

Bupa St Ives

Part J1 and Part J2 of Section J Compliance Reporting

5th March 2014
Revision 01

Quality Management

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Cover image: 3D Tas model of Bupa St. Ives used as the basis for modelling

Limitations

Dynamic modelling simulation provides an estimate of a building’s energy consumption performance. This estimate is based on a necessarily simplified and idealised version of the building that does not and cannot fully represent all of the intricacies of the building once built. The simulations performed are based on internal conditions, building envelope and mechanical system characteristics defined under the National Construction 2012 Code Building Code of Australia in order to establish a comparator baseline. The values presented in this report do not reflect the actual design parameters relating to lighting levels, occupancy patterns, equipment use, etc. No guarantee or warrantee of building performance can be given based on the information presented in this report.

1. Executive Summary

Bupa Care Services has appointed WSP Built Ecology to carry out an analysis for the Bupa St. Ives building utilising Verification Method JV3. Part J1 Building Fabric and Part J2 Glazing compliance is specifically tested in this JV3 Analysis report issue to support architectural coordination for the revised Development Application (DA).

Verification Method JV3 requires a comparison between a reference building (constructed according to Specification JV and the Deemed to Satisfy (DTS) provisions detailed in Section J Energy Efficiency of Volume One of the National Construction Code (NCC) Series 2012) and the proposed building design.

Table 1 and Figure 1 demonstrate the modelled annual energy consumption for the simulations carried out.

These show that the annual energy consumption of the Proposed Building + Reference Services is less than the annual energy consumption of the Reference Building + Reference Services.

Based on the modelling performed, the building envelope solution for the Bupa St. Ives building is deemed to comply with the performance requirements.

Table 1: Tas simulation results for the Bupa St. Ives building

Building	Annual Energy Consumption (kWh)
Reference Building + Reference Services	746
Proposed Building + Reference Services	744

