

INSTALLATION CERTIFICATE

FAÇADE PANELS

Site Details:

Project Name.	11H	Street no. / Street name:	1 H Hospital Road,
Level/Unit no.	Lot 20 DP No. 1139098 Canada Bay Council		
Suburb:	Concord West	State:	NSW
		Postcode:	2138

Description of Work:

+ Supply and installation of FAC1, FAC2, FAC3 cladding panels

Development Consent:

SSD No.	SSD 9036	Consent authority:	Minister for Planning
		Dated:	28 th February 2019

Pursuant to the provisions of the Environment Planning and Assessment Regulations 2000 and Clause A2.2 of the Building Code of Australia BCA 2016 Amendment 1:

I, Travis Coppin of Brighton Ceilings
(name) (company)

hereby certify that the façade panels have been installed and inspected in accordance with the following:

The Fibre C Façade System has been installed in accordance with the following:

- a)
 - + Current Certificate of Conformity (EWFA Test Report No. 487313-00.1)
 - + Manufacturers Specification (Fibre C Concrete-Skin-Technical-Manual)
 - + Fire Engineering Report (SHIF0103/R002 Rev G Dated 04/05/20)
 - + Site Instructions issued by Roberts Co.
 - + Shop drawings issued by Brighton Ceilings

The Tempio Terracotta Façade System has been installed in accordance with the following:

- b)
 - + Current Certificate of Conformity (Warrington Fire Report RTF190284)
 - + Manufacturers Specification (Tempio Technical Brochure)
 - + Fire Engineering Report (SHIF0103/R002 Rev G Dated 04/05/20)
 - + Site Instructions issued by Roberts Co.
 - + Shop drawings issued by Brighton Ceilings

c) The Kingspan Dri Design Façade System has been installed in accordance with the following:

- + Current Certificate of Conformity (To be added here)
-

-
- + Manufacturers Specification (BM Dri-Design Install Guide 18 Nov 2019)
 - + Fire Engineering Report (SHIF0103/R002 Rev G Dated 04/05/20)
 - + Site Instructions issued by Roberts Co..
 - + Shop drawings issued by Brighton Ceilings
-

d) The external wall make up behind the Cladding Panels has been installed in accordance with the Fire Engineering Report (SHIF0103/R002 Rev G Dated 04/05/20) along with the Shop Drawings prepared by Brighton Ceilings.

Exclusions: ~~Yes~~ or No

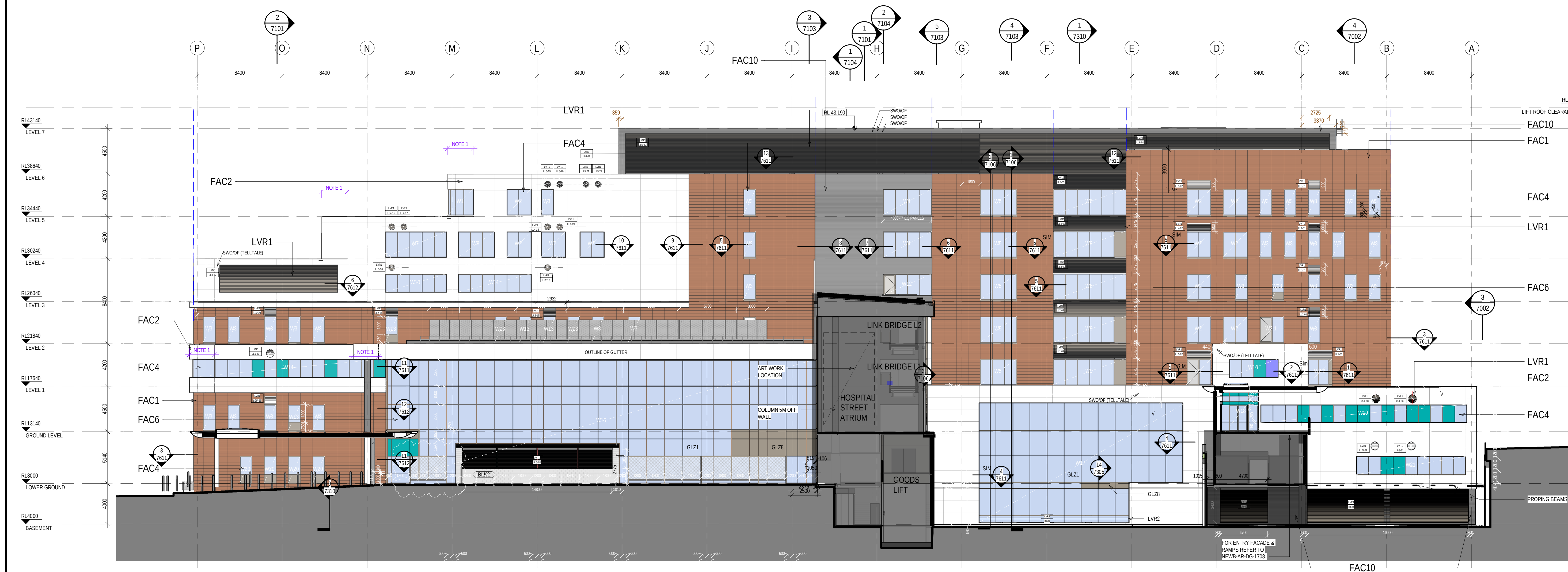
Details of any exclusions:

Where there are no exclusions, I certify that this certificate covers all façade elements installed to the building.

I also certify that I am an appropriately qualified and competent person practicing in the relevant area of work. I have recognised relevant experience in the area of work being certified. ~~I~~ my employer hold/s appropriate current professional indemnity insurance to the satisfaction of the building owner or the principal authorising the design work being certified.

Name:	Travis Coppin	Licence No.:	Dept of Fair Trading 85907S
Company Name:	Brighton Ceilings Pty Ltd	ABN No:	49 141 852 477
Company Address:	65 The Grand Parade Brighton Le Sands NSW 2216	Tel:	02 9599 6230
Signature:		Position Title:	Project Manager
		Date:	26/07/2021

Note: Attach any supporting documentation.



LEGEND:



TERRACOTTA

INSTALLED BY BRIGHTON



ALUM. SOLID CLADDING

INSTALLED BY BRIGHTON



REINFORCED CONCRETE CLADDING (FIBRE C)

INSTALLED BY BRIGHTON



ALUM. METAL LOUVRES

INSTALLED BY CVIS

LVR1	HORIZONTAL LOUVRES
LVR2	ACTUATED POWER GLASS LOUVRES
LVR3	VERTICAL LOUVRES
LVR4	600mm DEEP ACOUSTIC LOUVRES, HORIZONTAL

GLAZING LEGEND:

	GL21 STANDARD CLEAR SINGLE GLAZED IGUS
	GL22 CLEAR SINGLE GLAZED IGUS, WITH JOCKEY SASH & INTEGRAL BLINDS
	GL23 TRANSLUCENT SINGLE-GLAZED IGUS
	GL24 WHITE OPAQUE COLOURBACK SINGLE GLAZING BACKED WITH INSULATION
	GL25 GREEN OPAQUE COLOURBACK SINGLE GLAZING BACKED WITH INSULATION
	GL26 CLEAR SINGLE GLAZING
	GL27 STANDARD CLEAR DOUBLE GLAZED IGUS
	GL28 BRONZE OPAQUE COLOURBACK SINGLE GLAZING BACKED WITH INSULATION
	GL29 ASSAULT GUARD CLEAR GLAZING

DIMENSION LEGEND:

 DIMENSION SET OUT FOR METAL SHEET CLADDING (COLORBOND®) - FAC10

 DIMENSION SET OUT FOR WINDOW AND LOUVERS

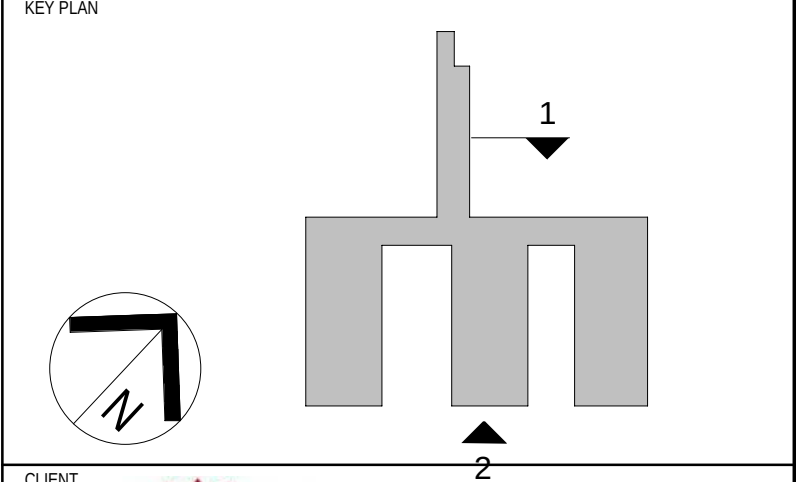
 DIMENSION SET OUT FOR TERRAZZOTA CLADDING - FAC1

 DIMENSION SET OUT FOR ALUMINIUM NON-COMPOSITE CLADDING - FAC3

 REINFORCED CONCRETE CLADDING (FIBRE C) - FAC2

 NOTE 1 - REFER TO CURVED FACADE SET OUT PLAN DETAILS FOR FACADE AND WINDOWS SERIES 7600

P	08/06/21	SC	WB	GENERAL UPDATE	
P	26/02/20	SC	WB	FACADE UPDATE	
O	10/12/20	SC	WB	ROUND LOUVRES UPDATE	
N	07/08/20	LH	WB	SOUTH ELEVATION UPDATE	
M	27/07/20	MW	WB	SECTION 4.55 MODIFICATION ISSUE	
K	25/07/20	LH	WB	SECURE COURT-YARD UPDATE	
M	21/05/20	LH	WB	SECURE COURT-YARD UPDATE	
J	23/04/20	LH	WB	GENERAL ELEVATION UPDATE	
I	24/03/20	LH	WB	EAST ATRIUM SMOKE FAN & GENERAL UPDATE	
H	20/02/20	LH	WB	SECTION 4.55 MODIFICATION ISSUE	
G	14/02/20	LH	WB	ISSUED FOR CC44	
F	03/02/20	LH	WB	SECTION 4.55 MODIFICATION ISSUE	
REV	DATE	DRAWN	REVO	APP'D	AMENDMENT



