Appendix G – Section J Compliance Report – Gran Associates Australia

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(B) NEW LOW PITCH ROOF – FLAT CEILINGS

Provision: New low pitch metal deck roofing / steel framing / flat suspended ceiling

Outdoor air film (7 m/s)	0.04		
Metal Deck roofing ($x<5^{o)}$	0.00	Colorbond Kliplok Hi-ten 700	3 degrees Solar absorption 0.45
Condensation Membrane to U/S roof sheeting	-	Vapour permeable membrane	Enviroseal ProctorWrap HT-R
Thermal break (min. 0.2)	0.20	75mm Fletcher Insulation Roof-Rack system	
Insulation	2.50	100mm mineral wool blanket insulation on non-permeable reflective medium duty foil membrane' Tape & Seal all joints	Fletcher Permastop Building Blanket
Safety Mesh	-	2mm diameter 300mm x 150mm galvanized mesh	Ausmesh 300 Safety roof mesh
Roof airspace – unventilated ($x<5^{o}$)	0.22		
Ceiling insulation	0.85	25mm thermally bonded polyester fibre batts (NRC-0.8)	Acoustica - EchoSoft 25 Colour: white
Ceiling lining	0.03 (X) 0.07 (Y) 0.26 (Z)	9mm fibre cement 13mm plasterboard 16mm acoustic drop in ceiling tiles	
Indoor air film (still air)	0.16		
Total R-Value	**4.00 (X) 4.04 (Y) 4.23 (Z)**	**Compliant**	

Part J1.4 – Roof Lights

Ground Floor First Aid room
1/no. 400mm SkyTUBE Dome Silvertube Shaft – Skytube single glazed diffuser
Area of Space = 17 m^2
Total area of roof lights = 0.125 m^2
Percentage RL / Area of Space = 0.73 % COMPLIANT

Skylight		1					
Shaft Index	H	0.9					
	D	0.4					
	H/D	2.25					
SHGC		0.77					
U-value		3.7					

Ground floor Cleaner Store
1/no. 400mm Sky-TUBE Dome Silvertube Shaft – Skytube single glazed diffuser
1/no. 400mm Sky-TUBE Dome Silvertube Shaft – Skytube single glazed diffuser with mechanical fan ventilation
Area of Space = 12 m^2
Total area of roof lights = 0.25 m^2
Percentage RL / Area of Space = 2.08 % COMPLIANT

Skylight		1	2				
Shaft Index	H	0.8	1.0				
	D	0.4	0.4				
	H/D	2.0	2.5				
SHGC		0.77	0.77				
U-value		3.7	3.7				

Ground Floor Equipment Storerooms
4/no. 400mm Sky-TUBE Dome Silvertube Shaft – Skytube single glazed diffuser
2/no. 400mm Sky-TUBE Dome Silvertube Shaft – Skytube single glazed diffuser with mechanical fan ventilation
Area of Space = 42 m^2
Total area of roof lights = 0.750 m^2
Percentage RL / Area of Space = 1.78 % COMPLIANT

Skylight		1	2M	3	4	5M	6
Shaft Index	H	0.8	1.0	0.8	1.0	0.8	1.0
	D	0.4	0.4	0.4	0.4	0.4	0.4
	H/D	2.0	2.5	2.0	2.5	2.0	2.5
SHGC		0.77	0.77	0.77	0.77	0.77	0.77
U-value		3.7	3.7	3.7	3.7	3.7	3.7

Ground Floor Chair Store
4/no. 400mm Sky-TUBE Dome Silvertube Shaft – Skytube single glazed diffuser
2/no. 400mm Sky-TUBE Dome Silvertube Shaft – Skytube single glazed diffuser with mechanical fan ventilation
Area of Space = 89 m^2
Total area of roof lights = 0.750 m^2
Percentage RL / Area of Space = 0.84 % COMPLIANT

Skylight		1	2M	3	4	5M	6
Shaft Index	H	0.8	1.0	0.8	1.0	0.8	1.0
	D	0.4	0.4	0.4	0.4	0.4	0.4
	H/D	2.0	2.5	2.0	2.5	2.0	2.5
SHGC		0.77	0.77	0.77	0.77	0.77	0.77
U-value		3.7	3.7	3.7	3.7	3.7	3.7

J1.5 Wall Construction
Requirement: R-Values 2.8 generally and 2.3 for wall facing the south orientation

(A) CAVITY BRICKWORK with insulation (Ground floor Main Hall & Backstage)