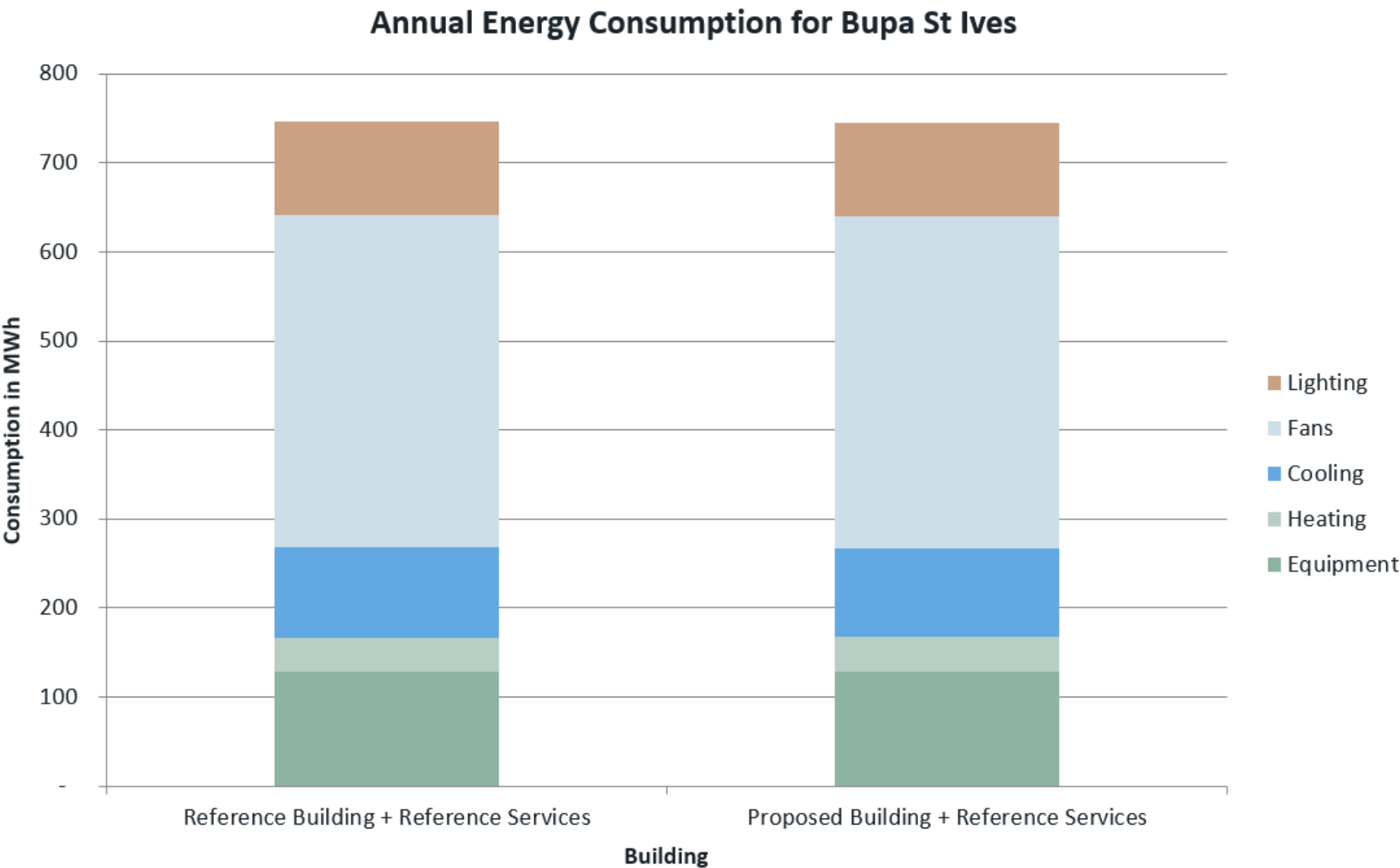


Figure 1: Tas simulation results for the Bupa St. Ives building

2. Introduction



Bupa Care Services has appointed WSP Built Ecology to carry out an analysis for the Bupa St. Ives building utilising Verification Method JV3. Part J1 Building Fabric and Part J2 Glazing compliance is specifically tested in this JV3 Analysis report issue to support architectural coordination for the revised DA.

Verification Method JV3 requires a comparison between a reference building constructed according to Specification JV and the Deemed to Satisfy (DTS) provisions detailed in Section J Energy Efficiency of Volume One of the National Construction Code (NCC) Series 2012) and the proposed building design.

The following simulations have been carried out:

- Reference Building + Reference Services —modelling of the building with the building envelope and services meeting the DTS Provisions; and
- Proposed Building + Reference Services —modelling of the building with the building envelope meeting the design intent and the services meeting the DTS Provisions.

This report presents the methodology used for the modelling and the results from the simulations undertaken (Part J1 Building Fabric and Part J2 Glazing compliance testing only).

Alan Davis has a Bachelor of Science in Mechanical Engineering and a Masters of Science in Sustainable Energy Engineering. He is an Associate Director and Sydney Team Leader of WSP Built Ecology. Alan has had eight years of experience in energy modelling and building code compliance reporting. He is also a CIBSE Low Carbon Consultant and Low Carbon Energy Assessor, and Green Star Accredited Professional.

Volume One of the NCC Series 2012 Clause A0.10 Requirements

The relevant DTS Provisions considered in the Proposed Building + Reference Services are as follows:

- Section J Part J0;
- Section J Part J1; and
- Section J Part J2.

There are no performance requirements from other Sections or Parts of Volume One of the NCC Series 2012 that are relevant to any aspects of the Proposed Building + Reference Services or that are affected by the application of the DTS Provisions that are the subject of the Proposed Building + Reference Services.

Table 2 summarises the entities who are generally responsible for demonstrating compliance with the remaining parts of Section J, through self-certification. These responsibilities apply when each building is assessed at the time of detailed design/tender.