PROJECT
CONCORD HOSPITAL
REDEVELOPMENT STAGE 1

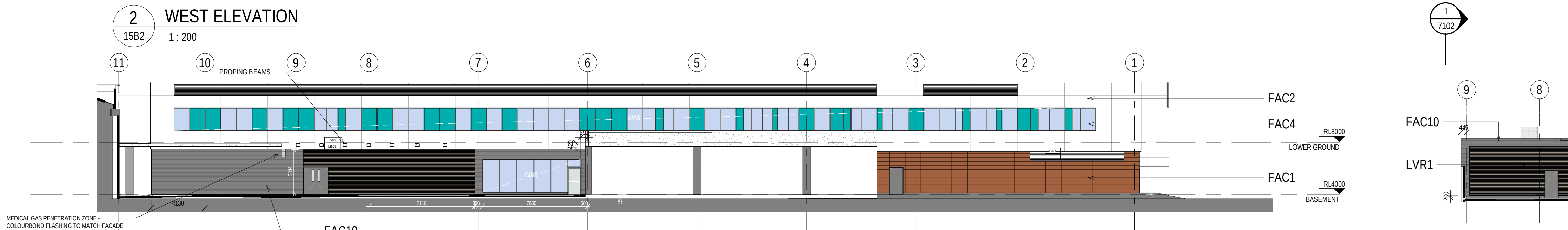
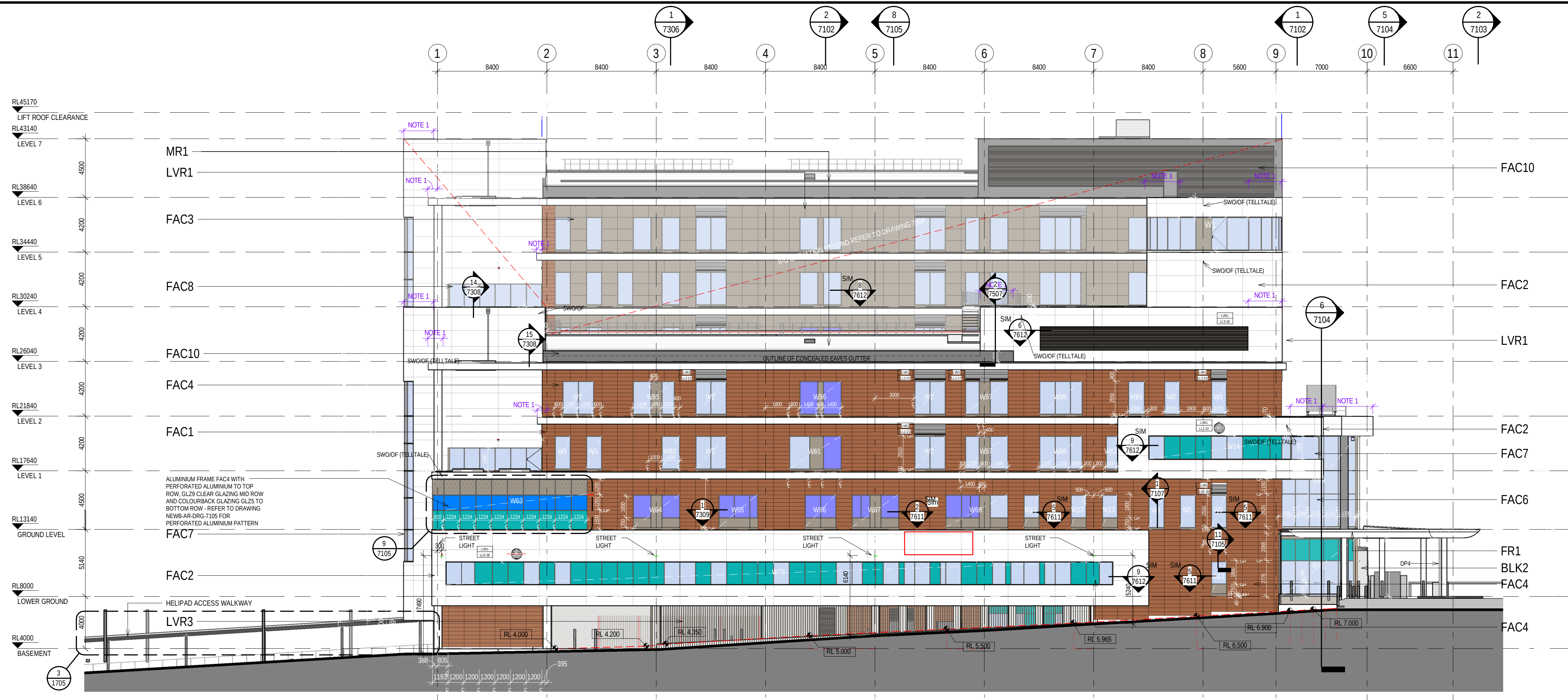
HOSPITAL ROAD
CONCORD NSW 2139

TITLE
ELEVATION - NORTH & SOUTH

DRAWING STATUS

FOR CONSTRUCTION

DRAWING MW/BY		DRAWING CHECK PCWB	
DESIGNED AC/DG		DESIGN REVIEW CY	
REVIEWED		DATE	
APPROVED		DATE	
SCALE			
1 : 200 @ B1			
PROJECT NO.		DRAWING NO.	
IA064700		NEWB-AR-DRG-7001	
			REV 0



LEGEND:

- TERRACOTTA
INSTALLED BY BRIGHTON
- ALUM SOLID CLADDING
INSTALLED BY BRIGHTON
- REINFORCED CONCRETE CLADDING (FIBRE C)
INSTALLED BY BRIGHTON
- ALUM. METAL LOUVRES
INSTALLED BY CVS

GLAZING LEGEND:

- GLZ1 STANDARD CLEAR SINGLE GLAZED IGUS
- GLZ2 CLEAR SINGLE GLAZED IGUS WITH JOCKEY SASH & INTEGRAL BLINDS
- GLZ3 TRANSLUCENT SINGLE-GLAZED IGUS
- GLZ4 WHITE OPAQUE COLOURBACK SINGLE GLAZING BACKED WITH INSULATION
- GLZ5 GREEN OPAQUE COLOURBACK SINGLE GLAZING BACKED WITH INSULATION
- GLZ6 CLEAR SINGLE GLAZING
- GLZ7 STANDARD CLEAR DOUBLE GLAZED IGUS
- GLZ8 BRONZE OPAQUE COLOURBACK SINGLE GLAZING BACKED WITH INSULATION
- GLZ9 ASSAULT GUARD CLEAR GLAZING

DIMENSION LEGEND:

- DIMENSION SET OUT FOR METAL SHEET CLADDING (COLOURBACK) - FAC10
- DIMENSION SET OUT FOR WINDOW AND LOUVRES
- DIMENSION SET OUT FOR TERRACOTTA CLADDING - FAC1
- DIMENSION SET OUT FOR ALUMINUM NON-COMPOSITE CLADDINGS - FAC3
- REINFORCED CONCRETE CLADDING (FIBRE C) - FAC2
- NOTE 1 - REFER TO CURVED FACADE SETOUT PLAN DETAILS FOR FACADE AND WINDOWS SERIES 7100

KEY PLAN

CLIENT

NSW GOVERNMENT Health Infrastructure

JOHNSTAFF

roberts pizzarotti

JACOBS

LEVEL 1, 177 PACIFIC HIGHWAY
NORTH SYDNEY
NSW 2060
AUSTRALIA

TEL: +61 2 9633 2100
FAX: +61 2 9633 2330
WEB: jacobson.com

PROJECT

CONCORD HOSPITAL
REDEVELOPMENT STAGE 1

HOSPITAL ROAD
CONCORD NSW 2139

TITLE

ELEVATION - EAST & WEST

FOR CONSTRUCTION

DRAWN: MW/BY
DESIGNED: PC/WB
AC/DG: CY

REVIEWED: DATE

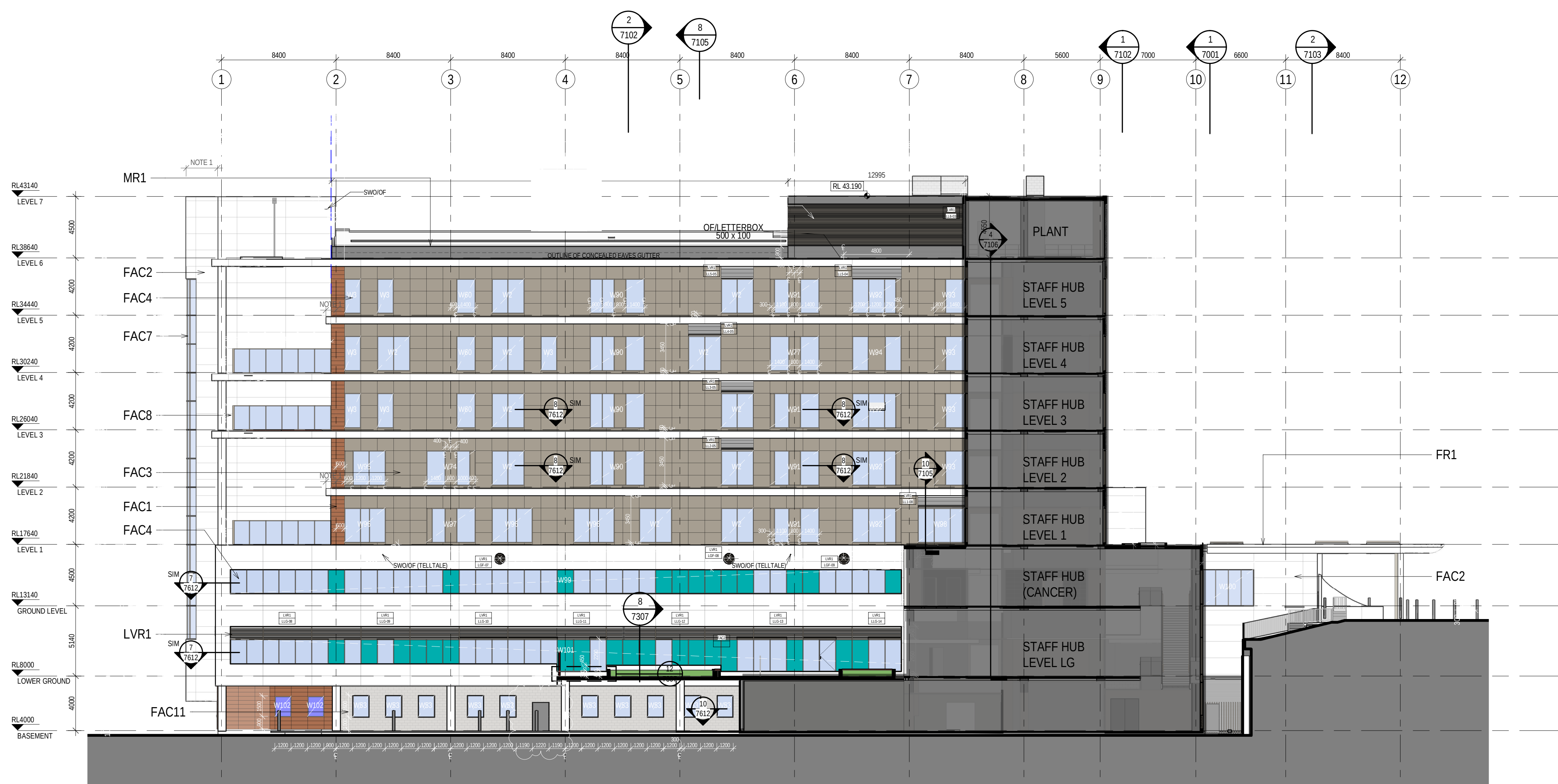
APPROVED: DATE

SCALE

1:200 @ B1

PROJECT No. IA064700
DRAWING No. NEWB-AR-DRG-7002

REV N



1 IPU 1 - EAST ELEVATION
15B2 1:200



2 IPU 2 - WEST ELEVATION
15B2 1:200

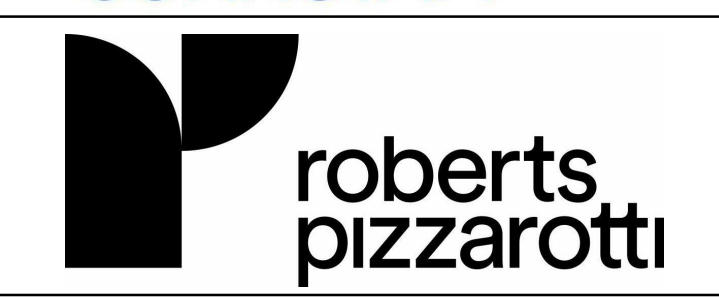
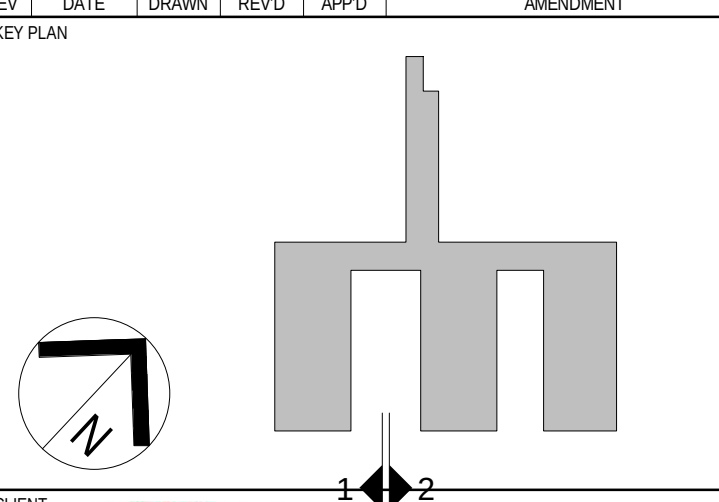
LEGEND:

- TERRACOTTA
INSTALLED BY BRIGHTON
- ALUM SOLID CLADDING
INSTALLED BY BRIGHTON
- REINFORCED CONCRETE CLADDING (FIBRE C)
INSTALLED BY BRIGHTON
- ALUM. METAL LOUVRES
INSTALLED BY CVS

