573 S

g) The information contained in this statement is true and accurate to the best of my knowledge.

Name of Certifier: **Michael Teskantas**

Company: **Glidevale Roofing P/L**

Address: **P.O. Box 6730, Silverwater, 1811**

Phone No. **02 9748 4422** *Fax No.* **02 9748 3756**

Signature

04/06/2015
Date

Glidevale

ROOFING PTY LTD

Contract Authority A. 3346 Lic. No. L8238 ABN 78 003 415 405

PROJECT: Warriewood Stage 2

Roof Sheeting Profile:

Lysaght 0.48mm BMT Jasper Kliplok 700 roof sheeting
Colorbond in Jasper

Wall Cladding Profile:

Lysaght 0.42mm BMT Custom Orb wall cladding
Colorbond in Shale Grey

17 Wetherill St, Silverwater NSW 2128 Phone: (02) 9748 4422 – Fax: (02) 9748 3756
Correspondence to: PO Box 6730 Silverwater 2128
METAL ROOFING CONTRACTORS

Fire Compliance
& Maintenance

PO Box 4679,
Sylvania Waters, 2224

admin@firecompliance.com.au
Phone 1300 576 055
ABN 41 143 535 184

FPA AUSTRALIA
Corporate Member

FORM 15 – FIRE HOSE REELS

A Form 15 – flow test shall be undertaken in the presence of the Superintendent.

Flow tests shall be with two most hydraulically disadvantaged hose reels operating in accordance with AS2441-2005.

On completion of the flow test, supply the Superintendent with the Form 15 and a certificate with the following items:

System flow tested to Fire Hose Reel AS 2441-2005

Flow Rate	Pressure	Date	Time	Test location & RL	Witness Name and Signature
Static	450 kPa				
.33 litres/sec 1 hose reel flowing	kPa				
.66 litres/sec 2 hose reels flowing	400kPa				
.66 litres/sec 2 hose reels flowing Maximum flow	400 kPa	2/6/2015	7.40am	Most Disadvantaged	Wayne Griffiths

Test undertaken at: 2 Daydream Street Warriewood

By: Fire Compliance & Maintenance Pty Ltd Lic no 231970C

Signed:

Wayne Griffiths

Date: 2nd June 2015

Fire Compliance
& Maintenance

PO Box 4679,
Sylvania Waters, 2224

admin@firecompliance.com.au
Phone 1300 576 055
ABN 41 143 535 184

FPA AUSTRALIA
Corporate Member

FORM 15 – FIRE HYDRANTS

A Form 15 – A flow test has been undertaken in the presence of the Superintendent.

A flow test has been carried at the most hydraulically disadvantaged Hydrant operating in accordance with section 10 [inc 10.7] of AS2419.1 and Performance Standard AS 2419.1 – 2005, BCA E1.3.

On completion of the flow test, supply the Superintendent with the Form 15 and a certificate with the following items:

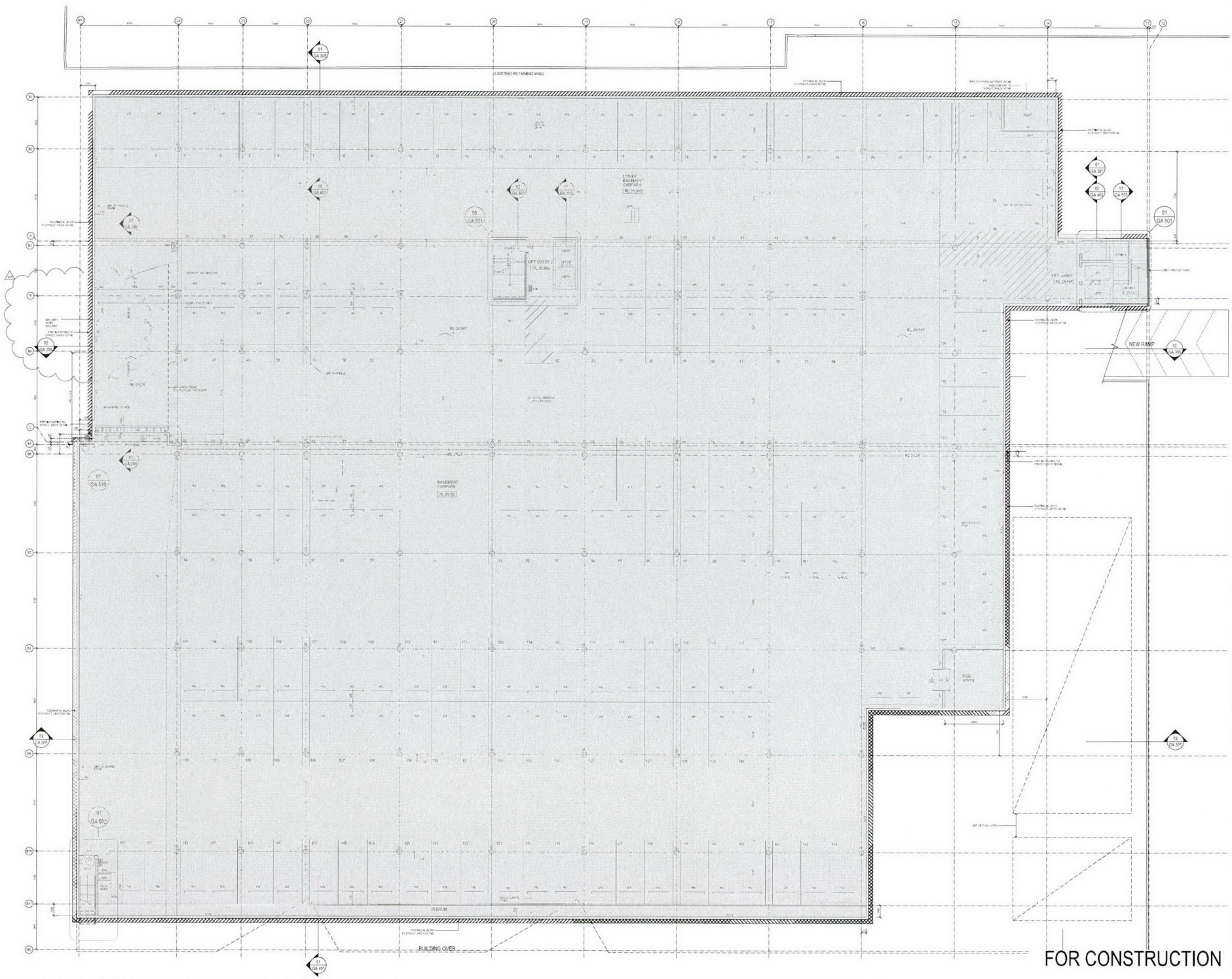
Flow Rate	Pressure	Date	Time	Test location & RL	Witness name & Signature
Static	525kPa				
5 litres/sec 1 hydrant flowing					
10 litres/sec 1hydrant flowing					
20 litres/sec 1 hydrant flowing	260kPa	15/04/15	7.30am	Most disadvantaged	**Wayne Griffiths**
Maximum flow .....litres/sec					

Test undertaken at:2 Daydream Street Warriewood

By: Fire Compliance & Maintenance Pty LtdLic no 231970C

Signed:

WAYNE GRIFFITHS



KEY

FOOTING RL 26.435

FOOTING RL 26.500

BASEMENT CARPARKING
177 CAR SPACES

ISSUE	REV.	DESCRIPTION	DATE
M		ISSUED FOR CONSTRUCTION CERTIFICATE	19.05.15
	1	Statement on spaces restricted amended	
	2	Sensibly swept shown with symbols	
L		ISSUED FOR CONSTRUCTION	04.11.14
	1	Detail reference added	
	2	Pictures to 05 of Unit 4 shown	
K		ISSUED FOR CONSTRUCTION	13.10.14
	1	Mech. flue amended	
	2	MSB Room Added	
	3	FW Tanks Ad	
J		ISSUED FOR CONSTRUCTION	23.09.14
	1	Fire Hydrant added	
	2	Pumproom note amended	
	3	FW Locations Indicated	
	4	Stairwell under note removed	
H		ISSUED FOR CONSTRUCTION	17.09.14
	1	RWT amended	
	2	Transition added	
	3	Ceiling amended	
	4	Fire Hydrant, Hydrant, FCTC removed to Stairwell	
	5	Wall amended	
	6	Access Manholes shown, SVC moved	
G		ISSUED FOR CONSTRUCTION	11.09.14
	-	Access Manholes shown	
F		ISSUED FOR CONSTRUCTION	03.09.14
	1	Footing RL's amended	
	2	Revised Concrete Pump Compan added	
	4	DWC relocated	
	3	Footing Notes Indicated	
	2	Core + Stair redlined	
		Dimensions added	
E		ISSUED FOR CONSTRUCTION	21.08.14
	3	Core + Stair redlined	
	1	Water Tank + Carparking amended	
		Core + Stair redlined	
D		ISSUED FOR CONSTRUCTION	08.08.14
C		ISSUED FOR COORDINATION	31.07.14
B		ISSUED FOR COORDINATION	24.07.14
A		ISSUED FOR COORDINATION	17.07.14
P4		PRELIMINARY	11.07.14
P3		PRELIMINARY	10.07.14
P2		PRELIMINARY	03.06.14
P1		PRELIMINARY	15.05.14

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E info@sbaarch.com.au W www.sbaarch.com.au

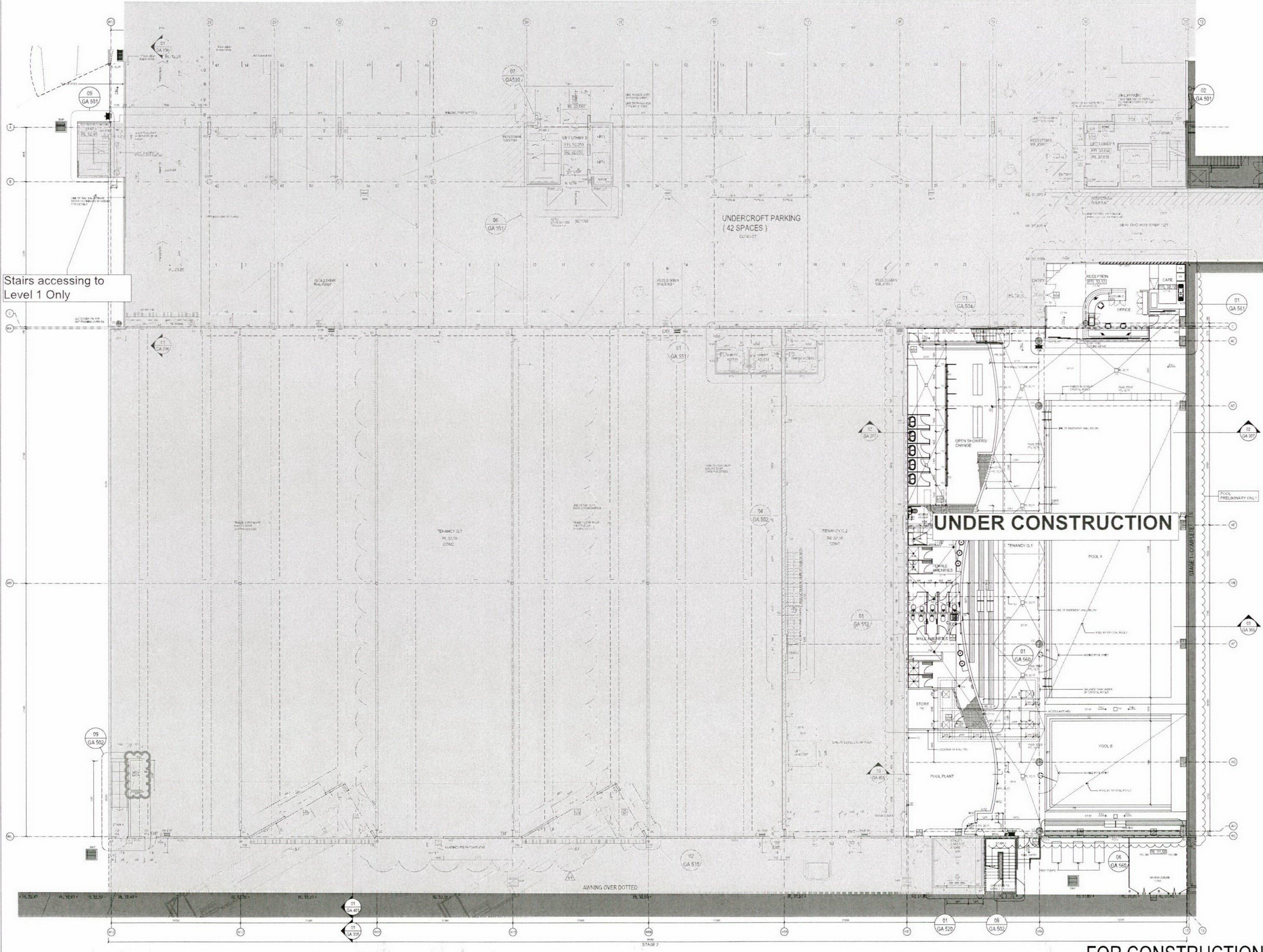
CLIENT
FDC CONSTRUCTION & FITOUT PTY LTD