Table 2: Application of parts

Design Team	Section J Parts							
	1	2	3	4	5	6	7	8
Architect	✓	✓	✓	N/A				✓ J8.2
WSP				N/A	✓	✓	✓	✓

2. Introduction

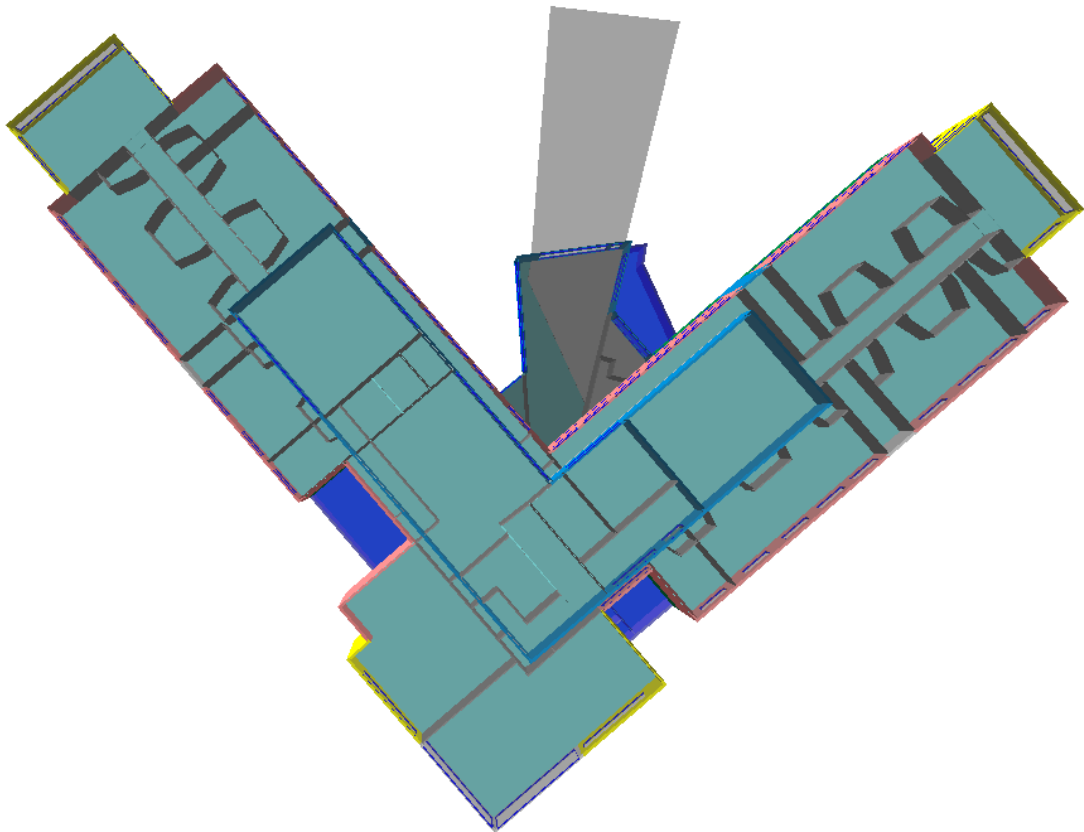
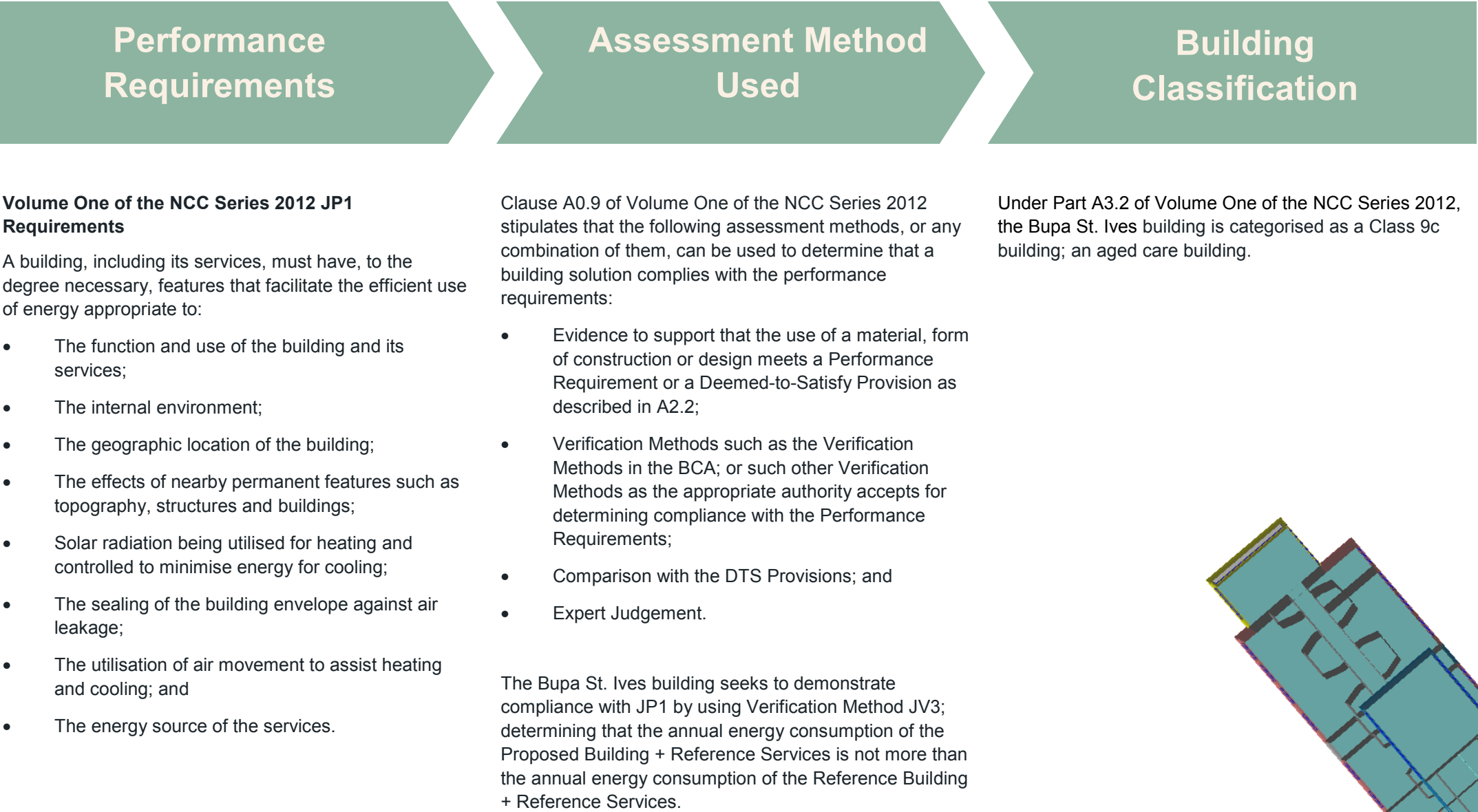