- FR1 FLAT ROOF, MEMBRANE WITH SELECT PAVERS/BALLAST
MR1 METAL ROOF SHEETING WITH 100mm INSULATION ROOF RAISERS
LVR1 HORIZONTAL LOUVRES
LVR2 ACTUATED POWER GLASS LOUVRES
LVR3 VERTICAL LOUVRES
LVR4 600mm DEEP ACOUSTIC LOUVRES, HORIZONTAL

- GLAZING LEGEND:**
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 - GL27 STANDARD CLEAR DOUBLE GLAZED IGUS
 - GL28 BRONZE OPAQUE COLOURBACK SINGLE GLAZING BACKED WITH INSULATION
 - GL29 ASSAULT GUARD CLEAR GLAZING

REV	DATE	DRAWN	REV'D	APP'D	AMENDMENT
J	13.07.20	MW	WB		GENERAL UPDATE
I	20.06.20	MW	SC		GENERAL UPDATE
H	05.06.20	LH	WB		ELEVATION UPDATE
G	23.04.20	LH	WB		GENERAL ELEVATION UPDATE
F	20.02.20	LH	WB		SECTION 4.55 MODIFICATION ISSUE
E	14.02.20	LH	WB		ISSUED FOR CCA
D	03.02.20	LH	WB		SECTION 4.55 MODIFICATION ISSUE
C	04.12.19	BA	WB		UPDATES TO FACADE - EAST ELEVATION BANDING DETAIL UPDATE & COLORBACK GLASS REVERSED
B	08.11.19	BA	WB		GENERAL UPDATES
A	27.09.19	BA	WB		ISSUE FOR CONSTRUCTION
Z1	03.09.19	BA	WB		ELEVATIONS & DETAILS UPDATE - LOUVRES, WINDOW TAGS ADDED & GENERAL UPDATES



LEVEL 1, 177 PACIFIC HIGHWAY
NORTH SYDNEY
NSW 2060
AUSTRALIA

TEL: +61 2 9038 2100
FAX: +61 2 9038 2100
WEB: jacobs.com

PROJECT
CONCORD HOSPITAL
REDEVELOPMENT STAGE 1
HOSPITAL ROAD
CONCORD NSW 2139

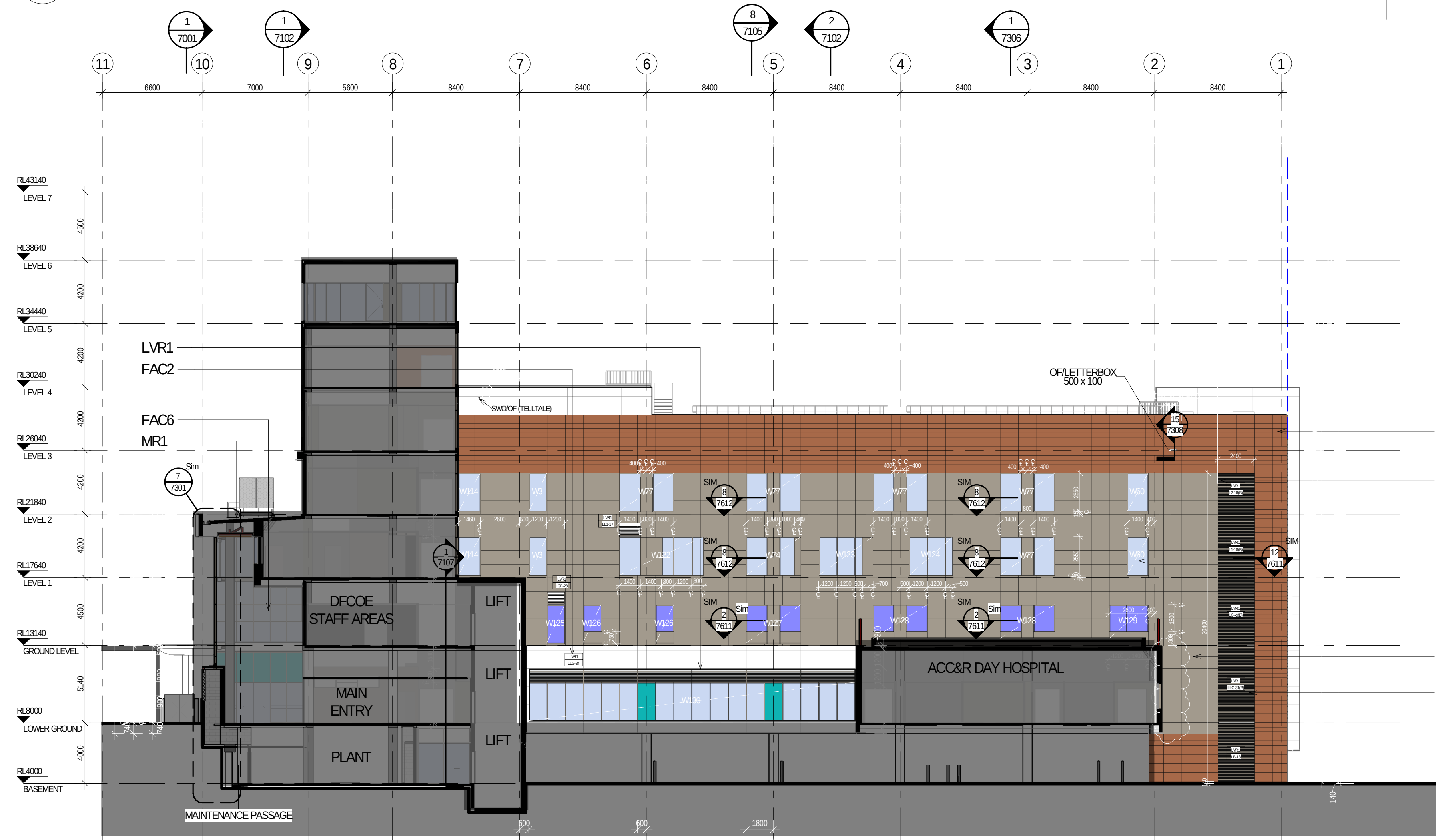
TITLE
ELEVATION - IPU 1 EAST & IPU 2
WEST

DRAWING STATUS
FOR CERTIFICATION

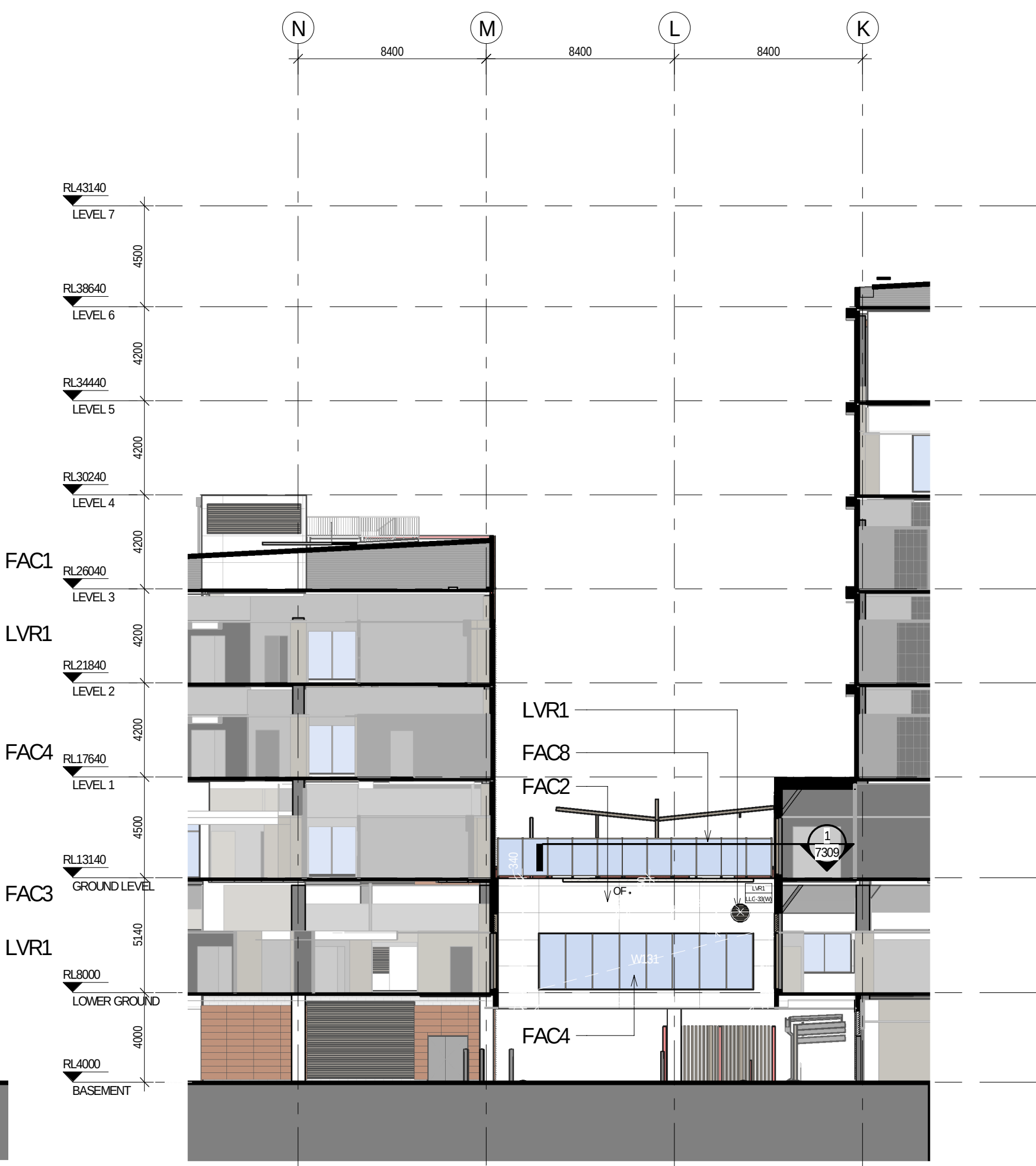
DRAWN MW/BY	DRAWING CHECK PC/WB
DESIGNED AC/DG	DESIGN REVIEW CY
REVIEWED	DATE
APPROVED	DATE
SCALE 1:200 @ B1	
PROJECT No.	DRAWING No.
IA064700	NEWB-AR-DRG-7003
REV	J



1 IPU2 - EAST ELEVATION
1:200



2 IPU3 - WEST ELEVATION
1:200



3 IPU3 - NORTH ELEVATION
1:200

LEGEND:

- TERRACOTTA
INSTALLED BY BRIGHTON
- ALUM SOLID CLADDING
INSTALLED BY BRIGHTON
- REINFORCED CONCRETE CLADDING (FIBRE C)
INSTALLED BY BRIGHTON
- ALUM. METAL LOUVRES
INSTALLED BY CVS

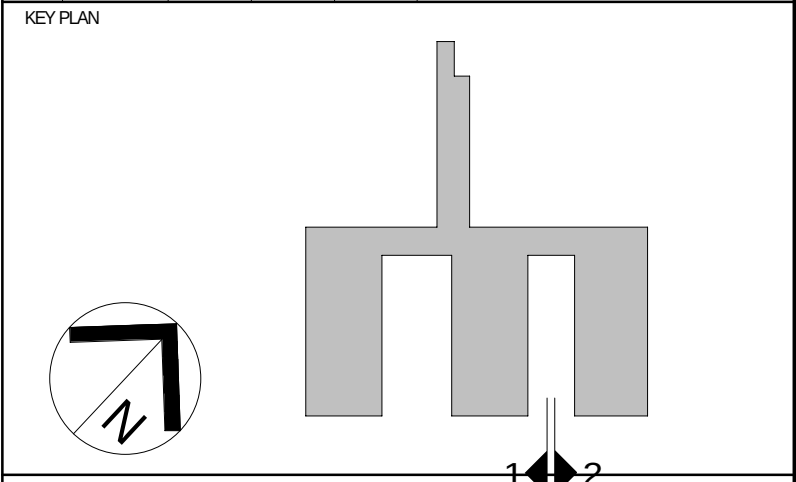
- FR1 FLAT ROOF, MEMBRANE WITH SELECT PAVERS/BALLAST
- MR1 METAL ROOF SHEETING WITH 100mm INSULATION ROOF RAISERS
- LVR1 HORIZONTAL LOUVRES
- LVR2 ACTUATED POWER GLASS LOUVRES
- LVR3 VERTICAL LOUVRES
- LVR4 600mm DEEP ACOUSTIC LOUVRES, HORIZONTAL