PROJECT
PENINSULA BUSINESS ESTATE
DAYDREAM STREET WARRIEWOOD

TITLE
BASEMENT PLAN

DATE	JUNE 2014	PROJECT No.	14174
SCALE	1:100 @ A0		
DRAWN	TBA		
CHECKED		DRG No.	GA - 210 / M
APPROVED			

FOR CONSTRUCTION



FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING, ALL DIMENSIONS TO BE CHECKED ON SITE

THIS DOCUMENT NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED & ISSUED FOR CONSTRUCTION

KEY

STAGE 1 - COMPLETED

NOTE:
ALL FINISHED WALL SURFACES TO INTERNAL LIFT LOBBY AREAS ARE TO BE PLASTERBOARD WITH PAINTED FINISH UNLESS NOTED OTHERWISE

ISSUE	REV.	DESCRIPTION	DATE
G		ISSUE FOR CONSTRUCTION	29.05.14
	4	Grid C relocated	
	3	Columns amended	
	2	Core + Stair revised	
	1	Dimension added	

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CLIENT
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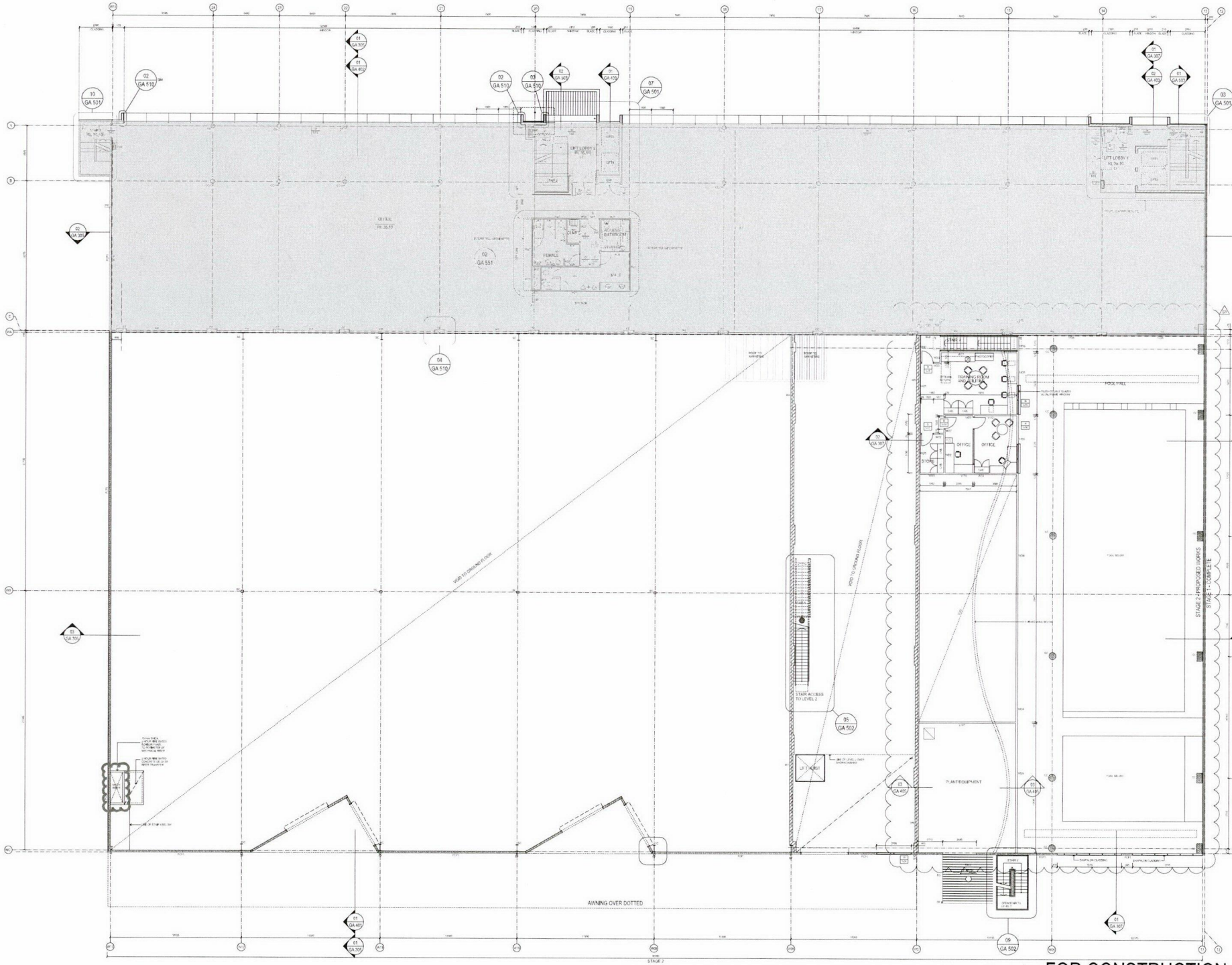
PROJECT
PENINSULA BUSINESS ESTATE
DAYDREAM STREET WARRIEWOOD

TITLE
GROUND FLOOR PLAN

DATE	JUNE 2014	PROJECT No.	14174
SCALE	1:100 @ A0		
DRAWN	SBA		
CHECKED		DWG No.	GA - 211
APPROVED		ISSUE	Y

FOR CONSTRUCTION



FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING. ALL DIMENSIONS TO BE CHECKED ON SITE

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NOTE:
ALL FINISHED INTERNAL WALL SURFACES TO OFFICE AND LIFT LOBBY AREAS ARE TO BE PLASTERBOARD WITH PAINTED FINISH UNLESS NOTED OTHERWISE

ISSUE	REV.	DESCRIPTION	DATE
P1		PRELIMINARY	21.04.14
P2		PRELIMINARY	17.06.14
A	1	ISSUED FOR COORDINATION Core + Stair Revised	11.07.14
B	1	ISSUED FOR COORDINATION Core + Stair + Office Toilet Revised	22.08.14
C	1	ISSUED FOR COORDINATION Core + Stair Revised	11.09.14
D	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	17.09.14
E	1	ISSUED FOR COORDINATION Pool Plant Revised	17.09.14
F	1	ISSUED FOR COORDINATION Dilkera Ballpoint under Stair 5	23.09.14
G	1	ISSUED FOR COORDINATION Pool Plant Revised	15.10.14
H	1	ISSUED FOR COORDINATION Pool Plant Revised	17.10.14
J	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	17.10.14
K	1	ISSUED FOR COORDINATION Dilkera amended	31.10.14
L	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	06.11.14
M	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	11.11.14
N	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	13.11.14
P	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	18.11.14
Q	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	11.02.15
R	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	14.02.15
S	1	ISSUED FOR COORDINATION Wall amended, Demolition and Upstairs amended	15.02.15

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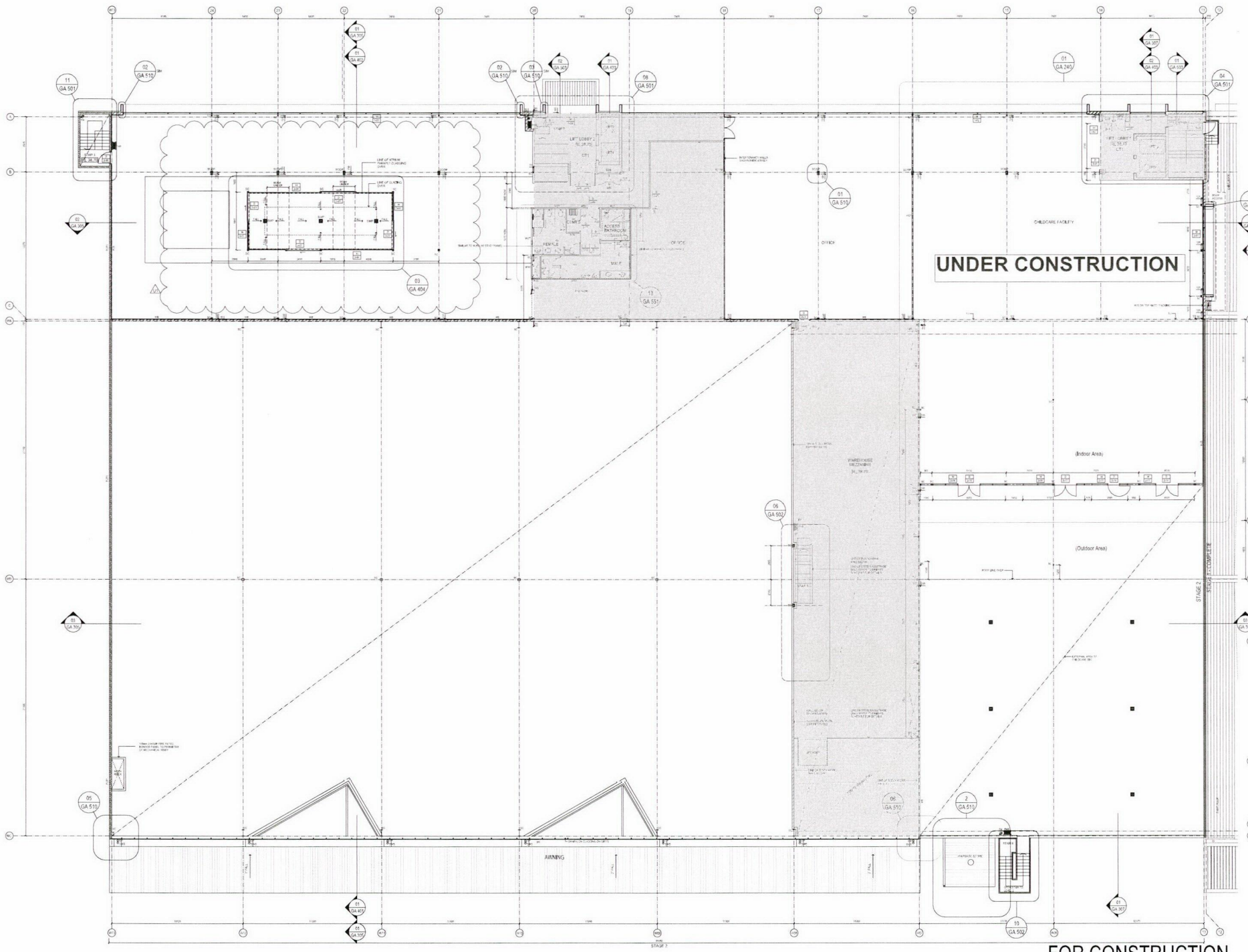
CLIENT
FDC
FDC CONSTRUCTION & FITOUT PTY LTD

PROJECT
PENINSULA BUSINESS ESTATE
DAYDREAM STREET WARRIEWOOD

TITLE
LEVEL 1 FLOOR PLAN

DATE	JUNE 2014
SCALE	1:100 @ A0
DRAWN	MA
CHECKED	
APPROVED	
PROJECT No.	14174
DRG No.	GA-212
ISSUE	/ S

FOR CONSTRUCTION



FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING. ALL DIMENSIONS TO BE CHECKED ON SITE

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NOTE:
ALL FINISHED INTERNAL WALL SURFACES TO OFFICE AND LIFT LOBBY AREAS ARE TO BE PLASTERBOARD WITH PAINTED FINISH UNLESS NOTED OTHERWISE

ISSUE	REV.	DESCRIPTION	DATE
U		REVISED ISSUE FOR CONSTRUCTION CERTIFICATE	23.02.15
T		ISSUED FOR CONSTRUCTION CERTIFICATE	17.02.15
S		RE-ISSUED FOR CONSTRUCTION	13.02.15
R		RE-ISSUED FOR CONSTRUCTION	11.02.15
Q		RE-ISSUED FOR CONSTRUCTION	19.12.14
P		RE-ISSUED FOR CONSTRUCTION	01.12.14
N		RE-ISSUED FOR CONSTRUCTION	24.11.14
M		RE-ISSUED FOR CONSTRUCTION	19.11.14
L		RE-ISSUED FOR CONSTRUCTION	06.11.14
K		ISSUED FOR CONSTRUCTION	12.10.14
J		ISSUED FOR COORDINATION	10.09.14
H		ISSUED FOR COORDINATION	02.09.14
G		ISSUED FOR COORDINATION	01.09.14
F		ISSUED FOR COORDINATION	13.08.14
E		ISSUED FOR COORDINATION	11.08.14
D		ISSUED FOR COORDINATION	31.07.14
C		ISSUED FOR COORDINATION	14.07.14
B		ISSUED FOR COORDINATION	11.07.14
P2		PRELIMINARY	25.06.14
P1		PRELIMINARY	17.06.14

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CLIENT
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PROJECT
PENINSULA BUSINESS ESTATE
DAYDREAM STREET WARRIEWOOD

TITLE
LEVEL 2 FLOOR PLAN

DATE	JUNE 2014
SCALE	1:100 @ A0
DRAWN	SBA
CHECKED	
APPROVED	
PROJECT No.	14174
DWG No.	GA-213
ISSUE	/ U

FOR CONSTRUCTION

NSW GOVERNMENT | Fire & Rescue NSW

File Ref. No: FRN14/2931 (7951)
TRIM Doc. No: D15/43405
Contact: Station Officer Rory Fegan

11 June 2015

Mr Tony Heaslip
Blackett Maguire + Goldsmith
PO Box 167
Broadway NSW 2007

Email: tony@bmplusg.com.au

Dear Mr Heaslip

Final Fire Safety Report – Interim Occupancy
Clause 152 Environmental Planning and Assessment Regulation 2000
Peninsula Business Estate – Stage 2 – Basement, Ground Floor and Partial Level 1
2 Daydream Street Warriewood 2102

An inspection of the above project was undertaken on 10 June 2015. The inspection was conducted for the purpose of ascertaining the suitability of certain fire safety measures and in order for Fire and Rescue NSW (FRNSW) to furnish a Final Fire Safety Report pursuant to Clause 152 of the Environmental Planning and Assessment Regulation 2000 (EP&A Reg).