Outdoor air film (7m/s)	0.04		
Existing 110mm clay brickwork	0.17		
50mm Cavity reflective /unventilated	0.50		Weep holes only
Insulation	1.90	40mm Rigid board insulation with aluminium facings with reflective aluminium facing out	Kingspan Kooltherm K8 Wall board
Existing 110mm clay brickwork	0.17		
Indoor air film (still air)	0.12		
Total R-Value	**2.90**	**Compliant**	NOTE: Cavity Brickwork at low level only

(B) Metal Wall Cladding and internal wall linings (Ground floor Low level store room areas)

Outdoor air film (7m/s)	0.04		
Steel feature cladding	0.00	Corten steel cladding	
Air gap (min 50mm unventilated & non-reflective)	0.17		
Condensation Membrane	-	Vapour permeable membrane	DCT Enviroseal ProctorWrap CW
Thermal Break	0.20	10mm High Density Foam tape Thermal Break compressed to 6mm	Fletcher Insulation Therma-Tape or DCT Technologies STYROfoam XPS Deckmate Thermal Break
Insulation	2.50	90mm HD mineral wool wall batts fitted between girts and held in place by galvanised chicken mesh	Fletcher HD Pink Batts
Air gap (min 50mm unventilated & non-reflective)	0.17		
Wall Lining	0.07	13mm plasterboard	
Indoor air film (still air)	0.12		
Total R-Value	**3.27**	**Compliant**	

(C) Metal Wall Cladding and internal wall linings (Backstage area)

Outdoor air film (7m/s)	0.04		
Metal Cladding System	0.00	Colorbond Longline 305 Ribbed profile	NCC Classification: Dark Solar absorptance 0.73
Condensation Membrane	-	Vapour permeable membrane	DCT Enviroseal ProctorWrap CW
Thermal Break	0.20	10mm High Density Foam tape Thermal Break compressed to 6mm	Fletcher Insulation Therma-Tape or DCT Technologies STYROfoam XPS Deckmate Thermal Break
Insulation	2.50	90mm HD mineral wool wall batts fitted between girts and held in place by galvanised chicken mesh	Fletcher HD Pink Batts
Air gap (min 50mm unventilated & non-reflective)	0.17		
Wall lining	0.07	13mm plasterboard	
Indoor air film (still air)	0.12		
Total R-Value	**3.1**	**Compliant**	

(D) Metal Wall Cladding and internal wall linings (Upper level Main Hall)

Outdoor air film (7m/s)	0.04		
Metal Cladding System	0.00	Colorbond Longline 305 Ribbed profile	NCC Classification: Dark Solar absorptance 0.73
Condensation Membrane	-	Vapour permeable membrane	DCT Enviroseal ProctorWrap CW
Thermal Break	0.20	10mm High Density Foam tape Thermal Break compressed to 6mm	Fletcher Insulation Therma-Tape or DCT Technologies STYROfoam XPS Deckmate Thermal Break
Insulation	2.50	90mm HD mineral wool wall batts fitted between girts and held in place by galvanised chicken mesh	Fletcher HD Pink Batts
Air gap (min 50mm unventilated & non-reflective)	0.17		
Acoustic Insulation (Acoustic /Thermal)	1.70	50mmThermally bonded polyester fibre batts (NRC-1.0)	Acoustica - EchoSoft 50 Colour: black
Slotted Plywood wall paneling	0.00	Suspended perforated metal sheet ceiling with bonded black lantor cloth.	Toisuit hall acoustinc requitrments
Indoor air film (still air)	0.12		
Total R-Value	**3.1**	**Compliant**	

(E) Multicell Polycarbonate Panel Cladding (Translucent cladding south facing wall only)

Outdoor air film (7m/s)	0.04		
DanpaTherm System	2.18	2 x 16mm Danpalon Multi-Cell "Ice" panels with proprietary 50mm light diffuser insulation	Proprietary cladding system. Refer Specification: *Cladding – translucent panels*
Thermal Break	0.2	10mm High Density Foam tape Thermal Break compressed to 6mm	Fletcher Insulation Therma-Tape or DCT Technologies STYROfoam XPS Deckmate Thermal Break
Indoor air film (still air)	0.12		
Total R-Value	**2.54**	**Compliant**	**Refer Note Below:**

Requirement Note:
NCC2016 – Table J1.5a Options for each part of an external wall that is part of an Envelope – Climate Zone 4(b) – Where the only space for insulation is provided by a furring channel, top-hat section, batten or the like – (i) achieve a minimum *Total R-Value* of 1.4
(ii) satisfy glazing energy index Option B of Table J2.4a