- GLAZING LEGEND:**
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DIMENSION LEGEND:

- DIMENSION SET OUT FOR METAL SHEET CLADDING (COLORBOND®) - FAC10
- DIMENSION SET OUT FOR WINDOW AND LOUVRES
- DIMENSION SET OUT FOR TERRACOTTA CLADDING - FAC1
- DIMENSION SET OUT FOR ALUMINUM NON-COMPOSITE CLADDING - FAC3
- REINFORCED CONCRETE CLADDING (FIBRE C) - FAC2
- NOTE 1 - REFER TO CURVED FACADE SETOUT PLAN DETAILS FOR FACADE AND WINDOWS SERIES 7000

REV	DATE	DRAWN	REV'D	APPROV	AMENDMENT
G	21.08.20	MM	WB		GENERAL UPDATE
F	23.04.20	LH	WB		GENERAL ELEVATION UPDATE
E	14.02.20	LH	WB		ISSUED FOR CCA
D	20.12.19	BA	WB		FACADE UPDATES - COLORBACK TO AIR LOBBY, UPDATES TO NOVH AND FACADE PLAN DETAIL UPDATES (WINDOW REPOSITIONED)
C	04.12.19	BA	WB		UPDATES TO FACADE - EAST ELEVATION BANDING DETAIL UPDATE & COLORBACK GLASS REVERSED
B	08.11.19	BA	WB		GENERAL UPDATES
A	27.09.19	BA	WB		ISSUE FOR CONSTRUCTION
20	03.09.19	BA	WB		ELEVATIONS & DETAILS UPDATE - LOUVRES, WINDOW TAGS ADDED & GENERAL UPDATES



LEVEL 7, 177 PACIFIC HIGHWAY
NORTH SYDNEY
NSW 2060
AUSTRALIA

TEL: +61 2 9628 2100
FAX: +61 2 9628 2100
WEB: jacobsc.com

PROJECT
**CONCORD HOSPITAL
REDEVELOPMENT STAGE 1**

HOSPITAL ROAD
CONCORD NSW 2139

TITLE
**ELEVATION - IPU 2 EAST & IPU 3
WEST**

DRAWING STATUS
FOR CONSTRUCTION

DRAWN	DESIGNED	AC/DG	REVIEWED	APPROVED	SCALE	PROJECT NO.	DRAWING NO.	REV
MM/WB	PCMB	AC/DG	CY		1:200 @ B1	IA064700	NEWB-AR-DRG-7004	G



EWFA Test Report No.	487313-00.1	Page 1 of 2
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Report Sponsor	Issue Date
The Tile People 11C Westward Ho Road, Glen Eden Auckland 0602	January 30 th , 2018

Test in accordance with AS/NZS 1530.1 - 1994

Objective
To determine the performance of the material samples as described in this report when subjected to the test conditions stated in the test standard referenced below.

Product	Fibre-C
----------------	----------------

Test Reference	Reference Date
48731300 1	January 30 th , 2018

Test Method	Supplementary Standards
AS 1530.1:1994 Part 1: Combustibility test for materials	ISO 1182:2010

Product Description

The sponsor described the material as "extruded fibre reinforced concrete". The material was grey in colour. The material was glass fibre reinforced concrete comprising of 90% sand and cement and 10% glass fibres, pigments and concrete additives, as nominated by the test sponsor.

The material was supplied in nominally 12.5mm thick disks and had a nominal density of 2125kg m⁻³.

EWFA personnel were not involved with the selection of these test specimens. The sponsor supplied the material cut into disks of 12.5 mm (nom) thickness. These were loose laid to form a sample 50 mm high for the test.

Before conducting these tests the test specimens were conditioned in a ventilated oven maintained at a temperature of 60±5°C for at least 20 and no more than 24 hours. Prior to conducting these tests the samples were cooled to room temperature in a desiccator.

TESTING AUTHORITY	Exova Warringtonfire Aus Pty Ltd
Address	PO Box 4282 DANDENONG SOUTH VIC 3164 Unit 2, 409-411 Hammond Road DANDENONG VIC 3175
Phone / Fax	61 (0)3 9767 1000 / 61 (0)3 9767 1001
ABN	81 050 241 524
Email / Home Page	www.exova.com
Authorisation	Prepared By:  Reviewed By: 
	J. Richardson C. M. McLean

Test Results

Mean furnace temperature rise	1.4°C
Mean specimen centre thermocouple temperature rise	0.6°C
Mean specimen surface thermocouple temperature rise	1.2°C
Mean duration of sustained flaming	0 seconds
Mean mass loss	9.61%

Criteria of Combustibility

Clause 3.4 of AS1530.1:1994 defines a combustible material as one for which; the duration of sustained flaming, as determined by summing the individual durations of flaming of 5 seconds or longer for all of the samples and dividing by five, is greater than zero, or the arithmetic mean of the temperature rise of the furnace thermocouple exceeds 50°C or the arithmetic mean of the specimen surface thermocouple temperature rise exceeds 50°C.

Comments

The material is NOT DEEMED COMBUSTIBLE according to the criteria of combustibility specified in Clause 3.4 of AS 1530.1-1994 (R2016).

An alternative suitable insulating material, as specified in Clause 4.2 of ISO 1182:2010, was used to fill the annular space around the furnace tube.

Conditions/Validity

This report may only be reproduced in full. Extracts or abridgements shall not be published without permission of Exova Warringtonfire Aus Pty Ltd.

These tests have been conducted in accordance with the test standard referenced above and this report should be read in conjunction with that standard.

This test report does not provide an endorsement by Exova Warringtonfire Aus Pty Ltd of the performance of the actual products supplied. The tests were performed at CSIRO laboratories at the request of Exova Warringtonfire Aus Pty Ltd. These test results relate only to the behaviour of the material under the conditions of the test and are not intended to be the sole criterion for assessing the potential fire hazard of the material in use.



Reaction-to-fire test report

A reaction-to-fire test in accordance with AS 1530.1:1994 (R2016)

Test sponsor: Design Central Australia Pty Ltd

Product: 16 mm Thick FK-16 Tempio® ventilated facade

Job number: RTF190284

Test date: 1 November 2019 Revision: R1.0

Amendment schedule

Version	Date	Information about the report			
R1.0	8 November 2019	Description	Initial issue.		
			Prepared by	Reviewed by	Authorised by
		Name	Atousa Aris	Muntaqim Pereira	Anthony Rosamilia
		Signature			

Contact information

Warringtonfire Australia Pty Ltd – ABN 81 050 241 524

Melbourne – NATA registered laboratory

Unit 2, 409-411 Hammond Road
Dandenong South, VIC 3175
Australia

T: +61 3 9767 1000

Brisbane

Suite 6, Level 12
133 Mary Street
Brisbane, QLD 4000
Australia

T: +61 7 3238 1700

Perth

Unit 22, 22 Railway Road
Subiaco, WA 6008
Australia

T: +61 8 9382 3844

Sydney

Suite 802, Level 8
383 Kent Street
Sydney, NSW 2000
Australia

T: +61 2 9211 4333

Canberra

Unit 2, 11 Murray Crescent
Griffith, ACT 2603
Australia

T: +61 2 6260 8488

General conditions of use

The data, methodologies, calculations and results documented in this report specifically relate to the tested specimen/s and must not be used for any other purpose.

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5. Observations	7
6. Comments	7
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1. Introduction

This report documents the findings of the fire hazard properties of 16 mm Thick FK-16 Tempio® ventilated facade undertaken on 1 November 2019 in accordance with AS 1530.1:1994 (R2016) and the supplementary standard of ISO 1182:2010.

Warringtonfire Australia did the test at the request of Design Central Australia Pty Ltd.

Table 1 Test sponsor details

Test sponsor	Address
Design Central Australia Pty Ltd	15 King William Road Unley SA 5061 Australia

2. Product description

Table 2 describes the sampled product.

Table 2 Product description

Product name	Description
16 mm Thick FK-16 Tempio® ventilated facade	The sponsor described the material as porcelain clay. The material is to be used in ventilated façade systems. The material was beige in colour with a smooth surface finish. The material had a measured density of 2101 kg/m ³ . The material had holes through it, which were elongated circles 5 mm apart from each other. The height and width of these were 5 mm and 12.5 mm, respectively. Warringtonfire personnel were not involved with the selection of the material. Before conducting these tests, the test specimens were conditioned in a ventilated oven maintained at a temperature of 60 ± 5 °C for at least 20 and no more than 24 hours. Prior to conducting these tests, the samples were cooled to room temperature in a desiccator.



Figure 1 Photo of product



Figure 2 Photo of product

3. Test results

Table 3 shows the summary of observations and calculations of the material samples.

Table 3 Test calculations

Parameter	Symbol or expression	Unit	Results					Arithmetic mean = $\sum \text{results}/5$
			1	2	3	4	5	
Initial specimen mass	m_{si}	g	131.6	130.7	130.8	131.5	131.5	
Final specimen mass	m_{sf}	g	131.6	130.6	130.8	131.4	131.5	
Mass loss	$\delta m = (m_{si} - m_{sf})/m_{si}$	%	0.0	0.1	0.0	0.1	0.0	0.0
Total duration of sustained flaming	Cumulative total of duration of flaming (>5s)	s	0	0	0	0	0	0
Initial furnace thermocouple temperature	T_{fi}	°C	746.7	746.2	745.4	746.4	751.4	
Maximum furnace thermocouple temperature	T_{fm}	°C	770.1	762.3	771.7	773.5	763.5	
Final furnace thermocouple temperature	T_{ff}	°C	768.1	761.7	770.6	770.8	761.5	
Furnace thermocouple temperature rise	$\delta T_f = T_{fm} - T_{ff}$	°C	2.0	0.6	1.1	2.7	2.0	1.7
Maximum specimen centre thermocouple temperature	T_{cm}	°C	765.1	772.1	770.6	772.2	745.2	
Final specimen centre thermocouple temperature	T_{cf}	°C	765.1	772.0	770.5	772.2	744.6	
Specimen centre thermocouple temperature	$\delta T_c = T_{cm} - T_{cf}$	°C	0.0	0.1	0.1	0.0	0.6	0.2
Maximum specimen surface thermocouple temperature	T_{sm}	°C	784.0	795.3	792.1	789.2	786.9	
Final specimen thermocouple temperature	T_{sf}	°C	783.4	795.0	791.8	788.4	786.2	
Specimen surface thermocouple temperature rise	$\delta T_s = T_{sm} - T_{sf}$	°C	0.6	0.3	0.3	0.8	0.7	0.5
Test duration		s	3600	3600	3600	3600	3600	3600

Table 4 Summary of results

Characteristic	Result
Mean furnace temperature rise:	1.7 °C
Mean specimen centre thermocouple temperature rise:	0.2 °C
Mean specimen surface thermocouple temperature rise:	0.5 °C
Mean duration of sustained flaming:	0 seconds
Mean mass loss:	0.0 %

4. Criteria of combustibility

Clause 3.4 of AS 1530.1:1994 (R2016) defines a combustible material as one for which; the duration of sustained flaming – as determined by summing the individual durations of flaming of 5 seconds or longer for all the samples and dividing by five, is greater than zero, or the arithmetic mean of the temperature rise of the furnace thermocouple exceeds 50 °C or the arithmetic mean of the specimen surface thermocouple temperature rise exceeds 50 °C.

Decision rule

Any measurement resulting in a temperature rise of 50 °C or more is taken to meet the temperature rise criteria for combustibility.

5. Observations

Table 5 Test observation

Observations
There were some cracks in the samples after the test.
The colour of the samples changed to light brown after the test.

6. Combustibility

The material is NOT DEEMED COMBUSTIBLE according to the test criteria for combustibility specified in Clause 3.4 of AS 1530.1:1994 (R2016).

7. Comments

A suitable alternative insulating material was used to fill the annular space between the furnace tubes, as specified in Clause 4.2 of ISO 1182:2010.