The request for a Final Fire Safety Report was made following an application for **Interim** occupancy being received by Blackett Maguire + Goldsmith. As advised by the Principal Certifying Authority (PCA) the Category 2 Performance Requirements that the alternative solutions are intended to meet are EP1.4 and EP2.2 of the Building Code of Australia (BCA). On the day of the inspection the following Category 2 fire safety provisions were assessed: EP1.3, EP1.4 and EP2.2.

Based on the inspection of the building, it is considered that adequate provisions have not been made for the prevention and extinguishment of fires, and the protection and saving of life and property in the case of fire in relation to Performance Requirements that the alternative solutions are intended to meet being EP1.3, EP1.4 and EP2.2 of the BCA.

In relation to the requirements of Clause 152 (6) (a), (b) and (c) of the EP&A Reg, FRNSW advises the following:

a) In relation to the Category 2 Fire Safety Provisions that were subject to the Alternative Solutions – FRNSW are unable to determine that they meet the relevant Performance Requirements as FRNSW have not provided an Initial Fire Safety Report pursuant to Clause 144 of the EP&A Reg 2000 – Not satisfied.

b) That the fire hydrants in the fire hydrant system will be accessible for use by FRNSW – Not satisfied.

c) That the couplings in the fire hydrant system will be compatible with those of the fire appliances and equipment used by FRNSW – Not Satisfied.

Certification

- A copy of the Final Fire Safety Certificate was provided to FRNSW as required by Clause 172 (1) (a) of the EP&A Reg;
- A copy of the Proposed Fire Safety Schedule was provided to FRNSW as required by Clause 172 (1) (a) of the EP&A Reg; and
- Certification from the Fire Engineer of record stating that final design and construction is consistent with the Fire Engineering Report submitted to FRNSW was provided.

FRNSW Observations

On the day of the inspection the following items were identified as either not having been completed, unsuitable or adequately addressed:

Hydrant System

1. FRNSW recommends that the hydrant block plan provided be: water and fade resistant; and be permanently fixed at the hydrant booster assembly in accordance with the requirements of Clause 7.11 and Figure 7.11 of Australian Standard (AS) 2419.1 – 2005;

2. FRNSW recommends that the boost pressure required to achieve the relevant pressures and flows for the fire hydrant system be of a fade-resistant notice of pressure that is permanently affixed to the fire hydrant booster assembly in accordance with the requirements of Clause 7.10.1 of AS2419-1 2005;

3. FRNSW make the recommendation that all fire hydrant cabinets be marked with the words "FIRE HYDRANT" in letters of a contrasting colour to that of the background. The letters shall be a height of 50mm. In doing so compliance with Clause 3.6.2 of AS2419-1 2005 will be achieved;

4. Certification is required that the aluminium alloy delivery couplings incorporated into the fire hydrant booster inlets are forged Storz aluminium alloy couplings compatible with FRNSW fire fighting equipment, manufactured and installed in accordance with Clauses 7.1 and 8.5.11.1 of AS 2419.1—2005;

Sprinkler system

5. The sprinkler booster connection was not labelled as a "SPRINKLER BOOSTER CONNECTION" in accordance with the requirements of Clause 4.4.3 of AS 2118.1 – 1999;

Smoke Detection System

6. FRNSW recommends covers must be removed from the smoke detectors prior to occupation; and

7. FRNSW recommends that directional notation be provided on the zone block plan that details the location of the entrance of the zone in alarm. The entrances should be labelled to reflect what appears on the FIP display when in alarm.

Miscellaneous

8. To facilitate FRNSW access to the building when responding to an automatic fire alarm it is recommended that keys to the building's main entrances are deposited with the two nearest fire stations. The two nearest stations being Narrabeen Fire Station (9913 8620) and Mona Vale Fire Station (9999 1677).

RECOMMENDATIONS

Prior to occupation of the subject building, FRNSW recommends that the above deficiencies are rectified or actioned. FRNSW requests that written advice be forwarded to FRNSW once the necessary rectification works have been completed to your satisfaction.

Please note that it is FRNSW expectation that all rectification works will be inspected by the PCA. FRNSW will not undertake any further inspections in regards to this application for occupancy.

For further information please contact the Fire Safety Assessment Unit, referencing FRNSW file number FRN14/2931(7951). Please ensure that all correspondence in relation to this matter is submitted electronically to bfs@fire.nsw.gov.au.

Yours sincerely

Station Officer Chris Brown
Fire Safety Assessor
Fire Safety Assessment Unit

FIRE ENGINEERING INSPECTION REPORT

Peninsula Business Estate - Stage 2
2 Daydream Street
Warriewood NSW

Report Number: 26664700-RPT02-2
Date: 18th June, 2015

Client:

FDC Construction and Fitout Pty Ltd

22-24 Junction Street
Forest Lodge NSW 2037

Testing. Advising. Assuring.

AUTHORISATION

No.	Comment / Reason for Issue	Issue Date	Prepared By*	Reviewed By*
2	Revised report following receipt of certificates and photos etc.	18/06/2015	P. Gardner	
			Peter Gardner	Vinh Dang

REVISION HISTORY

No.	Comment / Reason for Issue	Issue Date	Prepared By*	Reviewed By*
1	Issued for information.	12/06/2015	Peter Gardner	Vinh Dang

*For and on behalf of Exova Warringtonfire Aus Pty Ltd.

CONDITIONS OF USE

CONTACT INFORMATION

Exova Warringtonfire Aus Pty Ltd

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Perth WA 6000
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T: +61 (0)8 9221 2338

OVERVIEW

Exova Warringtonfire Aus Pty Ltd has been engaged by FDC Construction and Fitout Pty Ltd for professional fire engineering services to undertake final building inspections and review of relevant documentation to confirm that the building works relating to the alternative solution as detailed in the fire engineering report have been completed and are consistent with that alternative solution. This is in relation to the Peninsula Business Estate - Stage 2 development located at 2 Daydream Street, Warriewood NSW.

The final inspections of the completed building works and review of relevant documentation has confirmed that the building works relating to the alternative solution as detailed in the fire engineering report, document number 26664700-RPT01-8 dated 8.4.15, have been completed and are consistent with that alternative solution as detailed within Table 2.1 in this report.

CONTENTS

Exova Warringtonfire

1 INTRODUCTION

1.1 PROJECT

The project relates to the 3 storey Stage 2 extension to the Peninsula Business Estate industrial facility which includes carparking areas, warehouse areas, a pool area, a childcare facility, and office areas.

1.2 CLIENT

Exova Warringtonfire Aus Pty Ltd (Exova) has been engaged by FDC Construction and Fitout Pty Ltd.

1.3 PROJECT ADDRESS

2 Daydream Street, Warriewood, NSW.

1.4 BACKGROUND

A fire engineering report was undertaken and presented the fire safety design solution including analysis of the fire safety design against stakeholder-agreed fire safety objectives, as developed in the fire engineering brief process.

The recommendations of the fire safety engineering analysis were documented in the fire engineering report, document number 26664700-RPT01-8 dated 8.4.15. The FER proposed a number of recommendations that form part of the overall fire safety strategy for the building.

1.5 DESCRIPTION OF WORK

This report relates to the Stage 2 building works including the basement carpark, ground floor carpark and warehouse areas, Level 1 office areas, Level 2 warehouse area, and the Level 2 office area between grids 18-20. It does not relate to the ground floor / Level 1 pool tenancy, the Level 2 childcare facility, or the Level 2 office areas between grids 16-18 and grids 20-25. It also does not relate to the fitout of any of the tenancies within Stage 2.

This engagement involves undertaking final building inspections and review of relevant documentation to confirm that the building works relating to the alternative solution as detailed in the fire engineering report have been completed and are consistent with that alternative solution, in accordance with Clause 153A of the Environmental Planning & Assessment Regulation 2000.

The Engineers Australia Society of Fire Safety *Practice Note for Issuing Clause 153A(1)(b) Reports*,[1] has been used as a guide in the preparation of this report. This practice note refers to Australian Standard AS 4655–2005, *Fire Safety Audits*,[2] which provides a framework for undertaking fire safety audits of existing buildings.

The inspection and determination of outcomes within this report can be considered as approximating a Level 2 audit, as defined in AS 4655, which includes the following components, with the exception that limited testing and measurements have been undertaken:

a) System specifications. Note: System specifications normally reflect the approved design but may also include other fire safety measures.

b) Management system documents and records.

c) Policies and procedures.

d) Visual inspection of the critical elements of the fire safety measures.

e) Observation of tests and measurements of critical elements.

f) Interviews with employees and other persons, including maintenance contractors.

g) Observations of activities and the surrounding environment and conditions.

h) Analyses of data and performance indicators.

[1] Society of Fire Safety, Practice Note for Issuing Clause 153A(1)(b) Reports, Engineers Australia, Sydney, Australia, 2011, Version 1, dated 05.08.11.

[2] Standards Australia, AS 4655–2005, Fire Safety Audits, Homebush, NSW, 2005.

Note that AS 4655 states that the review of documentation and records is required to take into account the size, nature and complexity of the facility and the objectives and scope of the audit.

Information has been collected from a range of sources, these being consistent with the permissible sources described within Clause 3.6.2 of AS 4655, being: review of records and documents; interviews; observations; inspections and surveys; and tests and measurements.

1.6 SCOPE AND LIMITS OF REPORT

This report is based on a visual walk-through inspection of the accessible areas within the building.

Spot-checks were undertaken of the various fire safety measures within the building – for example, spot-checks were undertaken of the sprinkler heads in various locations but not every sprinkler head was inspected.

Concealed spaces, such as roof spaces, voids, shafts and the like were not inspected. Two inspections were undertaken at the completion of the subject building works.

This report does not relate to the parts of the building described above.

This report deals with the fire safety provisions of the Building Code of Australia 2014 (BCA) and does not consider amenity or non-fire health issues in the building.

This report does not include an assessment or check of any fire safety measure installed in accordance with the BCA DtS Provisions (except where specifically described) as these are to be assessed or checked by the principal certifying authority.

The scope of this report is not to confirm or certify that individual fire safety systems or measures comply with design and installation codes, standards or the like. Certification and compliance of completed installations is the responsibility of the relevant installers and regulatory authorities.

This report does not include operational checks or commissioning of fire safety equipment, verification of construction techniques, fire resistance levels or the witnessing of fire drills or exercises and should therefore not be treated as a full compliance or conformance audit for any fire safety system. The operational status of systems, items of equipment and staff training should be addressed as part of the inspection, commissioning, enforcement, maintenance, testing, training and management procedures for the building.

This report is consistent with the objectives and limitations of the BCA and therefore does not specifically consider arson, multiple ignition sources, acts of terrorism, protection of property (other than adjoining property), or personal or moral obligations of the owner/occupier. The responsibility for re-installation and costs of any damages caused by a fire is considered to be beyond the scope of this report. This report does not cover for stock loss, goodwill, environmental impact (in a fire situation) or any loss of trade or business interruption associated directly or indirectly with a fire in the building.