Figure 2: 3D Tas model of Bupa St. Ives showing the layout of the rooms

3. Methodology

This section describes the methodology used for obtaining the information required to undertake the JV3 analysis

Software

The computer package used for the thermal simulation was Tas version 9.2.1.4, by Environmental Design Solutions Limited. This is an Australian Building Codes Board recognised software for carrying out Verification Method JV3 analyses.

Sources of Information

The following sources of information were used to generate the thermal model:

- Volume One of the NCC Series 2013;
- Architectural plan drawings prepared by Suters Architects and dated 18/02/2014; and
- Architectural elevation and section drawings prepared by Suters Architects and dated 25/02/2014.

Mechanical Services

Simulations of the Reference Building + Reference Services and the Proposed Building + Reference Services use consistent air-conditioning parameters as per Volume One of the NCC Series 2012, covering:

- Specification JV Table 2a for the air-conditioning operational schedule;
- Clause JV3 (d), sub clause (i) (D) for the air conditioning temperature range;
- Table J5.4d for energy efficiency performance data ; and
- Table J5.2 for maximum fan powers.

Occupancy Loads

Simulations of the Reference Building + Reference Services and the Proposed Building + Reference Services use consistent occupancy loads as per Volume One of the NCC Series 2012, covering:

- Specification JV Table 2a and 2f for the occupancy schedule;
- Specification JV, clause 2(a)(iii)(A) for sensible and latent occupancy heat gain; and
- Table D1.13 for occupant density.

Equipment Loads

Simulations of the Reference Building + Reference Services and the Proposed Building + Reference Services use consistent equipment loads as per Volume One of the NCC Series 2012, covering:

- Specification JV Table 2a for the appliances and equipment schedule; and
- Specification JV Table 2h for equipment loads.

Lighting Loads

Simulations of the Reference Building + Reference Services and the Proposed Building + Reference Services and use consistent lighting loads as per Volume One of the NCC Series 2012, covering:

- Specification JV Table 2a for artificial lighting schedule; and
- Table J6.2a for maximum illuminance power density.

3. Methodology

Building Envelope Performance Parameters

Simulations incorporate building fabric elements with performances as per Table 3.

Table 3: Building Envelope Performance Parameters

Building Envelope Element		Reference Building + Reference Services	Proposed Building + Reference Services
External Walls	Brick veneer / Stud wall with fibre cement sheet / Stud wall with colorbond sheet / Stud wall with timber composite	R2.8 Solar reflectance 0.4	R2.8 Solar reflectance 0.5
	Retaining walls on the basement	No minimum insulation requirements	No minimum insulation requirements

R=Resistance in m².K/W U=U-value in W/m².K SHGC=Solar Heat Gain Coefficient

3. Methodology

Building Envelope Performance Parameters (continued)

Simulations incorporate building fabric elements with performances as per Table 3.

Table 3: Building Envelope Performance Parameters (continued)

Building Envelope Element	Reference Building + Reference Services	Proposed Building + Reference Services
Roof	R 4.2 Solar reflectance 0.3	R 3.2 Light coloured paint —Solar reflectance 0.5
Ground floor	Slab on ground	Slab on ground
Glazing	NOTE: All the values for the reference building envelope below are WHOLE WINDOW values. U4.4 / SHGC 0.33 U3.6 / SHGC 0.37 U3.38 / SHGC 0.31 U3.6 / SHGC 0.17 U6.33 / SHGC 0.71 U2.8 / SHGC 0.14 U1.88 / SHGC 0.09	NOTE: The glazing values for the proposed building envelope below are MID PANE values. U5.5 / SHGC0.36 Viridian ComfortPlus SuperGreen 8.38mm Aluminium frame
Internal floor above basement	R2	Nil R-value

4. Results

Table 4 and Figure 3 demonstrate the modelled energy consumption for the simulations carried out for the Bupa St. Ives building.

These show that the annual energy consumption of the Proposed Building + Reference Services is less than the annual energy consumption of the Reference Building + Reference Services.

Based on the modelling performed, the building envelope solution for the Bupa St. Ives building is deemed to comply with the performance requirements.

Table 4: Tas simulation results for the Bupa St. Ives building

Building	Annual Energy Consumption (MWh/year)					
	Equipment	Heating	Cooling	Fans	Lighting	TOTAL
Reference Building + Reference Services	129	38	102	374	104	747
Proposed Building + Reference Services	129	40	98	374	104	745