Prior to testing, the material was tied together using two fine nickel-chromium thermocouple wires to prevent air gaps between layers.

During three of the tests, the thermocouples did not reach equilibrium. The tests were ended after 3600 seconds as described in Section 7.4.7 in ISO 1182:2010.

8. Application of test results

This test report does not provide an endorsement by Warringtonfire Australia Pty Ltd of the performance of the actual products supplied.

These test results only relate to the behaviour of the tested specimens under the particular conditions of the test and they are not intended to be the sole criterion for the assessing the potential fire hazard of the material in use.

Acoustigard Partition Rolls

INTERIOR ACOUSTIC SOLUTIONS

INTRODUCTION

Bradford Acoustigard Partition Rolls are a high performance insulation product designed for use in metal framed internal partitions & walls in multi residential and commercial office buildings.

PRODUCT DESCRIPTION

Bradford Acoustigard Partition Rolls are manufactured by spinning molten glass into fine wool-like fibres, containing up to 65% recycled glass content. These inorganic, non-combustible fibres are bonded together using a thermosetting resin and the product can be identified by its golden appearance and is supplied un-faced.

APPLICATIONS

Acoustigard Partition Rolls have been designed to provide long term thermal and acoustic control for internal partition wall and ceiling assemblies and offer a broad range of thicknesses and densities to suit most applications. Acoustigard Partition Rolls provides repeatable performance both thermally and acoustically, and can be used in ceilings and internal walls requiring BCA/NCC compliance to Section J. Acoustigard will not slump in the wall cavity, ensuring that there are no unwanted voids or cavities that can lead to the loss of thermal and acoustic performance.

Bradford Acoustigard Partition Rolls can achieve a high range of R_w and $R_w + C_{tr}$ acoustic ratings when installed with Gyprock™ plasterboard and Hebel™, ensuring effective isolation and separation of living and working spacing. Typical applications include walls and partitions in;

- High rise and low rise multi residential buildings;
- Commercial office buildings and shopping centre interior fit-outs;
- Acoustic ceiling baffle block treatment to meet acoustic requirements;
- Overlays to the ceiling grid to provide improved acoustic and thermal isolation.

BENEFITS

- Excellent acoustic properties - helps reduce sound transmission through wall systems
- Non combustible fibre - does not add to the fuel load in the building
- Friction fit to suit commercial stud spacing – no stapling required
- Compression packaged - easily handled and stored on-site improving m2 per movement on site.
- Made from a safe to handle Fibre Bio-Soluble (FBS-1) formulation
- Made in Australia for Australian conditions

HEALTH AND SAFETY

This product is manufactured using the latest safe-to-handle Fibre Bio-Soluble (FBS-1) Glasswool formulation and is not classified as hazardous according to the criteria of the ASCC (formally NOHSC) guidelines. For further information refer MSDS sheet on the Bradford website.

SAMPLE SPECIFICATION

The insulation material shall be Bradford Acoustigard Partition Rolls having a material R-Value; R_m(specify R-Value) @ XXmm....(specify thickness) having a nominal density YYkg/m3(specify density). For installation specifications refer to the relevant Bradford Product Selector.

ACOUSTIC PERFORMANCE

Sound absorption results tested in accordance with AS/ISO 354–2006 and NRC result rated in accordance with AS/ISO 11654.

DENSITY	THICKNESS	FREQUENCY									REPORT
kg/m ³	(mm)	125	250	500	1000	2000	4000	5000	NRC	aw	Ref
11	75mm	0.26	0.63	0.97	0.87	0.92	0.97	0.95	0.85	0.90	10-190
14	75mm	0.26	0.71	1.03	1.00	0.95	0.99	0.97	0.90	0.95	10-191

Acoustigard Partition Rolls

PHYSICAL PROPERTIES

MAXIMUM SERVICE TEMP		350°C
THERMAL COMPLIANCE	AS/NZS4859.1 Materials for the thermal insulation of buildings	Complies
MOISTURE ABSORPTION	When left in a controlled atmosphere of 50°C and 95% relative humidity for four days	Less than 0.2% by volume
FIRE HAZARD PROPERTIES	When tested in accordance with AS1530.3:1999	Ignitability: 0 Heat Evolved: 0 Spread of Flame: 0 Smoke Developed: 1
COMBUSTIBILITY	When tested in accordance with AS1530 Part 1:1994	Non-combustible

SPECIFICATION

PART NUMBER	MATERIAL R-VALUE	DENSITY (kg/m ³)	THICKNESS (mm)	LENGTH (m)	WIDTH (mm)	ROLLS PER PACK	COVERAGE PER PACK (m ²)
119466	R1.2	11	50	16.2	450	3	21.9
119467	R1.2	11	50	16.2	600	2	19.4
119468	R1.7	11	75	13.5	450	3	18.2
119469	R1.7	11	75	13.5	600	2	16.2
119511	R2.5	11	110	8.1	600	2	9.7
119470	R3.5	11	165	5.4	600	2	6.5
119521	R1.3	14	50	16.2	450	3	21.9
119522	R1.3	14	50	16.2	600	2	19.4
119523	R1.8	14	75	13.5	450	3	18.2
119524	R1.8	14	75	13.5	600	2	16.2
73776	R2.2	14	90	10.8	450	3	14.6
87731	R2.2	14	90	10.8	600	2	13.0
119526	R2.5	14.5	100	10.0	600	2	13.0
119373	R0.7	18	25	21.6	600	2	25.9
119375	R1.3	18	50	10.8	450	3	14.6
119376	R1.3	18	50	10.8	600	2	13.0
119377	R2.0	18	75	8.1	450	3	10.9
119379	R2.0	18	75	8.1	600	2	9.7
119413	R1.4	20	50	10.8	450	3	14.6
119414	R1.4	20	50	10.8	600	2	13.0
119444	R2.1	20	75	8.1	450	3	10.9
119446	R2.1	20	75	8.1	600	2	9.7
119462	R2.5	20	90	5.4	450	3	7.3
119463	R2.5	20	90	5.4	600	2	6.5
119529	R1.4	24	50	10.8	450	3	14.6
119528	R1.4	24	50	10.8	600	2	13.0
119530	R2.1	24	75	8.1	450	3	10.9
119551	R2.1	24	75	8.1	600	2	9.7
119587	R1.5	32	50	8.1	450	3	10.9
119588	R1.5	32	50	8.1	600	2	9.7
119589	R2.2	32	75	5.4	450	3	7.3
119631	R2.2	32	75	5.4	600	2	6.5
162853	R2.7	32	90	5.4	450	3	7.3
162852	R2.7	32	90	5.4	600	2	6.5



CSR Bradford
Locked Bag 1345 North Ryde BC NSW 1670
csrbradford.com.au
Email: bradfordenquiries@csr.com.au

For further information
call **1300 850 305** or
visit bradfordinsulation.com.au



CSR Bradford is a business division of CSR Building Products Limited ABN 55 008 631 356

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Thermoseal Firespec™

NON-COMBUSTIBLE WALL WRAP OR ROOF SARKING

PRODUCT DESCRIPTION

Bradford Thermoseal FireSpec is a non-combustible wall wrap/roof sarking that meets the non-combustible requirements of BCA 2016 Volume 1 clause C1.12 and Volume 2 clause 3.7.1.2, or where there is a requirement to construct from non-combustible materials. Thermoseal Firespec is a single sided reflective foil laminate constructed from pure aluminium foil and a white high temperature woven glass fabric which achieves a high water holdout classification and is rated as an extra heavy duty sarking.

KEY FEATURES

- Non-combustible in accordance with BCA 2016 Volume 1 clause C1.12 and Volume 2 clause 3.7.1.2
- Suitable for use in BAL zones 12.5 to FZ
- Ideal as a wall wrap or roof sarking where non-combustible construction is specified
- Manufactured from a high quality woven e-glass fabric

APPLICATION SUITABILITY

- Recommended for applications requiring a non-combustible wall wrap or roof sarking and where the use of a medium vapour barrier product will not increase condensation risk - seek expert advice if in doubt
- Not suitable for use behind lightweight cladding unless specified by manufacturer - consider the Enviroseal range as an alternative.

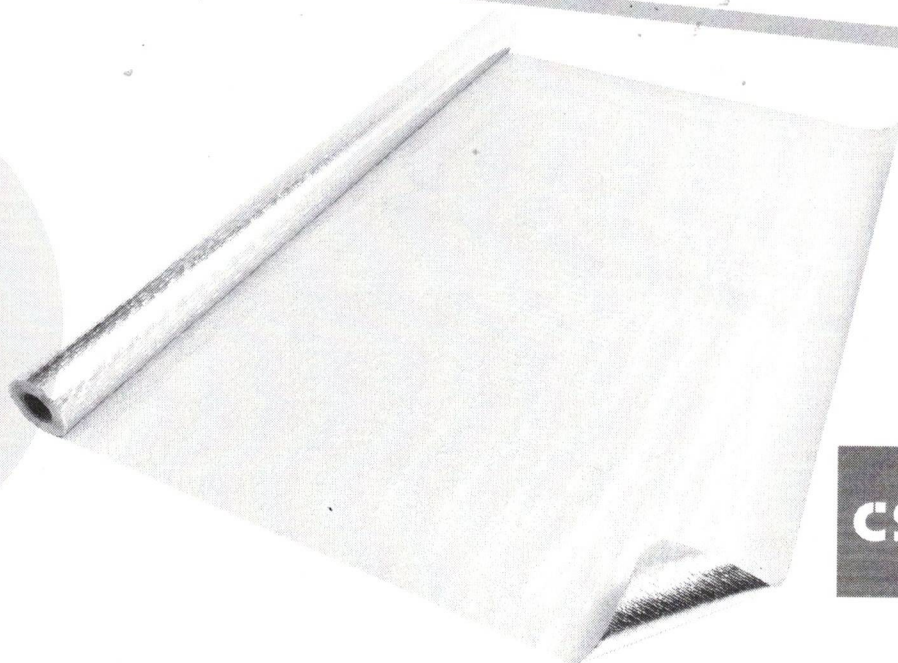
STANDARD SIZES AND PACKAGING

WIDTH (mm)	LENGTH (m)	m ² PER ROLL	ROLLS PER PALLET	PRODUCT CODE
1500	30	45	104	164674

ACCESSORIES

APPLICATION	PRODUCT	WIDTH (mm)	LENGTH (m)	ITEMS PER CARTON	PRODUCT CODE
Foil side: sealing joints/penetrations - use on fabric side for non-combustible applications	493 Reinforced Foil Tape	72	50	16	17369
Fabric side: sealing joints/penetrations - not suitable for non-combustible applications	Enviroseal ProctorWap HighTack Tape	60	25	10	155170
Fixing washers	Bradfix Plasti-Grip Washers	OD45	-	1000	133815

Non-
Combustible
Wrap



CSR

Thermoseal Firespec

INSTALLATION GUIDANCE

- **Weather Exposure:** This product is a secondary sarking material and is not designed to withstand prolonged direct exposure to the elements - accordingly, the exterior cladding should be installed without delay. Product exposed to harsh weather conditions, or for more than 6 weeks for wall or 2 weeks for roof applications, should be inspected for damage prior to installation of the exterior cladding and damaged product should be repaired or replaced to comply with the product warranty. Note: Installation should always be in accordance with AS/NZS4200.2.
- **Installation:** Roll out either vertically or horizontally completely covering all external frame members with the non-reflective side facing outward.
- **Fixings:** Affix using either battens/top-hats/clips or Bradfix Plasti-Grip Washers at 600mm centres, or alternatively staples at 150mm centres. Note: Adjust spacing/type of fastener to suit the prevailing wind conditions that may be experienced prior to cladding.
- **For roof applications:** Roll sarking over rafters with a spacing of ≤ 900 mm centres prior to installing battens.
- **Overlaps:** All overlaps should be 150mm with the upper layer overlapping the lower to shed water away from the framing.
- **Sealing:** Tape all vertical joins and where a water, air or vapour seal is required. Secure the lap with at least one fastener or batten at every frame member.

STORAGE GUIDANCE

Prior to installation, this product should be stored in a cool and dry place away from sunlight and should not come in to contact with water, wet concrete or other alkaline based materials.