This report does not include an assessment of any development application (DA) condition of approval or an assessment in accordance with the Work Health and Safety Act 2011 or the Disability Discrimination Act 1992 (DDA).

This report is not a compliance certificate in accordance with Clause 153A of the Environmental Planning & Assessment Regulation 2000.

1.7 INFORMATION CONSIDERED FOR REPORT

The following information has been considered in the formulation of this document:

1. Our fire engineering report, document number 26664700-RPT01-8 dated 8.4.15.
2. Certificates, commissioning records and photos received on 15.6.15, 17.6.15 and 18.6.15.

1.8 PERSONNEL PRESENT DURING INSPECTION

The building works were inspected on 2.6.15 and again on 10.6.15 with FRNSW and a number of other persons including those detailed below in Table 1.1.

Table 1.1 – Personnel present at the building inspection

Name	Organisation	Role
Joel Andonopoulos Nathaneal Edwards	FDC Construction and Fitout Pty Ltd	Builder
Tony Heaslip	Blackett Maguire + Goldsmith Pty Ltd	Principal certifying authority

Name	Organisation	Role
Chris Brown Rory Fegan	Fire and Rescue NSW	Statutory review agency
Peter Gardner	Exova Warringtonfire Aus Pty Ltd	Fire safety engineer

2 FIRE ENGINEERING INSPECTION COMMENTS

The fire engineering report concluded that the proposed alternative solutions satisfied the relevant performance requirements of the BCA, subject to the implementation of the recommendations detailed in Table 2.1. Comments from the final inspection of the building against these recommendations are also detailed in Table 2.1.

Table 2.1 – FER recommendations and inspection comments

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
1.	Compliance with BCA DtS provisions	With the exception of the proposed alternative solutions described within this document, the proposed development is to comply with the DtS provisions of Section C of the BCA.	BCA DtS compliant fire resistance measures should be assessed by others.
2.	Fire separation	The two exit stairs (Stair 1 and Stair 2) are to be fire separated via the 2 hour fire resisting construction on the basement carpark level, as shown in Figure 7.1 (of the FER).	The two exit stairs are fire separated on the basement carpark level. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
3.	Drencher-protected glazed construction	The glazing shown in Figure 7.1 (of the FER) below, which is to be protected by a wall-wetting drencher system in accordance with the drencher system provisions described in below, is to comply with the following: (i) glazed door leaves are to be full height (i.e. extend to the top of the drencher-protected glazing) and self-closing or frameless and self-closing; and (ii) suitable barriers or other means, such as signage provided adjacent to the glazed construction, stating: "No storage adjacent to glazing or fixing of items to glazing for fire safety purposes" not less than 20 mm high in a colour contrasting with the background and permanent construction are to be provided to prevent the placement of either storage or furnishings adjacent to the glazing that may obstruct the flow of water. As well as the above requirements, the glazing is to comply with (i) or (ii) below, depending upon whether it is to be protected by Tyco Model WS drenchers or an alternative system: (i) any glazing <u>protected</u> by the Tyco Model WS drencher system is to comply with the glazing requirements outlined within the Tyco Model WS drencher specification noting that although the inclusion of (self-closing) doors as part of the drencher-protected construction is inconsistent with the product specification, such doors are considered acceptable as part of the Alternative Solution; or (ii) any glazing <u>not protected</u> by the Tyco Model WS drencher system is to comply with the following: a) horizontal mullions are not to be incorporated in the glazing on the sides of the glazing where the drenchers are to be provided, as the flow of water may be obstructed; b) drencher-protected glazing construction is to feature toughened glazing construction, with a minimum thickness of 6 mm; and c) fixed glazing is to be supported by aluminium, timber or steel framing elements, which provide allowance for the expansion of the glass by the use of flexible seals.	Drencher protected glazing with signage is provided to the nominated areas. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
4.	Refuge area	As part of the child care centre fitout works, a 30 m^2 refuge area, shown in Figure 7.5 (of the FER) is to be provided to Level 2 adjacent to the lift lobby and fire stair. The bounding walls are to be lined with fire resisting plasterboard to achieve a -/120/120 FRL and extend to the underside of the roof covering or a 120/120/120 FRL ceiling. The doors are to be -/120/30 FRL self-closing or automatic-closing fire doors with smoke seals.	Refuge area is not part of this handover stage.
5.	Smoke seals	Medium-temperature smoke seals are to be provided to the doors to the refuge area described above. The smoke seals shall be selected such that when fitted to a fire door and tested in accordance with AS 1530.7-2007, they achieve a maximum total leakage rate of 25 m3/h, corrected to STP, at a pressure differential of 25 Pa after more than 30 minutes exposure to 200°C (as per AS 6905-2007).	Refuge area is not part of this handover stage.
6.	Fire compartmentation	Fire resisting walls and floors are to be provided in accordance with drawing GA-110, as shown in Figure 7.4 (of the FER) below (prepared by SBA Architects), to separate fire compartments within Stage 2 and to separate Stage 2 from Stage 1. Note: The swim school on Ground Floor is to form a separate fire compartment.	Visual spot check of fire walls, fire doors and floors was undertaken. Fire safety certificates have been provided.
7.	Compliance with BCA DtS provisions	With the exception of the proposed alternative solutions described within Table 5.1 (of the FER), the proposed development is to comply with the DtS provisions of Section D of the BCA.	BCA DtS compliant egress measures should be assessed by others.
8.	Travel path egress width	The travel path egress width within the swim school between columns and the pools is 820 mm wide, in lieu of 1 m.	Swim school is not part of this handover stage.
9.	Compliance with BCA DtS provisions	With the exception of the proposed Alternative Solutions described within this document, the proposed development is to comply with the DtS provisions of Section E of the BCA.	BCA DtS compliant fire services and equipment should be assessed by others.
10.	Automatic smoke detection system	An automatic fire detection system is to be provided to the Level 2 office tenancy and Ground Floor swim school in accordance with clause 4 of BCA Specification E2.2a and AS 1670.1-2004.	Visual spot check of the smoke detectors to the Level 2 office tenancy was undertaken. Smoke detectors were not tested during the inspection. Detection block plan is located adjacent to the FIP. Fire safety certificate has been provided. Swim school is not part of this handover stage.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
11.	Automatic fire suppression system	With the exception of the swim school fire compartment, an automatic fire sprinkler system is to be provided throughout the building in accordance with clause E1.5 of the BCA and AS 2118.1-1999. In addition, fast-response heads (activation temperature of 68°C and RTI 50 $m^{1/2}s^{1/2}$) are to be provided throughout the car park levels, and maximum coverage of 12 m^2 per sprinkler for ordinary hazard is to be provided throughout the basement car park level, in accordance with BCA Specification E1.5, which includes compliance with the relevant parts of AS2118–1999. Class A or B monitoring devices are to be fitted to the main stop valves, as detailed within Clause 3.4.2 of AS 2118.1.	Visual spot check of sprinkler heads was undertaken including fast response heads to the carpark and also secure cages around the valves. Sprinkler block plan is located adjacent to FIP and in the sprinkler pump room. Sprinkler pump was not tested during the inspection. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
12.	Automatic wall-wetting drenchers	Automatic drenchers are to be provided to the carpark side of the glazed installations on Ground Floor, to the office side on Level 1 and to the childcare centre side on Level 2, as shown in Figure 7.1 , Figure 7.2 and Figure 7.3 (of the FER) incorporating the following: (i) drenchers are to be fed from the fire hydrant system, using a monitored isolation valve that is clearly labelled at the valve itself, on the hydrant block plan, and is accessible without the need for a ladder; (ii) a design is to be used that is capable of fully wetting the glazing, including any self-closing / automatic-closing doors when in the closed position, with no dry spots or a proprietary system, unless an alternative system can be shown as being appropriate for the application. Note that in the case of adoption of the Tyco Model WS system, although the inclusion of self-closing doors within the drencher-protected installations is inconsistent with the product specification, such doors are considered acceptable as part of this alternative solution; and (iii) the design to be capable of supplying the required flow and pressure for the simultaneous operation of the drenchers to one side of one of the protected glazing installation and the fire hydrant system.	Drencher protected glazing is provided to the nominated areas. The drenchers are not fed from the fire hydrant system and they are not installed with flows and pressures accumulated in accordance with our report. This issue can be rectified prior to the final occupation handover of the Stage 2 base building works and is considered acceptable for this interim period noting that the drenchers are currently fed from the sprinkler system which is operational for the entire Stage 2 works. Our fire engineering report will be revised and the rectification works to be undertaken to the drencher system include the Stair 1 and 2 drenchers to be fed from the fire hydrant system, the pool entry drenchers to be fed from the sprinkler system via an alternate sprinkler control valve set to that which feeds the ground floor carpark, and the monitored isolated valves to be clearly labelled at the valve itself, on the hydrant block plan, and accessible without the need for a ladder. The fire services contractor has confirmed that this design is capable of supplying the required flow and pressure for the simultaneous operation of the drenchers to one side of one of the protected glazing installation and the fire hydrant / sprinkler system. Fire safety certificate has been provided confirming compliance with AS 2118.1.
13.	Building occupant warning system	A building occupant warning system is to be provided throughout the building in accordance with the following: (i) Clause 6 of Specification E2.2a, which includes compliance with the relevant parts of AS1670.1–2004. (ii) Clause 4.3.5 of AS1670.4–2004, relating to the use of an automatic voice messaging system.	Visual spot check of the speakers was undertaken. The building occupant warning system was tested during the inspection and included a voice messaging system. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
14.	Carpark air exhaust system	With the exception of the proposed Alternative Solutions regarding the use of jet-fan system discussed in section 5 (of the FER) of this report the system is to comply with Table E2.2a of BCA Clause E2.2a. The following requirements are to be adhered to in relation to the jet-fans: (i) Dedicated detectors are to be located within 2-3 metres of each jet-fan on the downstream side of the fan and in the supply intake of each jet-fan. Activation of a detector is to shut-down the adjacent jet-fan prior to the operation of the sprinkler system. Detector type(s) are to be selected by the fire services engineer to maximise sensing performance whilst considering the environment associated with the carpark and the risk of false alarms occurring. (ii) Any sprinkler head in the air-stream of a jet-fan in the downstream direction is to be located a minimum of 2.5 metres from the jet-fan. (iii) The jet-fans are to be located along the driveways and oriented such that the jet-stream is parallel to the driveways. (iv) Jet-fans are to be monitored and controlled by the main jet-fan controller, which is to be linked to the fire indication panel. (v) Fire resisting cable recommended for the fire trip to the jet-fan panel from the Fire Indicating Panel (FIP) unless it has a fail-safe switch which switches it off should the connection be severed by a fire. (vi) Manual operation of the jet-fans from the main controller or fire indication panel is proposed. (vii) The proposed jet-fan model is shown in Appendix F (of the FER).	Visual spot check of the jet fans was undertaken. Detectors were provided within the jet fans and also within 2-3m of the jet fans. Automatic shutdown of the jet fans were tested during the inspection. Sprinkler heads were located adequate distances from the jet fans. The jet fans were located along the driveways. The jet fans can be monitored and controlled from the FIP. Fire safety certificate has been provided.
15.	Fire hydrant system	A fire hydrant system is to serve the building in accordance with BCA clause E1.3, which includes compliance with AS2419–2005.	Visual spot check of the fire hydrants including tagging and signage was undertaken. Fire hydrant block plan is provided at the boosters and adjacent to the FIP. Fire safety certificate has been provided.
16.	Fire hose reel system	A fire hose reel system is to be provided in accordance with BCA clause E1.4 and AS 2441–2005.	Visual spot check of the fire hose reels including tagging and signage was undertaken. Fire safety certificate has been provided.
17.	Portable fire extinguishers	Portable fire extinguishers are to be provided in accordance with BCA clause E1.6 to cover Class A risks within the building in accordance with AS 2444–2001.	Visual spot check of the portable fire extinguishers including tagging and signage was undertaken. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
18.	Emergency lighting	Emergency lighting is to be provided in compliance with AS2293.1–2005 to the parts of the building nominated by BCA Part E4.	Visual spot check of some of the emergency lighting was undertaken. Power shut-down was not tested during the inspection. Fire safety certificate has been provided.
19.	Exit signage	Exit signage is to be provided in compliance with AS2293.1–2005 to the locations nominated by BCA Part E4.	Visual spot check of some of the exit signs was undertaken. Power shut-down was not tested during the inspection. Fire safety certificate has been provided.
20.	Construction	Building works associated with the installation of the proposed fire safety measures and construction elements are to be undertaken by appropriately qualified persons. Coordination of such works is to be undertaken by a project manager and / or construction manager nominated for the project.	Qualifications of persons installing the fire safety measures were assessed by FDC.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
21.	Commissioning	Fire safety measures are to be the subject of any testing and commissioning requirements specified within the relevant Australian design and installation standards, which include the following: (i) wall-wetting drencher system – section 5 of AS 2118.2 (ii) fire hydrant system – section 10 of AS 2419.1 (iii) fire hose reel system – section 12 of AS 2441 (iv) fire doors – Appendix E of AS 1905.1 (v) fire sprinkler system – AS 2118.10 (vi) portable fire extinguishers– schedule of installed equipment (type, capacity, rating and locations) (vii) automatic fire detection system – AS 1670.1 (section 7 and Appendices E and F) as well as a record of an interface test (viii) fire stopping (schedule of locations, types and details) (ix) illuminated exit signs and emergency lighting – AS 2293.2 (same as six monthly test, except for 120 minutes instead of 90 minutes). The following inspections of the completed building works are to form part of the commissioning phase of the building: 1. Inspections by the project stakeholders, where necessary, to facilitate certification of the fire safety installations and architectural features with the fire safety strategy presented as the basis of the fire engineering report. 2. An inspection by Fire and Rescue NSW to facilitate a final fire safety report, pursuant to Clause 152 of the EP&A Regulation 2000, specifying whether or not the commissioner is satisfied that the building complies with the category 2 fire safety provisions of the EP&A Regulation; specifying that the fire hydrants in the fire hydrant system will be accessible for use by Fire and Rescue NSW; and specifying that the couplings in the fire hydrant system will be compatible with those of the fire appliances and equipment used by Fire and Rescue NSW.	Installation and commissioning records have been provided, with relevant certificates referencing the Fire Engineering Report. Inspections undertaken by Exova as documented in this report. Inspections by relevant stakeholders including FRNSW were undertaken. Building's final fire safety certificate and reference to Fire Engineering Report has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
22.	Commissioning cont.	3. An inspection(s) by the project fire engineer and review of relevant documentation to confirm that the building works relating to the alternative solution, as detailed in the fire engineering report, have been completed and are consistent with that alternative solution. Activities to be undertaken or witnessed by the fire engineer may include the following: a) review of design and installation certificates, together with the fire safety schedule and final fire safety certificate that incorporate the details of the fire engineering report b) visual inspection of fire-resisting elements of construction, including any drencher-protected glazing and fire doors (tagged with self-closers or automatic-closers) c) visual inspection of fire hose reels, portable fire extinguishers, emergency lighting and exit signs d) simulation of sprinkler system flow switch activation, visual inspection of remote test valves, visual inspection of water supply infrastructure (alarm valves / main stop valves in secure enclosure, fire pumps, water storage tanks, fire brigade booster assembly and block plans), visual inspection of spare sprinkler heads and visual inspection of sprinkler heads e) visual inspection of automatic drenchers f) visual inspection of fire hydrant system signage and water supply infrastructure (fire pumps, water storage tanks, fire brigade booster assembly and block plans) and visual inspection of fire hydrants g) visual inspection of fire detectors and operation of the fire detection and alarm system (by others) by activating a smoke detector and witnessing the operation of the occupant warning system (including verbal messaging) and the shutdown of jetfans in the basement carpark. h) witnessing of power failure for operation of emergency lighting i) visual check of accessibility of exits The details of the fire engineering report are to be included within the building's final fire safety certificate to assist future essential services maintenance and auditing of the building.	As above.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
23.	Management -and-Use	The following management procedures and policies are to be implemented on an on-going basis to enable the basis of the fire safety design analysis to be satisfied: (i) A house-keeping policy is to be implemented, based on avoiding the accumulation of rubbish or storage within the common areas, including the exits and the paths of travel to the exits, so that the exit routes remain free from obstructions. (ii) A non-smoking policy is to be implemented, supported by signage placed in appropriate locations. (iii) An emergency management policy, including staff training and regular evacuation drills, is to be implemented in accordance with the principles of AS 3745:2010. (iv) A hot works permit policy is to be adopted to address the undertaking of hot works within the building, which can present as a potential ignition source. A permit is to be submitted to building management for any hot works process involving cutting, welding, heating, angle grinding or any other related practices and returned to the authorising person upon completion of the associated works, addressing: a) risks associated with exposure of adjacent combustibles; b) working within confined spaces; c) fire watch procedures; and d) gas testing requirements.	Management procedures and policies are to be implemented prior to occupation.
24.	Maintenance	A maintenance regime is to be implemented for the proposed fire safety measures, as follows: (i) The fire safety design strategy nominated within section 8 of this report is to be maintained. The essential fire safety measures within the building are to be maintained on an on-going basis in accordance with the EP&A Regulation 2000, using AS 1851–2012 and AS 2293.2–1995 as a guide. (ii) The drencher-protected glazing assemblies are to be maintained to the relevant design and installation standards, including routine inspections to ascertain that the glazing is relatively dust and grease free, with no foreign materials such as notices, stickers etc affixed onto or hanging in front of it (other than any required safety glazing-related decals) and that the framing is not subjected to stresses. Any replacement glazing should be fitted in accordance with the original design. (iii) Electrical and process equipment is to be the subject of any statutory requirements for inspection and maintenance, which is to be undertaken by a qualified electrician.	Maintenance is to be undertaken on an ongoing basis.