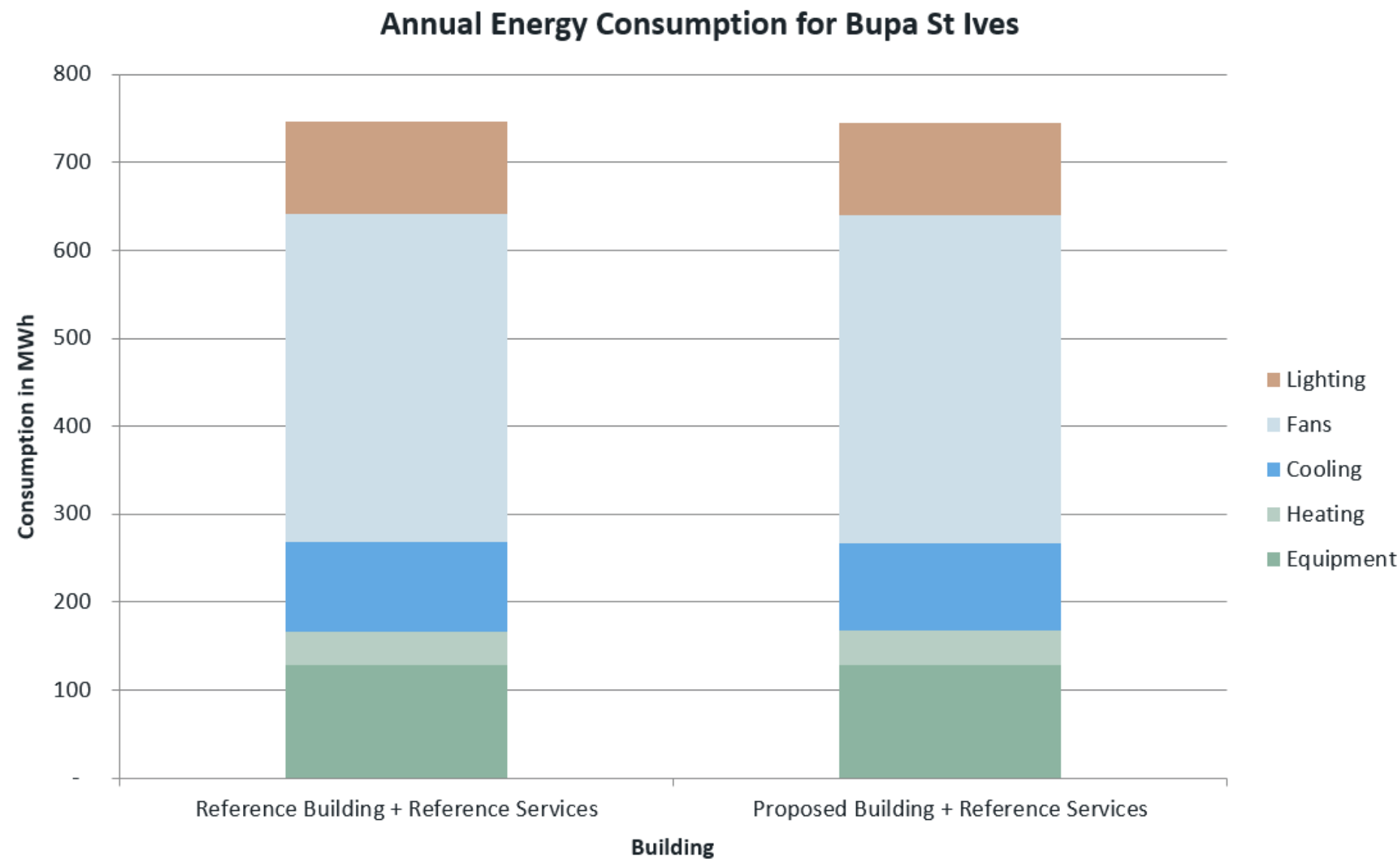


Figure 3: Tas simulation results for the Bupa St. Ives building

APPENDIX—GLAZING CALCULATIONS UNDERTAKEN FOR THE JV3 ASSESSMENT

BCA VOLUME ONE GLAZING CALCULATOR (first issued with BCA 2013)