CLASSIFICATIONS

CRITERIA		REFERENCE	REQUIREMENT	RESULT
Non-combustibility		AS1530.1 / CSIRO report FCO-3235	Combustible / Non-Combustible	Non-Combustible
Flammability index		AS1530.2	≤5 (Low)	0 (Low)
Ignitability Index		AS/NZS1530.3	0 - 20	0
Flame propagation Index			0 - 10	0
Heat evolved Index			0 - 10	0
Smoke developed Index			0 - 10	1
Duty classification		AS/NZS 4200.1	Refer tensile below	Extra Heavy Duty
Emissivity		AS4201.5	IR Reflective ≤0.05	IR reflective (≤0.05) - RN
Vapour barrier (µg/N.s)		ASTM E96	Class 1 to 4	Class 2 (Medium)
Water barrier		AS/NZS 4201.4	Water Barrier/Non Water barrier	Water Barrier
Resistance to dry de-lamination		AS/NZS 4201.1	Pass / Fail	Pass
Resistance to wet de-lamination		AS/NZS 4201.2	Pass / Fail	Pass
Shrinkage		AS/NZS 4201.3	≤0.5%	0%
Tensile strength (kN/m)	Machine	AS/NZS 1301.448s	≥13.5	Pass
	Lateral		≥10.5	Pass
Edge tear (N)	Machine	TAPPI T470	≥90	Pass
	Lateral		≥90	Pass

Non-Combustible Construction

VAPOUR PERMEABLE AND VAPOUR BARRIER WALL WRAP SOLUTIONS

To meet the non-combustibility requirements of BCA 2016 Volume 1 clause C1.12 and Volume 2 clause 3.7.1.2 or where there is a need to construct from non-combustible materials, consideration should be given to all of the materials used in the system. To meet this requirement for wall wrap, CSR Bradford offers the following solutions which can be combined with non-combustible Bradford Glasswool insulation to meet acoustic, thermal, water and air infiltration specifications for external wall applications.

	Vapour Barrier Solution	Vapour Permeable Solution
	Ideal for warmer climates where the vapour drive is from outside to inside	Ideal for cooler climates where the vapour drive is from inside to outside
Product Solution	Bradford Thermoseal Firespec™	Bradford Enviroseal ProctorWrap CW
Vapour Permeability	Class 2 (Vapour Barrier)	Class 4 (Vapour Permeable)
Water Barrier	Water Barrier (High)	Water Barrier (High)
Duty Classification	Extra Heavy Duty	Light Wall
Supporting Documentation	Refer AS1530 Part 1/2/3 test reports and CSIRO report FCO-3235	Fire Performance of Wall Wraps – Evidence of Suitability (Stephen Grubits & Associates - July 2017)
	This product can also be used as a roof sarking in BAL regions or where there is a need to build entirely from non-combustible materials	Supporting documentation available upon request

Non-Combustible Insulation

Bradford also offers a wide range of non-combustible insulation solutions for commercial and residential applications. These products can offer both thermal and acoustic benefits, whilst meeting the non-combustible requirement stated above.

Need to Know More?

For industry-leading building science support and further product information, please contact the Bradford Technical Team on 1800 354 044 or email bradforddesignsmart@csr.com.au.

THERMOSEAL FIRESPEC

DESCRIPTION: Extra Heavy Duty Sarking for Non-Combustible External Walls
SUITABILITY: Residential and Commercial Applications requiring BCA compliant Non-Combustible Construction

ADDITIONAL INFORMATION: Refer to the Technical Product Statement for more information



EXTRA HEAVY
DUTY



SINGLE SIDED
REFLECTIVE



WATER
BARRIER
HIGH



CLASS 2
VAPOUR
BARRIER



SUITABLE FOR
NON-COMBUSTIBLE
EXTERNAL WALLS

IMPORTANT INFORMATION

- This product is only recommended for the applications listed in this datasheet unless advised otherwise by an official Bradford technical representative.
- This product is a vapour barrier and may not be suitable for use behind lightweight cladding except in tropical climate zone 1 - its suitability should be checked with the cladding manufacturer prior to application.
- This product is not designed to withstand prolonged exposure to UV or weather. Once installed the exterior wall or roof must be applied as soon as possible..
- Prior to installation, this product should be stored in a cool dry place away from sunlight, and should not come into contact with wet concrete or alkaline based materials.
- This product contains aluminium foil which conducts electricity. To avoid electrocution, care should be taken to ensure that this product or conductive fasteners used to secure this product, do not come into contact or close proximity with electrical wiring during installation or use.
- To maintain the water barrier property of this material, it should not be creased, crushed or sharply folded during installation.

PRODUCT DESCRIPTION

Bradford Thermoseal™ Firespec is an Extra Heavy Duty aluminium foil and fiberglass fabric weather barrier that is laminated together using a laminating adhesive.

- This product meets the requirements of the AS/NZS 4200.1 and is suitable for use in Australian residential and commercial applications.
- This product meets the 'Deemed-To-Satisfy' compliance requirements of the BCA 2016 Volume 1, Amendment 1 clause C1.9 (e) (vi) and Volume 2 clause 3.7.1.2 and is suitable for use in non-combustible Type A and B construction.

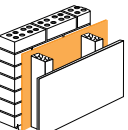
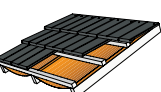
CLIMATE ZONE

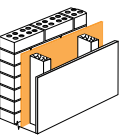
This product is recommended for use in hot climate zones where there are varying levels of insulation used in the wall cavity and vapour and water barrier properties are required. This product is not recommended for climate zone 6,7,8 unless checked by a HVAC consultant.

CLASSIFICATION

This product meets the requirements of AS/NZS 4200.1		
CRITERIA		RESULT
Product Identifier		Firespec
Duty Classification (AS/NZS 4200.1)		Extra Heavy Duty
Tensile Strength (AS/NZS 1301.448s)	Machine	≥ 13
	Lateral	≥ 10.5
Edge Tear Resistance (TAPPI T470)	Machine	≥ 90
	Lateral	≥ 90
Water Control Classification (AS/NZS 4201.4)		Water Barrier
Vapour Classification (ASTM E96)		Class 2 Vapour Barrier
Vapour Permeability (ASTM E96)		< 0.1429 µg/N.s
Emissivity (AS 4201.5)	Inward Facing	Reflective (0.05)
	Outward Facing	Non-Reflective (0.9)
Flammability Index (AS 1530.2)		≤ 5 (Low)
Electrical Conductivity (AS/NZS 3100)		Conductive
Resistance to Dry Delamination (AS/NZS 4201.1)		Pass
Resistance to Wet Delamination (AS/NZS 4201.2)		Pass
Shrinkage (AS/NZS 4201.3)		≤ 0.5%
Nominal Thickness		< 1.0 mm
Classifications in accordance with AS/NZS 4200.1. This product should be installed in accordance with AS 4200.2		

APPLICATION TABLES

	Brick Cavity Wall			Pitched Tile Roof Non-Ventilated Roof Space	
	Summer	Winter		Summer	Winter
	R_f 1.2	R_f 1.3		R_f 1.5	R_f 0.97

	Brick Veneer Wall	
	Insulation	
	R2.5	
	Summer	Winter
	R_f 3.0	R_f 3.2

APPLICATION DETAIL

Bradford Thermoseal™ Firespec is suitable for residential or commercial brick veneer walls, or cement and terracotta tiled roofs. The reflective aluminium side should face inward towards the internal stud cavity and the non-reflective fiberglass side should face outward. The product is designed to provide a reflective air-gap R-Value when there is no insulation up against the reflective aluminium surface.

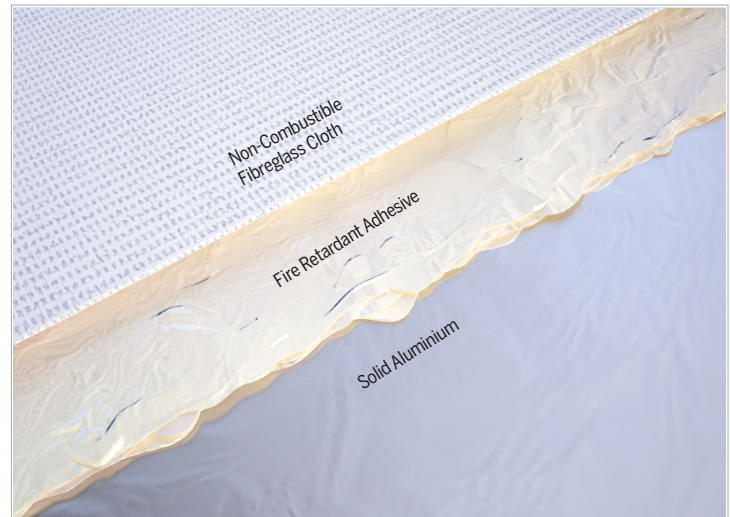
- This product is suitable for use in BAL regions 12.5 to 40 in accordance with AS 3959.

For more information on how to install this product correctly see the Bradford Wall Wrap and/or Roof Sarking Installation guide at bradfordinsulation.com.au

PRODUCT DIMENSIONS

PRODUCT NAME	WIDTH (mm)	LENGTH (m)	m² PER ROLL	WEIGHT (kg)	PRODUCT CODE
Firespec	1500	30	45	15.65	164674

PRODUCT CONSTRUCTION



CONDENSATION CONSIDERATION

Please consider condensation risk prior to use. This product is classified as a Vapour Barrier and when positioned on the cold side of the construction it may increase the risk of condensation entrapment within the structure. To reduce this risk, particularly in cooler climate zones, consider the use of the Bradford Enviroseal vapour permeable range of products.

R-VALUE ASSUMPTIONS

Product performance is calculated in accordance with AS/NZS 4859.1 and the stated thermal performance is the depicted applications Total R-Value. The contribution of this product to the Total R-Value depends upon installation and environmental conditions, and will be reduced in those cavities that are ventilated. In brick veneer wall applications, a minimum brick cavity air gap of 40mm and stud cavity air gap of 90mm is required to contribute to thermal performance. Addition of bulk insulation to the wall stud cavity diminishes the reflective air gap R-Value contribution of this product.

- Calculations are based upon a temperature difference of 6°C for heat flow out and 12°C for heat flow in.
- Emissivity of reflective surface ≤ e0.05 and non-reflective surface ≥ e0.90.

TECHNICAL PRODUCT STATEMENTS

APPLICATION DETAIL

This product is designed for use as a wall wrap or roof sarking where a vapour barrier is specified. It may also be suitable as a roof sarking in BAL regions.

COMPLIANCE WITH THE NCC

Firespec meets the 'Deemed-To-Satisfy' non-combustibility requirements of BCA 2016 Volume 1, Amendment 1 clause C1.9 (e) (vi) and Volume 2 clause 3.7.1.2, or where there is a requirement to construct from non-combustible materials.

EVIDENCE OF SUITABILITY

Available supporting data:

- AS1530 Part 1/2/3 test reports / opinions
- CSIRO non-combustibility report FCO-3235 Rev G

LIMITATIONS OF USE

This product is classified as a Class 2 Vapour Barrier in accordance with AS/NZS 4200.1 and is only suitable behind Lightweight Clad when stated by the cladding manufacturer. Additionally, this product is not suitable for applications that require condensation control.

This product is not suitable for use as a wall or ceiling lining which require a Group Rating in accordance with AS 5637.1.

INSTRUCTIONS FOR DESIGN/CONSTRUCTION/INSTALLATION

This product should be handled with care during installation to avoid creasing or bending which may damage the foil facing and subsequently compromise the waterhold-out properties of the product.

Install in accordance with project specification and/or AS/NZS 4200.2:2017 Pliable building membrane and underlays Part 2: Installation. Further details are provided in the 'Installation Guidance' portion of this product datasheet.

CONDITIONS OF STORAGE, USE & MAINTENANCE

Storage prior to use should be in a cool, dry location out of direct sunlight.

Avoid contact with wet concrete during and after installation.

Do not pressure clean or use mineral based cleaners on this product.

INSTALLATION GUIDANCE - WALLS

This product should be installed in accordance with AS/NZS 4200.2:2017 Pliable Building Membranes and Underlays - Installation.