3 CONCLUSION

The final inspections of the completed building works and review of relevant documentation has confirmed that the building works relating to the alternative solution as detailed in the fire engineering report have been completed and are consistent with that alternative solution as detailed within Table 2.1 in this report.

4 VALIDITY / DISCLAIMER

This report is prepared for the Peninsula Business Estate - Stage 2 development located at 2 Daydream Street, Warriewood NSW, and should not be applied to other buildings.

Any modifications or changes to the building, fire safety management system, or building usage from that described in the fire engineering report may invalidate the findings of this report. Should such changes occur, a re-assessment should be sought.

Arson has been shown statistically to contribute to fire. This report has addressed the incidence of minor forms of arson as a single ignition source; however, major arson involving accelerants and/or multiple ignition sources are beyond the scope of this analysis and therefore have been excluded from the report.

Whiffen & Andrews The Air Conditioning Professionals

Installation Mechanical Services - FINAL

Development consent no	N0191/13
Date of determination	
Construction Certificate no	
Date of issue	28 May 2015
Description of development	Warehouse & Offices
Subject land Address Lot, DP/MPS etc	Peninsula Business Estate Stage 2 Lot 17, 2 Daydream Street WARRIEWOOD NSW 2102
Type of Certificate (nominated type of certificate)	Installation – FINAL
Give details of the classification of the building in accordance with the Building Code of Australia (eg Class 1 (a))	5 & 7a
Give details of the development and specific aspect of the development and the prescribed requirements it complies with	Air Conditioning and Mechanical Ventilation to warehouse, offices, toilets and utility rooms. Designed and installed to the requirements of BCA F4.5 and AS 1668.2 Appendix A.

Certification

Certificate

Certificate	I, Andrew Short
	Certify that: • The above described aspect of development complies with the prescribed requirement referred to above
Signature **Date of issue**	 **28 May 2015**

Whiffen & Andrews Air Conditioning
Unit 5-6/16 Narabang Way, BELROSE NSW 2085 Telephone: (02) 9986 1199 Fax: (02) 9986 1299

Whiffen & Andrews The Air Conditioning Professionals

Installation Mechanical Services

Certifier (company details)	**Whiffen & Andrews Air Conditioning**
Name of person signing off	**Andrew Short**
Address	**Unit 5-6, 16 Narabang Way Belrose NSW 2085**
Phone	**02 99861199**
Fax	**02 99861299**

Appendix A
Mechanical Standards

Australian Standard	BCA Clause Reference
AS/NZS 1668 – The use of ventilation and air conditioning in buildings Part 1 – 1998 Fire & smoke control in multi-compartment buildings	C2.5,C2.12,C3.15,D1.7,E2.2,F4.12, Spec E1.8, Spec E2.2a, Spec G3.8
AS1668 Part 2 – 2012 Mechanical ventilation for acceptable indoor air quality	F4.5, F4.11, F4.12
AS3000 – 2007 Amdt 1 2009	
AS 3666 Microbial Control of Air Handling & Water Systems in Buildings	F2.7, F4.5
AS4254.2 – 2012 – Ductwork for air-handling systems in the buildings	Spec C1.10, Spec J5.2
AS 1682.1-1990 & AS 1682.2-1990 Fire Dampers	C3.12, C3.15,
AS1851 – 2005 Maintenance of fire protection systems and equipment Section 18 – Fire and smoke control features of HVAC systems Access for future maintenance of all intumescent fire dampers	
Energy Efficiency (Air Conditioning and Ventilation Systems)	Part J5 Spec J5.2 and 5.4

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FIRE DOOR CERTIFICATE

Project No. 6976

Project Name : LivPac

Address : 2-4 Daydream St Warriewood

Date: 26.10.15

Contact Person: Justin Williams

This is to certify all fire rated doors have been installed in accordance with BCA2014 Specification C2.12, C2.13, C3.2, C3.4, C3.5, C3.6, C3.7, C3.8 and AS 1905.1 – 2005

All materials used to construct fire rated door sets are in accordance with BCA2014 Specification C2.12, C2.13, C3.2, C3.4, C3.5, C3.6, C3.7, C3.8 and AS 1905.1 – 2005

Yours Faithfully

Justin Williams

DHP
DANNY HALL PLUMBING Pty Ltd
Hydraulic and Civil contractors

Danny Hall Plumbing Pty Ltd
PO Box 58, Galston NSW 2159
Ph. 02 9656 1800
Fax. 02 9656 1710
Mob. 0417 525 123
danny@dhphc.com.au

15th June 2015

FDC Construction & Fitout Pty Ltd
22-24 Junction Street,
Forest Lodge NSW 2037

Attention: Mr Joel Andonopoulos

Dear Sir,

RE: Warriewood (Stage 2) – Base Building
2 Daydream Street, Warriewood NSW 2102

Stortz coulping Certificate

I, Danny Hall, hereby certify that all stage 2 hydrant landing valves and existing booster have been installed with approved stortz couplings as per AS 2419.1 - 2005.

Yours Sincerely,
Danny Hall Plumbing Pty Ltd

Danny Hall
Director

FORCEFIRE
DETECT ▸ SUPPRESS

Inspection and Test Record
Electrical Fit-Off

PROJECT: WARRIEWOOD STAGE 2.	FORCE FIRE

Area: Level: Grid Ref: Drg. No:

CHECKLIST	N/A	CONFORMS YES	CONFORMS NO	RE-INSPECT OK	NOTES REF No
VERIFICATION:					
1. Detector type appropriate.		☑	☐	☐	
2. Detectors installed as per latest RCP.		☑	☐	☐	
3. Detector addresses noted on As-built drawing.		☑	☐	☐	
4. Loop metered for continuity.		☑	☐	☐	
5. Tails kept to a minimum.		☑	☐	☐	
6. Base securely fixed.		☑	☐	☐	
7. Detectors clearance from downward projections 400mm.		☑	☐	☐	
8. Detector clearance from air register 400mm.		☑	☐	☐	
9. Other fitting clearance 400mm.		☑	☐	☐	
10. Speakers installed as per latest RCP		☑	☐	☐	
11. Speaker tapping appropriate for area.		☑	☐	☐	
12. End of line resistor metered from first point		☑	☐	☐	
13. No tiles with detectors or speakers stained or marked..		☑	☐	☐	
14. Detectors tested and signal received at MFIP		☑	☐	☐	
15. Speakers tested and sound levels as per AS 1670.4		☑	☐	☐	
16. SPRINKLER PRESSURE SWITCHES TESTED TO MFIP.		☑			
17. CARPARK EXHAUST & JET FANS TESTED FROM FIP.		☑			

CHECKED BY: D. ADAMSON

SIGNATURE: _____ **DATE:** 12/6/15

JK Geotechnics
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS

PO Box 976, North Ryde BC NSW 1670
115 Wicks Rd, Macquarie Park NSW 2113
Tel: 02 9888 5000 Fax: 02 9888 5001
www.jkgeotechnics.com.au

19 June 2015
Ref No 24757SB5let3

FDC Construction & Fitout Pty Ltd
22 to 24 Junction Road
FOREST LODGE NSW 2037

ATTENTION: Mr Joel Andonopoulos

Dear Sir

GEOTECHNICAL SERVCIES DURING CONSTRUCTION
STAGE 2 OF PENINSULA BUSINESS ESTATE
2 DAYDREAM STREET, WARRIEWOOD, NSW

JK Geotechnics have been involved in the geotechnical aspects of Stage 2 of the Peninsula Business Estate at the above site. We completed a geotechnical investigation and slope stability risk assessment as detailed in our report dated 3 July 2013 (Ref: 24757SB4rptRev1) in accordance with Pittwater Council Geotechnical Risk Management Policy 2009. Pittwater Council Forms 1 and 1a were included within the geotechnical assessment report.