J1.6 Floor Construction

Slab on ground Requirement: R-Value Nil

Suspended Slab Requirement: R-Value 2.0 (Minimum)

(A) Solid Concrete Suspended slab

Indoor air film (still air)	0.16		
Solid Concrete (150mm, 2400kg/m3)	0.10		
Soffit Insulation	1.9	Enclosed Sub-Floor application 40mm soffit board thickness	Kingspan KoolTherm. K10-FM Soffit Board
Indoor air film (still air)	0.16		
Total R-Value	**2.32**	**Compliant**	

Part J2 – Glazing

Windows and Glazed Doors

Refer attached glazing calculators.

Part J3 – Building Sealing

J3.4 All doors and windows forming part of the envelope of a conditioned space are specified to be fitted with seals to restrict air infiltration.

J3.6 All internal lining systems specified to be close fitting at ceiling, wall and floor junctions and be sealed by caulking, skirtings, architraves, cornices or the like.

Part J5 –Ventilation Systems
Refer Mechanical design certificate

Part J6 – Artificial Lighting and Power
Refer electrical and hydraulic design certificates.

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

Building name/description: **Kingswood High School Multi-Purpose Hall - Ground Floor**

Application: **other**

Climate zone: **5**

Storey: **Ground**

Facade areas

	N	NE	E	SE	S	SW	W	NW	internal
Option A	425m²		210m²		425m²		210m²		
Option B									n/a
Glazing area (A)	*85.2m²*	.....	*26m²*	.....	*63m²*	.....	*36.6m²*		

Number of rows preferred in table below: **10** *(as currently displayed)*

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS											SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance				P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S_H)	Cooling (S_C)	Area used (m²)	Element share of % of allowance used
1	GW-01 Upper Louvres	E		1.35	19.25		6.2	0.64	0.805	1.035	0.78	-0.32	0.45	0.50	25.99	100% of 27%
2	GW-02 Renlita Doors	N		4.04	21.10		6.2	0.69	*35.000*	7.900	*0.00*	*3.86*	*1.00*	*1.00*	85.24	100% of 97%
3	GW-03 Upper Louvres	W		1.90	19.25		6.2	0.64	0.805	1.900	0.42	0.00	0.78	0.71	36.58	100% of 50%
4	GW-04	S		3.00	21.00		6.2	0.69	1.300	3.000	0.43	0.00	0.86	0.80	63.00	100% of 33%
5																
6																
7																
8																
9																
10																

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

The Glazing Calculator has been developed by the ABCB to assist in developing a better understanding of glazing energy efficiency parameters.
While the ABCB believes that the Glazing Calculator, if used correctly, will produce accurate results, it is provided "as is" and without any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all.
Your use of the Glazing Calculator is entirely at your own risk and the ABCB accepts no liability of any kind.

if inputs are valid

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

Building name/description: **Kingswood High School Multi-Purpose Hall - First Floor Office**

Application: **other**

Climate zone: **5**

Storey: **1**

Facade areas

	N	NE	E	SE	S	SW	W	NW	internal
Option A							101m²		
Option B									n/a

Glazing area (A) 22.9m²

Number of rows preferred in table below: **10** *(as currently displayed)*

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS										SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance			P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)		P (m)	H (m)	P/H	G (m)	Heating (S_H)	Cooling (S_C)	Area used (m²)	Element share of % of allowance used
1	FW-01 - Office	W		1.20	4.15		4.2	0.63					0.00	1.00	1.00	4.98	22% of 81%
2	FW-02 - Office	W		1.20	4.15		4.2	0.63					0.00	1.00	1.00	4.98	22% of 81%
3	FW-03 - Round Window	W				1.54	4.2	0.63					0.00	1.00	1.00	1.54	7% of 81%
4	FW-04 - Control Room	W		0.60	1.20		6.2	0.64					0.00	1.00	1.00	0.72	3% of 81%
5	FW-05 - Staff WC	W		0.60	1.20		6.2	0.64					0.00	1.00	1.00	0.72	3% of 81%
6	FW-06 - Cardio	W		1.20	4.15		4.2	0.63					0.00	1.00	1.00	4.98	22% of 81%
7	FW-07 - Cardio	W		1.20	4.15		4.2	0.63					0.00	1.00	1.00	4.98	22% of 81%
8																	
9																	
10																	

if inputs are valid