Building name/description: **BUPA St Ives**

Application: **Class 9c aged care** Climate zone: **5**

Storey: **Ground floor**

Facade areas	N	NE	E	SE	S	SW	W	NW	Internal
Option A	30.7m²	222m²	19.1m²	201m²		168m²	29.7m²	195m²	
Option B									n/a
Glazing area (A)	17m²	71.2m²	9.36m²	57.3m²		41.1m²	21.6m²	51.4m²	

Number of rows preferred in table below: **54** (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 (Sw)	Cooling (Sc)	Area used (m²)	Element share of % of allowance use		
1	W01-1 -Viridian Energy T	SW		1.40	2.40		4.4	0.33				0.00	1.00	1.00	3.36	8% of 81%		
2	W01-2	SW		1.40	2.40		4.4	0.33				0.00	1.00	1.00	3.36	8% of 81%		
3	W01-3	SW		1.40	2.40		4.4	0.33				0.00	1.00	1.00	3.36	8% of 81%		
4	W01-4	SW		1.40	2.40		4.4	0.33				0.00	1.00	1.00	3.36	8% of 81%		
5	W01-5	SW		1.40	2.40		4.4	0.33				0.00	1.00	1.00	3.36	8% of 81%		
6	W01-6	SW		1.40	2.40		4.4	0.33				0.00	1.00	1.00	3.36	8% of 81%		
7	W01-7	SW		1.40	2.40		4.4	0.33				0.00	1.00	1.00	3.36	8% of 81%		
8	W02	SW		2.40	4.50		4.4	0.33				0.00	1.00	1.00	10.80	26% of 81%		
9	W03	SW		2.25	3.00		4.4	0.33				0.00	1.00	1.00	6.75	16% of 81%		
10	W01-8 - Sunergy Azur De	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
11	W01-9	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
12	W01-10	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
13	W01-11	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
14	W01-12	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
15	W01-13	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
16	W01-14	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
17	W01-15	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
18	W01-16	SE		1.40	2.40		3.6	0.37				0.00	1.00	1.00	3.36	6% of 95%		
19	W04	SE		1.40	4.50		3.6	0.37				0.00	1.00	1.00	6.30	11% of 95%		
20	W05	SE		1.40	6.00		3.6	0.37				0.00	1.00	1.00	8.40	15% of 95%		
21	W06	SE		1.50	4.50		3.6	0.37				0.00	1.00	1.00	6.75	12% of 95%		
22	W07	SE		1.40	4.00		3.6	0.37				0.00	1.00	1.00	5.60	10% of 95%		
23	W01-17 - ComfortPlus Su	NW		1.40	2.40		3.4	0.31				0.00	1.00	1.00	3.36	7% of 98%		
24	W01-18	NW		1.40	2.40		3.4	0.31				0.00	1.00	1.00	3.36	7% of 98%		
25	W01-19	NW		1.40	2.40		3.4	0.31				0.00	1.00	1.00	3.36	7% of 98%		
26	W01-20	NW		1.40	2.40		3.4	0.31				0.00	1.00	1.00	3.36	7% of 98%		
27	W01-21	NW		1.40	2.40		3.4	0.31				0.00	1.00	1.00	3.36	7% of 98%		
28	W01-22	NW		1.40	2.40		3.4	0.31				0.00	1.00	1.00	3.36	7% of 98%		
29	W08	NW		2.40	4.00		3.4	0.31	1.000	3.30	0.30	0.90	0.99	0.95	9.60	18% of 98%		
30	W09	NW		2.00	2.40		3.4	0.31				0.00	1.00	1.00	4.80	10% of 98%		
31	W10-1	NW		2.10	2.00		3.4	0.31	1.600	3.50	0.46	1.40	0.99	0.95	4.20	8% of 98%		
32	W10-2	NW		2.10	2.00		3.4	0.31	1.600	3.50	0.46	1.40	0.99	0.95	4.20	8% of 98%		
33	W10-3	NW		2.10	2.00		3.4	0.31	1.600	3.50	0.46	1.40	0.99	0.95	4.20	8% of 98%		
34	W10-4	NW		2.10	2.00		3.4	0.31	1.600	3.50	0.46	1.40	0.99	0.95	4.20	8% of 98%		
35	W01-23 - 6.38LamGy/12/6	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
36	W01-24	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
37	W01-25	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
38	W01-26	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
39	W01-27	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
40	W01-28	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
41	W01-29	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
42	W01-30	NE		1.40	2.40		3.3	0.22				0.00	1.00	1.00	3.36	5% of 95%		
43	W11	NE		1.40	4.20		3.3	0.22				0.00	1.00	1.00	5.88	9% of 95%		
44	W12	NE		2.70	4.00		3.3	0.22				0.00	1.00	1.00	10.80	16% of 95%		
45	W13	NE		2.40	4.50		3.3	0.22				0.00	1.00	1.00	10.80	16% of 95%		
46	W14 10.38LamGy/8/6	N		2.70	5.50		3.6	0.17				0.00	1.00	1.00	14.85	87% of 100%		
47	W15	N		2.40	0.90		3.6	0.17				0.00	1.00	1.00	2.16	13% of 100%		
48	W16 - Custom 1	E		2.40	3.90		2.8	0.14				0.00	1.00	1.00	9.36	100% of 85%		
49	W17 - Custom 2	W		2.40	9.00		1.9	0.09				0.00	1.00	1.00	21.60	100% of 91%		
50	W10-5 -Vfloat Super Gre	NE		2.10	2.00		3.6	0.17				0.00	1.00	1.00	4.20	5% of 95%		
51	W10-6	NE		2.10	2.00		3.6	0.17				0.00	1.00	1.00	4.20	5% of 95%		
52	W10-7	NE		2.10	2.00		3.6	0.17				0.00	1.00	1.00	4.20	5% of 95%		
53	W10-8	NE		2.10	2.00		3.6	0.17				0.00	1.00	1.00	4.20	5% of 95%		
54																		