We reviewed the civil and structural drawings for Stage 2 as detailed in our report dated 24 July 2014 (Ref: 24757SB5let), which included Pittwater Council Form 2 – Part B. A review of the structural drawings for the pool was carried out as detailed in our report dated 17 March 2015 (Ref: 24757SB5let2).

During construction, several inspections were carried out and advice provided on geotechnical aspects of the work. The excavation for the proposed pool was inspected by JK Geotechnics and the exposed material was considered suitable for the design allowable bearing pressure.

Several aspects of the works were certified by others as follows:

- Certification by Jeffsann Excavations Pty Ltd of the earthworks carried out as detailed in their letter dated 23 April 2015. However, we note that only minor earthworks were carried out as the Stage 2 building has a basement level.
- Certification by Helcon dated 24 April 2015 that the piles to support the building have been designed and constructed in accordance with the plans and specifications.
- Structural certification of the pool by RH Consulting Engineers dated 27 April 2015.
- Confirmation that void formers were placed above the pile caps below the pool as detailed in the email from Mr Nick Karaiste of Crystal Pools dated 6 May 2015.

An inspection of the site near the end of construction was carried out on 18 June 2015. At the time of the inspection the building had been substantially completed, with some internal fit out and roof works being carried out.

At the western end of the site, within the Sage 3 site, a batter had been formed within the soils and we understand this will be left in place until Stage 3 works are carried out. The batter is up to about 4m to 5m high and has a slope of about 25° to 35°. Dish drains have been formed at the base and top of the batter. We understand that the batter will be sprayed with grass seed as weather allows. The toe of the batter is about 11m from the Stage 2 building at its closes point and a temporary road for emergency access is located between the batter and the building. We understand that a fence and gate will be constructed at the western end of the parking area on the northern side of the

building to restrict access to this area. The batter is steeper in parts than would be recommended for a permanent batter and some surface slumping may occur over time. However, the batter will be removed once construction of Stage 3 occurs so it may be considered temporary. In addition, due of the offset from the Stage 2 building and that access to the area will be restricted, we consider that the risk to property and life due to instability of the batter will be Very Low and within "acceptable" criteria of Pittwater Council.

At the western end of the detention basin on the northern side of the site a steep batter was present for a length of about 5m. We understand that this is to be retained by continuation of the masonry block retaining wall at the western end of the detention basin, but recent rainfall had halted construction of the wall. This retaining wall must be constructed so that the site and the development can achieve "Acceptable Risk Management" criteria in accordance with the Pittwater Risk Management Policy. Access to this area of the site must be restricted until the retaining wall is constructed.

COMMENTS

Based on our inspections and the certifications provided by others as detailed above, we are of the opinion that provided the outstanding retaining wall as detailed above is constructed that construction of Stage 2 of the Peninsula Business Estate has been undertaken in general accordance with the intent of the recommendations given within our geotechnical investigation and slope stability risk assessment as detailed in our report dated 3 July 2013 (Ref: 24757SB4rptRev1). This relies on the certification of various aspects of the construction by others and does not relieve those companies of their responsibilities in regard to their certification provided.

We enclose the completed Pittwater Council Form 3, which must be read in conjunction with this report. The completed Form 3 does not relieve the builder of their responsibilities to produce the completed development in accordance with the relevant design drawings, construction codes, the geotechnical report, etc.

The current and future owners of the property should be aware of their responsibilities for ongoing site maintenance in relation to geotechnical aspects as detailed in our geotechnical investigation and slope stability risk assessment as detailed in our report dated 3 July 2013 (Ref: 24757SB4rptRev1).

Should you require any further information regarding the above, please do not hesitate to contact the undersigned.

Yours faithfully
For and on behalf of
JK GEOTECHNICS

Daniel Bliss
Senior Associate

Encl: Form 3

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 3 – Post Construction Geotechnical Certificate to be submitted with Occupation Certificate or Subdivision Certificate

Development Application for Livpac Developments Pty Ltd
Name of Applicant

Address of site Stage 2 of the Peninsula Business Estate, 2 Daydream Street, Warriewood, NSW

Declaration made by geotechnical engineer on completion of the Development

I, *Daniel Bliss* on behalf of *JK Geotechnics*
(Insert Name) (Trading or Company Name)

on this the 19 June 2015
certify that I am a Geotechnical Engineer, Engineering Geologist and/or Coastal Engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009. I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least $2million. I prepared and/or verified the Geotechnical Report as per Form 1 dated 3 July 2013 referred to below.

Geotechnical Report Details:

Report Title: Geotechnical Investigation and Slope Stability Risk Assessment for Proposed Stage 2 of the Peninsula Business Estate at 2 Daydream Street, Warriewood, NSW
Report Date: 3 July 2013 *Report Ref No:* 24757SB4rptRev1
Author: *Daniel Bliss*
Author's Company/Organisation: *JK Geotechnics*

We/I reviewed the original structural design, and where applicable the subsequently amended structural details (below listed) which have been incorporated into the completed project.

We/I have inspected and/or *are/*am satisfied that the foundation materials, upon which the structural elements (as detailed in the original and amended structural documents) of the development have been erected, comply with the requirements specified in the Geotechnical Report and the Construction Certificate approved Structural Plans.

We/I have inspected the site during construction and to the best of my/*our* knowledge, *we are/*I am satisfied that the development referred to in the development consent D.A. N0191/13 (D.A.No) dated 8/10/13 (Date consent given)

has been constructed in accordance with the intent of the Geotechnical Report, the requirements of the conditions of Development Consent and the Construction Certificate approved Structural Plans relating to the geotechnical issues (including any treatment and/or maintenance plan that may be required to remove risk where reasonable and practical).

*We are/*I am aware that Pittwater Council require this certificate prior to issuing an occupancy certificate for the development identified above and will rely on this certificate in regard to the development having achieved the "Acceptable Risk Management" criterion defined in the Policy and that reasonable and practical measures have been taken to remove foreseeable risk *as indicated in the Report*.

List of all work as executed drawings and Ongoing Maintenance plans relevant to geotechnical risk management.

This form is for Stage 2 of the Peninsula Business Estate only and must be read in conjunction with the JK Geotechnics letter report dated 19 June 2015 (Ref: 24757SB5let3).

Completion of this form relies on the outstanding retaining wall to the north-west of the building being constructed. If the retaining wall is not constructed then the site is not considered to have achieved "acceptable Risk Management" in accordance with the Pittwater Risk Management Policy.

Completion of this form relies on certification by others of many aspects of the design and construction works and completion of this form does not relieve others of their responsibilities and liabilities regarding the works which they have certified or performed.

Refer to geotechnical reports for drawings supplied and reviewed and ongoing maintenance requirements.

Signature:

Name	*Daniel Bliss*
Chartered Professional Status	*MIEAust; CPEng*
Membership No.	969495
Company	*JK Geotechnics*

FORCEFIRE
DETECT ▸ SUPPRESS

Inspection and Test Record
Electrical Fit-Off

PROJECT: WARRIEWOOD STAGE 2.	FORCE FIRE

Area: Level: Grid Ref: Drg. No:

CHECKLIST	N/A	CONFORMS YES	CONFORMS NO	RE-INSPECT OK	NOTES REF No
VERIFICATION:					
1. Detector type appropriate.		☑	☐	☐	
2. Detectors installed as per latest RCP.		☑	☐	☐	
3. Detector addresses noted on As-built drawing.		☑	☐	☐	
4. Loop metered for continuity.		☑	☐	☐	
5. Tails kept to a minimum.		☑	☐	☐	
6. Base securely fixed.		☑	☐	☐	
7. Detectors clearance from downward projections 400mm.		☑	☐	☐	
8. Detector clearance from air register 400mm.		☑	☐	☐	
9. Other fitting clearance 400mm.		☑	☐	☐	
10. Speakers installed as per latest RCP		☑	☐	☐	
11. Speaker tapping appropriate for area.		☑	☐	☐	
12. End of line resistor metered from first point		☑	☐	☐	
13. No tiles with detectors or speakers stained or marked..		☑	☐	☐	
14. Detectors tested and signal received at MFIP		☑	☐	☐	
15. Speakers tested and sound levels as per AS 1670.4		☑	☐	☐	
16. SPRINKLER PRESSURE SWITCHES TESTED TO MFIP.		☑			
17. CARPARK EXHAUST & JET FANS TESTED FROM FIP.		☑			

CHECKED BY: D. ADAMSON

SIGNATURE: _____ **DATE:** 12/6/15

FIRE STOPPING
PASSIVE FIRE PROTECTION
ABN 47 064 568 770

NSW Office
PO Box 737
Balgowlah, NSW 2093

Unit 6, 252 Allambie Road,
Allambie Heights, NSW 2100

Phone: (02) 9907 0700
Fax: (02) 9907 0728

QLD Office
PO Box 562
Virginia BC, QLD 4014

Unit 7, 53 Northlink Place
Virginia, QLD 4014

Phone: (07) 3265 7781
Fax: (07) 3265 5976

12 June 2015
Our ref: AJ15-7045
ASJ

Mr. Nathanael Edwards
FDC Construction & Fitout Pty Ltd
22 – 24 Junction Street
FOREST LODGE NSW 2037

Dear Nathanael,

STATEMENT OF INSTALLATION COMPLIANCE
RE: PENINSULAR BUSINESS ESTATE STAGE 2 PROJECT

This is to verify that the Fire Stopping Materials listed below have been installed to the manufacturer's design & details and tested in accordance with AS1530.4-2005 Fire Resistance Test of Elements of Building Construction, AS4072.1-2005 and BCA Clause C3.15.

AREAS OF INSTALLATION:

LEVEL/AREA	METHOD USED	FRL	TEST REF.
Level 2 Child Care Area – Roof Framing Structural Steel			
To fire spray nominated structural steel beams and columns – Eastern Elevation	Vermitex AF Fire Spray	120/-/-	CSIRO Test Assessment No. FCO-1299
GROUND FLOOR			
South West Fire Stairs			
To install intumescent paint to 1 x structural steel angle	Cafco SPRAYFILM® WB3 Intumescent Coating	120/-/-	BRANZ FAR2751
Large Warehouse			
To fire spray car park exhaust shaft structural steel supports	Vermitex AF Fire Spray	120/-/-	CSIRO Test Assessment No. FCO-1299
To install intumescent paint to 2 x structural steel columns – Eastern Elevation	Cafco SPRAYFILM® WB3 Intumescent Coating	120/-/-	BRANZ FAR2751
To fire spray 2 x structural steel columns, Eastern Elevation, at high level	Vermitex AF Fire Spray	120/-/-	CSIRO Test Assessment No. FCO-1299

LEVEL/AREA	METHOD USED	FRL	TEST REF.
To fire joint seal the gap between the top of the block wall and the roof sarking. North Wall	Trafalgar Fyreflex Fire Rated Sealant	-/120/120	CSIRO FCO-1579 (Revision)
Small Warehouse – Level 2			
To close off the gap between the top of the block wall and the roof sarking East Wall	Firetherm intubatt 1 Trafalgar Fyreflex Fire Rated Sealant	-/120/120 -/120/120	Exova Warringtonfire Aus Report No RIR 23670-01 CSIRO FCO-1579 (Revision)
To fire joint seal the gap between the top of the block wall and the roof sarking. North Wall	Trafalgar Fyreflex Fire Rated Sealant	-/120/120	CSIRO FCO-1579 (Revision)
East And West Electrical Risers, Ground Floor to Level 2 Inclusive			
To fire seal nominated floor penetrations	Trafalgar Fyreplug Pillows Trafalgar Fyreflex Fire Rated Sealant	-/120/120 -/120/120	CSIRO FCO-1775 CSIRO FCO-1579 (Revision)
East Fire Hose Reel Cupboard, Level 1 and Level 2			
To fire seal nominated floor penetrations	Firetherm intubatt 1 Trafalgar Fyreflex Fire Rated Sealant Promat Flexi Wrap	-/120/120 -/120/120 -/120/120	Exova Warringtonfire Aus Report No RIR 23670-01 CSIRO FCO-1579 (Revision) EUA23859.00
Level 2, Child Care Pipe Riser			
To fire seal 3 x nominated core hole, floor penetrations containing armourflex coated pipes	Trafalgar Fyreflex Fire Rated Sealant Promat Flexi Wrap	-/120/120 -/120/120	CSIRO FCO-1579 (Revision) EUA23859.00

An inspection of the above works was carried out on Thursday the 11th of June 2015. No responsibility will be taken for alterations, additions and/or damage caused by other persons since the date of inspection.

The information contained in this document is, to the best of my knowledge and belief, true and accurate.