Recommended instructions for a compliant installation:

- The printed, non-reflective or antiglare surface of this product must be installed facing outward
- Where possible the product should be applied to a corner stud and rolled around the wall frame horizontally. When vertical install is required the product should be overlapped and taped.
- When wrapping around corners, a minimum 150mm should extend around that corner
- When applying a new roll horizontally it should overlap the previous roll a minimum 50mm
- Affix using metal 40mm washers or galvanised screws/nails with plastic washers every 300mm where possible all overlaps and end joins should be fixed onto a wall stud

- When applying the top layer of wrap, it must overlap a minimum 150mm with the bottom layer of wrap
- To create an air barrier, all overlaps should be taped.

* All damage, punctured or torn material should be replaced to maintain the original properties of this product.

* When this product is being used as an air barrier, to achieve air tightness, all joins / penetrations / tears are to be sealed with foil tape.

* For more installation guidance, refer to AS/NZS 4200.2:2017

INSTALLATION GUIDANCE - ROOFS

This product should be installed in accordance with AS/NZS 4200.2:2017 Pliable Building Membranes and Underlays - Installation.

Recommended instructions for a compliant installation:

- The printed, non-reflective or antiglare surface of this product must be installed facing outwards
- Product must be installed under battens with a maximum sag of 40mm to manage thermal performance and be angled at >2° to facilitate drainage
- When the product is installed under the battens it must be rolled out horizontally
- Regardless of direction, a minimum 150mm overlap is required when joining two rolls together. If rolling horizontally the top wrap should always overlap the bottom wrap
- Affix using metal 40mm washers or with galvanised screws/nails with Plastigrip washers every 300mm - all overlaps and end joins should be fixed onto a rafter or batten
- At the fascia, the product must only overlap the fascia edge by 25mm and not restrict drainage to the gutter
- To create an air barrier, all overlaps should be taped.

* All damage, punctured or torn material must be replaced to maintain the original properties of this product

* For more detailed installation guidance, refer to AS/NZS 4200.2:2017 or the Bradford Roof Sarking Installation Guide.

Weather Exposure: This product is a secondary sarking material and is not designed to withstand prolonged direct exposure to the elements - accordingly, the exterior cladding should be installed without delay. Product exposed to harsh weather conditions, or for more than 6 weeks for wall or 2 weeks for roof applications, should be inspected for damage prior to installation of the exterior cladding and damaged product should be repaired or replaced to comply with the product warranty.

PRODUCT & PROJECT SPECIFIC COMMERCIAL WARRANTY

Class 2 to 9 Commercial Buildings

Project details ('Project')

Name: _____

Address: _____

Construction details

Contractor company name: ('contractor') _____

Builder name: _____

Completion date: _____

Warranty issue date: _____

Product details ('Product[s]')

Product 1: _____

Product 2: _____

Product 3: _____

This is to certify that Bradford Insulation Products are manufactured by CSR Bradford in Australia, for Australian conditions under ISO9001 quality standards.

CSR Bradford insulation Products are manufactured using the latest safe to handle bio-soluble FBS-1 fibre technology and are supplied in three different Product configurations:

- a. Un-faced Products** or the portion of a faced Product that is only bulk insulation, consisting of only bulk insulation material without a bonded facing material; and
- b. Faced Products** with a foil or non-foil facing material bonded to the bulk insulation material.
- c. Sarking & Decorative Sarking Products** including Thermoseal and Thermoplast.

Subject to the conditions set out below, CSR Bradford warrants that when installed in accordance with the stated terms and conditions the following applicable Product warranty will apply for this Project:

- 1. Un-faced Products** are warranted to be free from defects in materials and manufacture for 25 years from the date of installation provided they are installed and handled according to Bradford recommendations, all relevant Australian Standards & Building Codes and are not later disturbed, relocated or altered.
- 2. Faced Product, Sarking & Decorative Sarking Product** warranties are separated into three parts:
 - a) Unperforated reflective foil faced and sarking Products are warranted to be free of defects in materials and manufacture for a period of 10 years from the date of purchase and to provide a vapour barrier and reflective insulating surface.
 - b) Perforated reflective foil faced and sarking Products are warranted to be free of defects in materials and manufacture for a period of 10 years from the date of purchase. Note that perforated reflective foil Products are not suitable to control condensation and vapour.
 - c) Non-reflective & decorative faced sarking Products and sarking Products are warranted to be free of defects in materials and manufacture for a period of 10 years from the date of purchase to provide a vapour barrier.
 - d) Non-foil faced Products are warranted to be free of defects in materials and manufacture for a period of 10 years from the date of purchase. Note that non-foil faced Products are not suitable to control condensation and vapour.
 - e) The un-faced Product or bulk insulation component of a Faced Product is warranted in accordance with item 1 of this Warranty.

PRODUCT & PROJECT SPECIFIC COMMERCIAL WARRANTY

Class 2 to 9 Commercial Buildings

In the event of any failure of a Un-faced Product or a Faced Product is caused by the direct result of a defect in the material or manufacture of the Product, CSR Bradford will at its option replace or repair, supply an equivalent Product, or pay for doing one of these.

Specific Warranty Conditions

This Product Warranty does not cover any Product defect or damage to the extent it is caused or contributed to by the following:

1. Modification of the Product without prior written approval from CSR Bradford, including: the removal or addition of a facing material; reduction and/or increase of the thickness of the Product; compression and/or expansion of the Product; addition of any chemical, dye, adhesive or additive to the Product; repacking and/or re-labelling the Product; or
2. Alteration of the original published material performance properties of the Product; or
3. Damage caused to the Product is a result of water exposure and/or incorrect onsite storage prior to or during installation – refer to CSR Bradford documentation for correct storage and handling; or
4. Damage caused to the Product is a result of a high pressure water cleaner, high pressure media cleaner, mechanical cleaning device or chemical agents; or
5. The Product is exposed to corrosive in-situ conditions, such as an alkaline or acidic environment, that does not provide adequate air quality to prevent deterioration of the Product; or
6. The Product is used in a harsh environment without prior written approval from CSR Bradford, including livestock buildings, indoor aquatic centres and fertiliser storage facilities or as outlined in the literature supplied by CSR Bradford; or
7. The Product is used outside its intended purpose as outlined in the literature supplied by CSR Bradford.

The warranties above are provided in addition to other rights and remedies available in respect of the acquisition of Products by a 'consumer' (as defined in the *Competition and Consumer Act 2010* (Cth)).

The following statement is provided where CSR Bradford has provided Products or services to a buyer who is a 'consumer' under the Australian Consumer Law: *Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.*

Other than as expressly set out in the above warranties, and the warranties that cannot be excluded under The Australian Consumer Law (Schedule 2 of the *Competition and Consumer Act 2010* (Cth)) (and any other law), CSR Bradford excludes all other warranties and guarantees with regard to the un-faced Products and faced Products including all implied warranties and guarantees. In addition, to the extent that it is able to do so, CSR Bradford excludes all liability for loss and damage (including consequential loss) where the relevant product or service provided is a good or service other than of a kind ordinarily acquired for personal, domestic or household use or consumption.

Notification of a warranty claim must be made to CSR Bradford within 45 days of discovery of the Product and prior to any return of the relevant Product. To make a claim under this warranty, you must contact CSR at bradfordinsulation@csr.com.au or 1300 858 674. All expense of claiming the warranty will be borne by the consumer making the claim. CSR requires documentation supporting the claim to be provided including proof of purchase/installation date.

Health & Safety Information

CSR Bradford manufacture Products in Australia for Australian conditions using safe to handle bio-soluble FBS-1 fibre. Information on health risks and safe handling of our Products is displayed on the packaging and/or the documentation accompanying them. Additional information is listed in product Material Safety Data Sheets available from your regional CSR BradfordTM office or on our website www.bradfordinsulation.com.au

CSR Bradford

55 Stennett Rd, Ingleburn NSW 2565 Australia

Telephone 1300 850 305 Facsimile 1300 852 674

CSR Bradford is a business division of CSR Building Products Limited ABN 55 008 631 356

Advisory report regarding CSR Building Products Limited Bradford™ Thermoseal Firespec™ with respect to NCC 2016 Volume 1 (Amdt 1) Clause C1.9

Advisory Report

Author: Keith Nicholls

Report Number: FCO-3235 Revision G

Date: 12th September 2018

Client: CSR Building Products Limited

Commercial-in-confidence

Issued to: Adnan Sisic
Company: Brighton Ceilings
Re: Nepean Hospital
Issued On: 30.04.2019



Enquiries should be addressed to:

Fire Testing and Assessments	Author	The Client
NATA Registered Laboratory	Infrastructure Technologies	CSR Building Products Limited
14 Julius Avenue	14 Julius Avenue	376 Victoria Street
North Ryde, NSW 2113 Australia	North Ryde, NSW 2113 Australia	Wetherill Park NSW 2164 Australia
Telephone +61 2 94905444	Telephone +61 2 94905445	Telephone +61 2 9844 7967

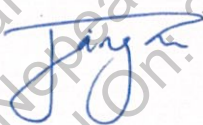
Report Details

Report CSIRO Reference number: FCO-3235

Report Status and Revision History

VERSION	STATUS	DATE	DISTRIBUTION	ISSUE NUMBER
Revision A	Draft for review	02/12/2016	CSIRO; CSR Building Products Limited	FCO-3235
Revision B	Final for issue	28/12/2016	CSIRO; CSR Building Products Limited	FCO-3235
Revision C	Final for issue	29/08/2017	CSIRO; CSR Building Products Limited	FCO-3235
Revision D	Final for issue	11/07/2018	CSIRO; CSR Building Products Limited	FCO-3235
Revision E	Final for issue	24/08/2018	CSIRO; CSR Building Products Limited	FCO-3235
Revision F	Final for issue	28/08/2018	CSIRO; CSR Building Products Limited	FCO-3235
Revision G	Final for issue	12/09/2018	CSIRO; CSR Building Products Limited	FCO-3235

Test Report Authorisation

AUTHOR	REVIEWED BY	AUTHORISED BY
Keith Nicholls	Jing Xu	Brett Roddy
		
12 th September 2018	12 th September 2018	12 th September 2018

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Issued to: Adnan Basic
Company: Brighton Ceilings
Re: Nepean Hospital
Issued On: 30.04.2019

1 Introduction

This report confirms the extent the available test evidence can be used for the determination of the compliance of CSR Building Products Limited Bradford™ Thermoseal Firespec™ with respect to NCC 2016 Volume 1 Amendment 1 clause C1.9 Part e (vi).

Table 1 – CSR Building Products Limited Bradford™ Thermoseal Firespec™

Product	CSR Building Products Limited Bradford™ Thermoseal Firespec™
Layer 1 –	6.5-µm thick Aluminium Foil
Layer 2	<1-mm adhesive film; 30-g/m ²
Layer 3	0.17mm fibreglass fabric

2 Supporting Data

2.1 CSIRO Certificate of Test numbered FNE11814

Certificate of Test numbered FNE 11814 was issued by CSIRO for a test conducted on 18th October 2016. The certificate details the test results of your 'Bradford™ Thermoseal Firespec™' when tested in accordance with AS/NZS 1530.3-1999. The sponsor described the specimen as foil faced glass woven laminate compromising three layers:

- Layer 1: 6.5-µm aluminium foil layer (exposed)
- Layer 2: <1-mm adhesive film; 30-g/m²
- Layer 3: 0.17-mm fibreglass fabric

When tested to AS/NZS 1530.3 the product achieved indices of 0, 0, 0, 1 for Ignitability Index, Spread of Flame Index, Heat Evolved Index, and Smoke Developed Index respectively.

2.2 AWTa report numbered 16-006558

Test report numbered 16-006558 was issued by AWTa for a test reported on the 9th January 2017. The report details the test results for "Foil faced glasswoven laminate" when tested in accordance with AS/NZS 1530.3-1999. The sponsor described the specimen as foil faced glass woven laminate compromising three layers:

- Layer 1: 0.17-mm fibreglass fabric (exposed)
- Layer 2: <1-mm adhesive film; 30-g/m²
- Layer 3: 6.5-µm aluminium foil layer

When tested to AS/NZS 1530.3 the product achieved indices of 0, 0, 0, 1 for Ignitability Index, Spread of Flame Index, Heat Evolved Index, and Smoke Developed Index respectively.