For and on behalf of Fire Stopping Pty Ltd

Andrew St John
SUPERVISOR

FIRE ENGINEERING INSPECTION REPORT

Peninsula Business Estate - Stage 2
2 Daydream Street
Warriewood NSW

Report Number: 26664700-RPT02-2
Date: 18th June, 2015

Client:

FDC Construction and Fitout Pty Ltd

22-24 Junction Street
Forest Lodge NSW 2037

Testing. Advising. Assuring.

AUTHORISATION

No.	Comment / Reason for Issue	Issue Date	Prepared By*	Reviewed By*
2	Revised report following receipt of certificates and photos etc.	18/06/2015	P. Gardner	
			Peter Gardner	Vinh Dang

REVISION HISTORY

No.	Comment / Reason for Issue	Issue Date	Prepared By*	Reviewed By*
1	Issued for information.	12/06/2015	Peter Gardner	Vinh Dang

*For and on behalf of Exova Warringtonfire Aus Pty Ltd.

CONDITIONS OF USE

CONTACT INFORMATION

Exova Warringtonfire Aus Pty Ltd

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F: +61 (0)7 3211 4833

Western Australia

Level 11, 251 Adelaide Terrace
Perth WA 6000
Australia

T: +61 (0)8 9221 2338

OVERVIEW

Exova Warringtonfire Aus Pty Ltd has been engaged by FDC Construction and Fitout Pty Ltd for professional fire engineering services to undertake final building inspections and review of relevant documentation to confirm that the building works relating to the alternative solution as detailed in the fire engineering report have been completed and are consistent with that alternative solution. This is in relation to the Peninsula Business Estate - Stage 2 development located at 2 Daydream Street, Warriewood NSW.

The final inspections of the completed building works and review of relevant documentation has confirmed that the building works relating to the alternative solution as detailed in the fire engineering report, document number 26664700-RPT01-8 dated 8.4.15, have been completed and are consistent with that alternative solution as detailed within Table 2.1 in this report.

CONTENTS

Exova Warringtonfire

1 INTRODUCTION

1.1 PROJECT

The project relates to the 3 storey Stage 2 extension to the Peninsula Business Estate industrial facility which includes carparking areas, warehouse areas, a pool area, a childcare facility, and office areas.

1.2 CLIENT

Exova Warringtonfire Aus Pty Ltd (Exova) has been engaged by FDC Construction and Fitout Pty Ltd.

1.3 PROJECT ADDRESS

2 Daydream Street, Warriewood, NSW.

1.4 BACKGROUND

A fire engineering report was undertaken and presented the fire safety design solution including analysis of the fire safety design against stakeholder-agreed fire safety objectives, as developed in the fire engineering brief process.

The recommendations of the fire safety engineering analysis were documented in the fire engineering report, document number 26664700-RPT01-8 dated 8.4.15. The FER proposed a number of recommendations that form part of the overall fire safety strategy for the building.

1.5 DESCRIPTION OF WORK

This report relates to the Stage 2 building works including the basement carpark, ground floor carpark and warehouse areas, Level 1 office areas, Level 2 warehouse area, and the Level 2 office area between grids 18-20. It does not relate to the ground floor / Level 1 pool tenancy, the Level 2 childcare facility, or the Level 2 office areas between grids 16-18 and grids 20-25. It also does not relate to the fitout of any of the tenancies within Stage 2.

This engagement involves undertaking final building inspections and review of relevant documentation to confirm that the building works relating to the alternative solution as detailed in the fire engineering report have been completed and are consistent with that alternative solution, in accordance with Clause 153A of the Environmental Planning & Assessment Regulation 2000.

The Engineers Australia Society of Fire Safety *Practice Note for Issuing Clause 153A(1)(b) Reports*,[1] has been used as a guide in the preparation of this report. This practice note refers to Australian Standard AS 4655–2005, *Fire Safety Audits*,[2] which provides a framework for undertaking fire safety audits of existing buildings.

The inspection and determination of outcomes within this report can be considered as approximating a Level 2 audit, as defined in AS 4655, which includes the following components, with the exception that limited testing and measurements have been undertaken:

a) System specifications. Note: System specifications normally reflect the approved design but may also include other fire safety measures.

b) Management system documents and records.

c) Policies and procedures.

d) Visual inspection of the critical elements of the fire safety measures.

e) Observation of tests and measurements of critical elements.

f) Interviews with employees and other persons, including maintenance contractors.

g) Observations of activities and the surrounding environment and conditions.

h) Analyses of data and performance indicators.

[1] Society of Fire Safety, Practice Note for Issuing Clause 153A(1)(b) Reports, Engineers Australia, Sydney, Australia, 2011, Version 1, dated 05.08.11.

[2] Standards Australia, AS 4655–2005, Fire Safety Audits, Homebush, NSW, 2005.

Note that AS 4655 states that the review of documentation and records is required to take into account the size, nature and complexity of the facility and the objectives and scope of the audit.

Information has been collected from a range of sources, these being consistent with the permissible sources described within Clause 3.6.2 of AS 4655, being: review of records and documents; interviews; observations; inspections and surveys; and tests and measurements.

1.6 SCOPE AND LIMITS OF REPORT

This report is based on a visual walk-through inspection of the accessible areas within the building.

Spot-checks were undertaken of the various fire safety measures within the building – for example, spot-checks were undertaken of the sprinkler heads in various locations but not every sprinkler head was inspected.

Concealed spaces, such as roof spaces, voids, shafts and the like were not inspected. Two inspections were undertaken at the completion of the subject building works.

This report does not relate to the parts of the building described above.

This report deals with the fire safety provisions of the Building Code of Australia 2014 (BCA) and does not consider amenity or non-fire health issues in the building.

This report does not include an assessment or check of any fire safety measure installed in accordance with the BCA DtS Provisions (except where specifically described) as these are to be assessed or checked by the principal certifying authority.

The scope of this report is not to confirm or certify that individual fire safety systems or measures comply with design and installation codes, standards or the like. Certification and compliance of completed installations is the responsibility of the relevant installers and regulatory authorities.

This report does not include operational checks or commissioning of fire safety equipment, verification of construction techniques, fire resistance levels or the witnessing of fire drills or exercises and should therefore not be treated as a full compliance or conformance audit for any fire safety system. The operational status of systems, items of equipment and staff training should be addressed as part of the inspection, commissioning, enforcement, maintenance, testing, training and management procedures for the building.

This report is consistent with the objectives and limitations of the BCA and therefore does not specifically consider arson, multiple ignition sources, acts of terrorism, protection of property (other than adjoining property), or personal or moral obligations of the owner/occupier. The responsibility for re-installation and costs of any damages caused by a fire is considered to be beyond the scope of this report. This report does not cover for stock loss, goodwill, environmental impact (in a fire situation) or any loss of trade or business interruption associated directly or indirectly with a fire in the building.

This report does not include an assessment of any development application (DA) condition of approval or an assessment in accordance with the Work Health and Safety Act 2011 or the Disability Discrimination Act 1992 (DDA).

This report is not a compliance certificate in accordance with Clause 153A of the Environmental Planning & Assessment Regulation 2000.

1.7 INFORMATION CONSIDERED FOR REPORT

The following information has been considered in the formulation of this document:

1. Our fire engineering report, document number 26664700-RPT01-8 dated 8.4.15.
2. Certificates, commissioning records and photos received on 15.6.15, 17.6.15 and 18.6.15.

1.8 PERSONNEL PRESENT DURING INSPECTION

The building works were inspected on 2.6.15 and again on 10.6.15 with FRNSW and a number of other persons including those detailed below in Table 1.1.

Table 1.1 – Personnel present at the building inspection

Name	Organisation	Role
Joel Andonopoulos Nathaneal Edwards	FDC Construction and Fitout Pty Ltd	Builder
Tony Heaslip	Blackett Maguire + Goldsmith Pty Ltd	Principal certifying authority

Name	Organisation	Role
Chris Brown Rory Fegan	Fire and Rescue NSW	Statutory review agency
Peter Gardner	Exova Warringtonfire Aus Pty Ltd	Fire safety engineer

2 FIRE ENGINEERING INSPECTION COMMENTS

The fire engineering report concluded that the proposed alternative solutions satisfied the relevant performance requirements of the BCA, subject to the implementation of the recommendations detailed in Table 2.1. Comments from the final inspection of the building against these recommendations are also detailed in Table 2.1.

Table 2.1 – FER recommendations and inspection comments

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
1.	Compliance with BCA DtS provisions	With the exception of the proposed alternative solutions described within this document, the proposed development is to comply with the DtS provisions of Section C of the BCA.	BCA DtS compliant fire resistance measures should be assessed by others.
2.	Fire separation	The two exit stairs (Stair 1 and Stair 2) are to be fire separated via the 2 hour fire resisting construction on the basement carpark level, as shown in Figure 7.1 (of the FER).	The two exit stairs are fire separated on the basement carpark level. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
3.	Drencher-protected glazed construction	The glazing shown in Figure 7.1 (of the FER) below, which is to be protected by a wall-wetting drencher system in accordance with the drencher system provisions described in below, is to comply with the following: (i) glazed door leaves are to be full height (i.e. extend to the top of the drencher-protected glazing) and self-closing or frameless and self-closing; and (ii) suitable barriers or other means, such as signage provided adjacent to the glazed construction, stating: "No storage adjacent to glazing or fixing of items to glazing for fire safety purposes" not less than 20 mm high in a colour contrasting with the background and permanent construction are to be provided to prevent the placement of either storage or furnishings adjacent to the glazing that may obstruct the flow of water. As well as the above requirements, the glazing is to comply with (i) or (ii) below, depending upon whether it is to be protected by Tyco Model WS drenchers or an alternative system: (i) any glazing protected by the Tyco Model WS drencher system is to comply with the glazing requirements outlined within the Tyco Model WS drencher specification noting that although the inclusion of (self-closing) doors as part of the drencher-protected construction is inconsistent with the product specification, such doors are considered acceptable as part of the Alternative Solution; or (ii) any glazing not protected by the Tyco Model WS drencher system is to comply with the following: a) horizontal mullions are not to be incorporated in the glazing on the sides of the glazing where the drenchers are to be provided, as the flow of water may be obstructed; b) drencher-protected glazing construction is to feature toughened glazing construction, with a minimum thickness of 6 mm; and c) fixed glazing is to be supported by aluminium, timber or steel framing elements, which provide allowance for the expansion of the glass by the use of flexible seals.	Drencher protected glazing with signage is provided to the nominated areas. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
4.	Refuge area	As part of the child care centre fitout works, a 30 m^2 refuge area, shown in Figure 7.5 (of the FER) is to be provided to Level 2 adjacent to the lift lobby and fire stair. The bounding walls are to be lined with fire resisting plasterboard to achieve a -/120/120 FRL and extend to the underside of the roof covering or a 120/120/120 FRL ceiling. The doors are to be -/120/30 FRL self-closing or automatic-closing fire doors with smoke seals.	Refuge area is not part of this handover stage.
5.	Smoke seals	Medium-temperature smoke seals are to be provided to the doors to the refuge area described above. The smoke seals shall be selected such that when fitted to a fire door and tested in accordance with AS 1530.7-2007, they achieve a maximum total leakage rate of 25 m3/h, corrected to STP, at a pressure differential of 25 Pa after more than 30 minutes exposure to 200℃ (as per AS 6905-2007).	Refuge area is not part of this handover stage.
6.	Fire compartmentation	Fire resisting walls and floors are to be provided in accordance with drawing GA-110, as shown in Figure 7.4 (of the FER) below (prepared by SBA Architects), to separate fire compartments within Stage 2 and to separate Stage 2 from Stage 1. Note: The swim school on Ground Floor is to form a separate fire compartment.	Visual spot check of fire walls, fire doors and floors was undertaken. Fire safety certificates have been provided.
7.	Compliance with BCA DtS provisions	With the exception of the proposed alternative solutions described within Table 5.1 (of the FER), the proposed development is to comply with the DtS provisions of Section D of the BCA.	BCA DtS compliant egress measures should be assessed by others.
8.	Travel path egress width	The travel path egress width within the swim school between columns and the pools is 820 mm wide, in lieu of 1 m.	Swim school is not part of this handover stage.
9.	Compliance with BCA DtS provisions	With the exception of the proposed Alternative Solutions described within this document, the proposed development is to comply with the DtS provisions of Section E of the BCA.	BCA DtS compliant fire services and equipment should be assessed by others.
10.	Automatic smoke detection system	An automatic fire detection system is to be provided to the Level 2 office tenancy and Ground Floor swim school in accordance with clause 4 of BCA Specification E2.2a and AS 1670.1-2004.	Visual spot check of the smoke detectors to the Level 2 office tenancy was undertaken. Smoke detectors were not tested during the inspection. Detection block plan is located adjacent to the FIP. Fire safety certificate has been provided. Swim school is not part of this handover stage.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
11.	Automatic fire suppression system	With the exception of the swim school fire compartment, an automatic fire sprinkler system is to be provided throughout the building in accordance with clause E1.5 of the BCA and AS 2118.1-1999. In addition, fast-response heads (activation temperature of 68°C and RTI 50 $m^{1/2}s^{1/2}$) are to be provided throughout the car park levels, and maximum coverage of 12 m^2 per sprinkler for ordinary hazard is to be provided throughout the basement car park level, in accordance with BCA Specification E1.5, which includes compliance with the relevant parts of AS2118–1999. Class A or B monitoring devices are to be fitted to the main stop valves, as detailed within Clause 3.4.2 of AS 2118.1.	Visual spot check of sprinkler heads was undertaken including fast response heads to the carpark and also secure cages around the valves. Sprinkler block plan is located adjacent to FIP and in the sprinkler pump room. Sprinkler pump was not tested during the inspection. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
12.	Automatic wall-wetting drenchers	Automatic drenchers are to be provided to the carpark side of the glazed installations on Ground Floor, to the office side on Level 1 and to the childcare centre side on Level 2, as shown in Figure 7.1 , Figure 7.2 and Figure 7.3 (of the FER) incorporating the following: (i) drenchers are to be fed from the fire hydrant system, using a monitored isolation valve that is clearly labelled at the valve itself, on the hydrant block plan, and is accessible without the need for a ladder; (ii) a design is to be used that is capable of fully wetting the glazing, including any self-closing / automatic-closing doors when in the closed position, with no dry spots or a proprietary system, unless an alternative system can be shown as being appropriate for the application. Note that in the case of adoption of the Tyco Model WS system, although the inclusion of self-closing doors within the drencher-protected installations is inconsistent with the product specification, such doors are considered acceptable as part of this alternative solution; and (iii) the design to be capable of supplying the required flow and pressure for the simultaneous operation of the drenchers to one side of one of the protected glazing installation and the fire hydrant system.	Drencher protected glazing is provided to the nominated areas. The drenchers are not fed from the fire hydrant system and they are not installed with flows and pressures accumulated in accordance with our report. This issue can be rectified prior to the final occupation handover of the Stage 2 base building works and is considered acceptable for this interim period noting that the drenchers are currently fed from the sprinkler system which is operational for the entire Stage 2 works. Our fire engineering report will be revised and the rectification works to be undertaken to the drencher system include the Stair 1 and 2 drenchers to be fed from the fire hydrant system, the pool entry drenchers to be fed from the sprinkler system via an alternate sprinkler control valve set to that which feeds the ground floor carpark, and the monitored isolated valves to be clearly labelled at the valve itself, on the hydrant block plan, and accessible without the need for a ladder. The fire services contractor has confirmed that this design is capable of supplying the required flow and pressure for the simultaneous operation of the drenchers to one side of one of the protected glazing installation and the fire hydrant / sprinkler system. Fire safety certificate has been provided confirming compliance with AS 2118.1.
13.	Building occupant warning system	A building occupant warning system is to be provided throughout the building in accordance with the following: (i) Clause 6 of Specification E2.2a, which includes compliance with the relevant parts of AS1670.1–2004. (ii) Clause 4.3.5 of AS1670.4–2004, relating to the use of an automatic voice messaging system.	Visual spot check of the speakers was undertaken. The building occupant warning system was tested during the inspection and included a voice messaging system. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
14.	Carpark air exhaust system	With the exception of the proposed Alternative Solutions regarding the use of jet-fan system discussed in section 5 (of the FER) of this report the system is to comply with Table E2.2a of BCA Clause E2.2a. The following requirements are to be adhered to in relation to the jet-fans: (i) Dedicated detectors are to be located within 2-3 metres of each jet-fan on the downstream side of the fan and in the supply intake of each jet-fan. Activation of a detector is to shut-down the adjacent jet-fan prior to the operation of the sprinkler system. Detector type(s) are to be selected by the fire services engineer to maximise sensing performance whilst considering the environment associated with the carpark and the risk of false alarms occurring. (ii) Any sprinkler head in the air-stream of a jet-fan in the downstream direction is to be located a minimum of 2.5 metres from the jet-fan. (iii) The jet-fans are to be located along the driveways and oriented such that the jet-stream is parallel to the driveways. (iv) Jet-fans are to be monitored and controlled by the main jet-fan controller, which is to be linked to the fire indication panel. (v) Fire resisting cable recommended for the fire trip to the jet-fan panel from the Fire Indicating Panel (FIP) unless it has a fail-safe switch which switches it off should the connection be severed by a fire. (vi) Manual operation of the jet-fans from the main controller or fire indication panel is proposed. (vii) The proposed jet-fan model is shown in Appendix F (of the FER).	Visual spot check of the jet fans was undertaken. Detectors were provided within the jet fans and also within 2-3m of the jet fans. Automatic shutdown of the jet fans were tested during the inspection. Sprinkler heads were located adequate distances from the jet fans. The jet fans were located along the driveways. The jet fans can be monitored and controlled from the FIP. Fire safety certificate has been provided.
15.	Fire hydrant system	A fire hydrant system is to serve the building in accordance with BCA clause E1.3, which includes compliance with AS2419–2005.	Visual spot check of the fire hydrants including tagging and signage was undertaken. Fire hydrant block plan is provided at the boosters and adjacent to the FIP. Fire safety certificate has been provided.
16.	Fire hose reel system	A fire hose reel system is to be provided in accordance with BCA clause E1.4 and AS 2441–2005.	Visual spot check of the fire hose reels including tagging and signage was undertaken. Fire safety certificate has been provided.
17.	Portable fire extinguishers	Portable fire extinguishers are to be provided in accordance with BCA clause E1.6 to cover Class A risks within the building in accordance with AS 2444–2001.	Visual spot check of the portable fire extinguishers including tagging and signage was undertaken. Fire safety certificate has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
18.	Emergency lighting	Emergency lighting is to be provided in compliance with AS2293.1–2005 to the parts of the building nominated by BCA Part E4.	Visual spot check of some of the emergency lighting was undertaken. Power shut-down was not tested during the inspection. Fire safety certificate has been provided.
19.	Exit signage	Exit signage is to be provided in compliance with AS2293.1–2005 to the locations nominated by BCA Part E4.	Visual spot check of some of the exit signs was undertaken. Power shut-down was not tested during the inspection. Fire safety certificate has been provided.
20.	Construction	Building works associated with the installation of the proposed fire safety measures and construction elements are to be undertaken by appropriately qualified persons. Coordination of such works is to be undertaken by a project manager and / or construction manager nominated for the project.	Qualifications of persons installing the fire safety measures were assessed by FDC.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
21.	Commissioning	Fire safety measures are to be the subject of any testing and commissioning requirements specified within the relevant Australian design and installation standards, which include the following: (i) wall-wetting drencher system – section 5 of AS 2118.2 (ii) fire hydrant system – section 10 of AS 2419.1 (iii) fire hose reel system – section 12 of AS 2441 (iv) fire doors – Appendix E of AS 1905.1 (v) fire sprinkler system – AS 2118.10 (vi) portable fire extinguishers– schedule of installed equipment (type, capacity, rating and locations) (vii) automatic fire detection system – AS 1670.1 (section 7 and Appendices E and F) as well as a record of an interface test (viii) fire stopping (schedule of locations, types and details) (ix) illuminated exit signs and emergency lighting – AS 2293.2 (same as six monthly test, except for 120 minutes instead of 90 minutes). The following inspections of the completed building works are to form part of the commissioning phase of the building: 1. Inspections by the project stakeholders, where necessary, to facilitate certification of the fire safety installations and architectural features with the fire safety strategy presented as the basis of the fire engineering report. 2. An inspection by Fire and Rescue NSW to facilitate a final fire safety report, pursuant to Clause 152 of the EP&A Regulation 2000, specifying whether or not the commissioner is satisfied that the building complies with the category 2 fire safety provisions of the EP&A Regulation; specifying that the fire hydrants in the fire hydrant system will be accessible for use by Fire and Rescue NSW; and specifying that the couplings in the fire hydrant system will be compatible with those of the fire appliances and equipment used by Fire and Rescue NSW.	Installation and commissioning records have been provided, with relevant certificates referencing the Fire Engineering Report. Inspections undertaken by Exova as documented in this report. Inspections by relevant stakeholders including FRNSW were undertaken. Building's final fire safety certificate and reference to Fire Engineering Report has been provided.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
22.	Commissioning cont.	3. An inspection(s) by the project fire engineer and review of relevant documentation to confirm that the building works relating to the alternative solution, as detailed in the fire engineering report, have been completed and are consistent with that alternative solution. Activities to be undertaken or witnessed by the fire engineer may include the following: a) review of design and installation certificates, together with the fire safety schedule and final fire safety certificate that incorporate the details of the fire engineering report b) visual inspection of fire-resisting elements of construction, including any drencher-protected glazing and fire doors (tagged with self-closers or automatic-closers) c) visual inspection of fire hose reels, portable fire extinguishers, emergency lighting and exit signs d) simulation of sprinkler system flow switch activation, visual inspection of remote test valves, visual inspection of water supply infrastructure (alarm valves / main stop valves in secure enclosure, fire pumps, water storage tanks, fire brigade booster assembly and block plans), visual inspection of spare sprinkler heads and visual inspection of sprinkler heads e) visual inspection of automatic drenchers f) visual inspection of fire hydrant system signage and water supply infrastructure (fire pumps, water storage tanks, fire brigade booster assembly and block plans) and visual inspection of fire hydrants g) visual inspection of fire detectors and operation of the fire detection and alarm system (by others) by activating a smoke detector and witnessing the operation of the occupant warning system (including verbal messaging) and the shutdown of jetfans in the basement carpark. h) witnessing of power failure for operation of emergency lighting i) visual check of accessibility of exits The details of the fire engineering report are to be included within the building's final fire safety certificate to assist future essential services maintenance and auditing of the building.	As above.

Item no.	Fire engineering report recommendation		EWFA's comments from the inspection
23.	Management -and-Use	The following management procedures and policies are to be implemented on an on-going basis to enable the basis of the fire safety design analysis to be satisfied: (i) A house-keeping policy is to be implemented, based on avoiding the accumulation of rubbish or storage within the common areas, including the exits and the paths of travel to the exits, so that the exit routes remain free from obstructions. (ii) A non-smoking policy is to be implemented, supported by signage placed in appropriate locations. (iii) An emergency management policy, including staff training and regular evacuation drills, is to be implemented in accordance with the principles of AS 3745:2010. (iv) A hot works permit policy is to be adopted to address the undertaking of hot works within the building, which can present as a potential ignition source. A permit is to be submitted to building management for any hot works process involving cutting, welding, heating, angle grinding or any other related practices and returned to the authorising person upon completion of the associated works, addressing: a) risks associated with exposure of adjacent combustibles; b) working within confined spaces; c) fire watch procedures; and d) gas testing requirements.	Management procedures and policies are to be implemented prior to occupation.
24.	Maintenance	A maintenance regime is to be implemented for the proposed fire safety measures, as follows: (i) The fire safety design strategy nominated within section 8 of this report is to be maintained. The essential fire safety measures within the building are to be maintained on an on-going basis in accordance with the EP&A Regulation 2000, using AS 1851–2012 and AS 2293.2–1995 as a guide. (ii) The drencher-protected glazing assemblies are to be maintained to the relevant design and installation standards, including routine inspections to ascertain that the glazing is relatively dust and grease free, with no foreign materials such as notices, stickers etc affixed onto or hanging in front of it (other than any required safety glazing-related decals) and that the framing is not subjected to stresses. Any replacement glazing should be fitted in accordance with the original design. (iii) Electrical and process equipment is to be the subject of any statutory requirements for inspection and maintenance, which is to be undertaken by a qualified electrician.	Maintenance is to be undertaken on an ongoing basis.

3 CONCLUSION

The final inspections of the completed building works and review of relevant documentation has confirmed that the building works relating to the alternative solution as detailed in the fire engineering report have been completed and are consistent with that alternative solution as detailed within Table 2.1 in this report.

4 VALIDITY / DISCLAIMER

This report is prepared for the Peninsula Business Estate - Stage 2 development located at 2 Daydream Street, Warriewood NSW, and should not be applied to other buildings.

Any modifications or changes to the building, fire safety management system, or building usage from that described in the fire engineering report may invalidate the findings of this report. Should such changes occur, a re-assessment should be sought.

Arson has been shown statistically to contribute to fire. This report has addressed the incidence of minor forms of arson as a single ignition source; however, major arson involving accelerants and/or multiple ignition sources are beyond the scope of this analysis and therefore have been excluded from the report.