2.3 CSR Insulation Research Laboratory Test Report numbered NR-16004

Test Report numbered NR-16004 was issued by CSR Insulation Research Laboratory on the 2nd August 2016. This report details the test results of your 'Bradford Fibreglass Fabric' when tested in accordance with AS 1530.1-1994. The specimen was described as white woven fibreglass fabric, with a mass of approximately 180-g/m² and thickness of 0.20-mm.

When tested the mean furnace temperature rise was 0.4°C, the mean temperature rise for the specimen surface thermocouple was 0.8°C for all specimens and the duration of sustained flaming was less than 0 seconds. The specimen is NOT deemed COMBUSTIBLE according to the test criteria specified in clause 3.4 of AS 1530.1-1994.

3 Analysis of Test Evidence

3.1 AS/NZS 1530.3-1999 Performance

Material as a Whole

Certificate of Test numbered FNE 11814 was issued for a test conducted in accordance with AS/NZS 1530.3-1999 on 18th October 2016 by CSIRO.

The certificates detail the test results of 'Bradford™ Thermoseal Firespec™' 0.17-mm thick woven fibreglass fabric finished with 6.5-µm aluminium foil facing.

When tested from the foil side the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material was 0 and 1 respectively.

Report of Test numbered 16-006558 was issued for a test conducted in accordance with AS/NZS 1530.3-1999 on 19th January 2017 by AWT.

The certificates detail the test results of a "Foil faced glass woven laminate" the sponsor describes as 'Bradford™ Thermoseal Firespec™' 0.17-mm thick woven fibreglass fabric finished with 6.5-µm aluminium foil facing.

When tested from the woven fibreglass fabric the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material was 0 and 1 respectively.

Aluminium foil Facing

The aluminium foil layer was tested as the facing of the 'Bradford™ Thermoseal Firespec™' to AS/NZS 1530.3-1999, and achieved indices of 0, 0, 0, 1.

The test AS/NZS 1530.3-1999 is primarily a test of the material surface characteristics and as such it is expected that had the foil facing on the 'Bradford™ Thermoseal Firespec™' been tested in isolation it would also have achieved a performance of at least 0, 0, 0, 1 or better in accordance with AS/NZS 1530.3-1999

Based on the above it is confirmed that the results for 'Bradford™ Thermoseal Firespec™' as a whole can conservatively be applied to just the prefinished metal aluminium foil facing of 'Bradford™ Thermoseal Firespec™'.

Therefore it is considered that prefinished metal (aluminium foil) facing of the 'Bradford™ Thermoseal Firespec™' has a Spread-of-Flame Index of not greater than 0 in accordance with AS/NZS 1530.3-1999.

3.2 AS/NZS 1530.1-1994 Performance

Criteria for Non-Combustibility

When testing to AS 1530.1-1994 the specimens are tested with the furnace set to $750 \pm 5^\circ\text{C}$. The furnace and/or specimen surface temperatures should not show a rise of more than 50°C above their final equilibrium temperatures and specimens must not show continuous flaming for more than five seconds to not be deemed combustible.

Clause 1.4 of AS 1530.1-1994 states that that "...The test method is not applicable to products which are coated, faced or laminated. In such cases, tests may be carried out separately on the individual materials from which the product is formed..."

Fabric material - Layer 3 – Bradford Fibreglass Fabric

CSR Insulation Research Laboratory Certificate of Test NR-16004 shows that the "Bradford Fibreglass Fabric" layer of the "Bradford™ Thermoseal Firespec™" is not deemed combustible when tested to the requirements of AS 1530.1-1994.

3.3 NCC 2016 Volume 1 Amendment 1 clause C1.9

The relevant part of this clause is part (e) (vi)

C1.9 Non-combustible building elements

- (e) The following materials may be used wherever a *non-combustible* material is *required*:
- (i) Plasterboard.
 - (ii) Perforated gypsum lath with a normal paper finish.
 - (iii) Fibrous-plaster sheet.
 - (iv) Fibre-reinforced cement sheeting.
 - (v) Pre-finished metal sheeting having a *combustible* surface finish not exceeding 1 mm thickness and where the *Spread-of-Flame Index* of the product is not greater than 0.
 - (vi) Bonded laminated materials where—
 - (A) each lamina, including any core, is *non-combustible*; and
 - (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2mm; and
 - (C) the *Spread-of-Flame Index* and the *Smoke-Developed Index* of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

4 Relevance of Test Data to NCC Clause C1.9

4.1 Each Laminate is Non-Combustible – Clause C1.9 (e)(vi)(A)

With reference to the discussion in Section 3.2 of this report it is confirmed that when the 'Bradford Fibreglass Fabric' layer was tested in accordance with AS 1530.1 1994, it meets the requirements of AS 1530.1 1994 Clause 3.4 for non-combustibility.

With reference to the discussion in Section 3.1 of this report, it is confirmed that when the aluminium foil layer was tested in accordance with AS 1530.3 1999, achieved a Spread-of-Flame Index of not greater than 0.

This layer therefore meets the requirements of Clause C1.9 (e)(v) and can be used where a non-combustible material is required.

Based on the above it is confirmed each lamina is non-combustible.

4.2 Each adhesive layer does not exceed 1mm in thickness and a total of 2mm – Clause C1.9 (e)(vi)(B)

With reference to the proposed construction specification in Table 1 of this report, it is confirmed the maximum and total adhesive layer thickness is less than 1-mm and 2-mm respectively.

4.3 The Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole does not exceed 0 and 3 respectively - Clause C1.9 (e)(vi)(C)

With reference to the discussion in Section 3.1, it is confirmed the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material does not exceed 0 and 3 respectively.

5 Conclusion

Considering the discussion in Section 4 of this report, it is confirmed there is sufficient evidence for a determination of compliance with NCC 2016 Volume 1 Amendment 1 clause C1.9 Part e (vi), and consequently, according to Part C1.9 confirm the products may be used where non-combustible materials are required.

It is understood by CSIRO that determination of compliance with NCC 2016 Volume 1 Amendment 1 clause C1.9 Part e (vi) is to be undertaken by the Authority Having Jurisdiction.

6 Term of validity

This report will lapse on 31 July 2023. Should you wish us to re-examine this report with a view to the possible extension of its term of validity, would you please apply to us three to four months before the date of expiry. This Division reserves the right at any time to amend or withdraw this report in the light of new knowledge.

7 Limitations

This report is prepared for the report client listed on page 1 and applies to the nominated materials and forms of construction. Any modifications, changes or amendments to the referenced standards or Building Regulations may invalidate the findings of this report.

CONTACT US

t 1300 363 400
+61 3 9252 6000
e enquiries@csiro.au
w www.csiro.au

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Australia is founding its future in science and innovation. Its national science agency, CSIRO, is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation.

FOR FURTHER INFORMATION

Infrastructure Technologies

Keith Nicholls

Senior Consultant Assessments Engineer

t +61 2 94905450

e keith.nicholls@csiro.au

w <https://research.csiro.au/infratech/fire-safety/fire-testing/>

Infrastructure Technologies

Brett Roddy

Manager, Fire Testing and Assessments

t +61 2 94905449

e brett.rodby@csiro.au

w <https://research.csiro.au/infratech/fire-safety/fire-testing/>

Issued to: Adnan Sisic
Company: Brighton Ceilings
Re: Nepean Hospital
Issued On: 30.04.2019



Infrastructure Technologies

Gate 5, 2 Normanby Road, Clayton, Victoria 3168

Telephone: 61 3 9545 2520 Facsimile: 61 3 9544 1128 Web: <http://www.csiro.au>
ABN 41 687 119 230

27 April, 2017

Our Ref. EN13/ 2251

TEST REPORT No: 7849A

Customer: CSR Bradford
Sherry Ma
Address: 376 Victoria St,
Wetherill Park
NSW 2164
Manufacturer: CSR Bradford
Product Description: Foil faced Glasswoven laminate
Sampling details:
Where: At customer premises
Date: 09 December, 2016
By Whom: Courier
How (methods): N/A

The results reported relate only to the sample(s) tested and the information received.

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This test report consists of 4 pages

SUMMARY OF TESTS PERFORMED:

	Result	Class
ASTM E96: Moisture Vapour Transmission Rate Procedure "B" (wet-cup test) Silver shiny side face up White side face up	39.11 MN.s/g 836.73 MN.s/g	Medium High



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Gate 5, 2 Normanby Road, Clayton, Victoria 3168

Telephone: 61 3 9545 2520 Facsimile: 61 3 9544 1128 Web: <http://www.csiro.au>

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REPORT NO: 7849A
ISSUE DATE: 27 April, 2017
MANUFACTURER: CSR Bradford
PRODUCT DESCRIPTION: Foil faced Glasswoven laminate

Page 2 of 4

Results:

ASTM E96: Moisture Vapour Transmission Rate, Procedure "B" (wet-cup test)

Silver shiny side face up:

- Resistance to water is **39.11 MN.s/g** & Permeance is **2.5837E-02 µg/N.s**
- **Classification:** classified as **Medium**

White side face up:

- Resistance to water is **836.73 MN.s/g** & Permeance is **1.7552E-03 µg/N.s**
Classification: classified as **High**

Issued to: Adren Sisi
Company: Brighton Australia
Re: Nepean Hospital Redevelopment
Issued On: 28th November 2019



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Gate 5, 2 Normanby Road, Clayton, Victoria 3168

Telephone: 61 3 9545 2520 Facsimile: 61 3 9544 1128 Web: <http://www.csiro.au>
ABN 41 687 119 230

REPORT NO: 7849A
ISSUE DATE: 27 April, 2017
MANUFACTURER: CSR Bradford
PRODUCT DESCRIPTION: Foil faced Glasswoven laminate

Page 3 of 4

TEST CARRIED OUT IN ACCORDANCE WITH ASTM E96: Moisture Vapour Transmission Rate

Test Start Date: 03 March 2017
Test End Date: 18 April 2017

Specimens: 8 pieces of 9cm in diameter discs
Testing Surface Area: 33.2cm²
RH Outside Film Samples: 7-10%RH
RH Inside Film Samples: 100% RH
Test Period: 1099 hours
Membrane to dish sealant: Dow Corning® – High Vacuum Grease
Testing Method: Procedure "B" (wet-cup test)

Results:

Procedure "B" (wet-cup test)

Sample	Thickness mm	WVTR g/m ² /hr	Resistance MN.s/g	Permeance µg/N.s
Specimen 1 (Silver shiny face side up)	0.16	0.20	45.78	0.0218
Specimen 2 (Silver shiny face side up)	0.16	0.26	35.45	0.0281
Specimen 3 (Silver shiny face side up)	0.16	0.22	41.05	0.0243
Specimen 4 (Silver shiny face side up)	0.16	0.27	34.15	0.0292
Average	0.16	0.23	39.11	2.5837E-02
SDEV		0.03	5.36	3.4339E-03
Specimen 1 (White side face up)	0.16	0.01	760.95	0.0013
Specimen 2 (White side face up)	0.16	0.03	305.51	0.0033
Specimen 3 (White side face up)	0.16	0.02	530.36	0.0019
Specimen 4 (White side face up)	0.16	0.01	1750.12	0.0006
Average	0.16	0.02	836.73	1.7552E-03
SDEV		0.01	636.68	1.1389E-03

Silver shiny face side up

White side face up

Resistance to water

39.11 MN.s/g

836.73 MN.s/g

Permeance

2.5837E-02 µg/N.s

1.7552E-03 µg/N.s

Result:

MEDIUM

HIGH



Infrastructure Technologies

Gate 5, 2 Normanby Road, Clayton, Victoria 3168

Telephone: 61 3 9545 2520 Facsimile: 61 3 9544 1128 Web: <http://www.csiro.au>
ABN 41 687 119 230

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MANUFACTURER: CSR Bradford
PRODUCT DESCRIPTION: Foil faced Glasswoven laminate

Page 4 of 4

Date and Place

27 April, 2017,

Clayton, Vic

Name, Title and Signature:

Khanh Ho
Technical Officer
Infrastructure Technologies
CSIRO
E khanh.ho@csiro.au T +61 3 9545 2520
Gate 6, 71 Normanby Road, Clayton VIC 3168 Australia
www.csiro.au

Issued to: Adnan Sisic
Company: Brighton Australia
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