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



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Figure 4: Glazing calculator—Ground Floor

BCA VOLUME ONE GLAZING CALCULATOR (first issued with BCA 2013)

Building name/description: **BUPA St Ives**

Application: **Class 9c aged care** Climate zone: **5**

Storey: **Level 1**

Facade areas	N	NE	E	SE	S	SW	W	NW	Internal
Option A		225m²		215m²		193m²		223m²	
Option B									n/a
Glazing area (A)		58.7m²		75.3m²		63.6m²		56.6m²	

Number of rows preferred in table below: **50** (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	
	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 _w)	Cooling (S _c)	Area used (m²)	Element share of % of allowance used	
1	WF01-1 - Sunergy Azur D	SW		1.50	2.40		3.6	0.37				0.00	1.00	1.00	3.60	6% of 99%	
2	WF01-2	SW		1.50	2.40		3.6	0.37				0.00	1.00	1.00	3.60	6% of 99%	
3	WF01-3	SW		1.50	2.40		3.6	0.37				0.00	1.00	1.00	3.60	6% of 99%	
4	WF01-4	SW		1.50	2.40		3.6	0.37				0.00	1.00	1.00	3.60	6% of 99%	
5	WF01-5	SW		1.50	2.40		3.6	0.37				0.00	1.00	1.00	3.60	6% of 99%	
6	WF01-6	SW		1.50	2.40		3.6	0.37				0.00	1.00	1.00	3.60	6% of 99%	
7	WF01-7	SW		1.50	2.40		3.6	0.37				0.00	1.00	1.00	3.60	6% of 99%	
8	WF02	SW		1.50	4.50		3.6	0.37				0.00	1.00	1.00	6.75	11% of 99%	
9	WF03	SW		1.50	6.00		3.6	0.37				0.00	1.00	1.00	9.00	14% of 99%	
10	WF04	SW		2.70	8.40		3.6	0.37				0.00	1.00	1.00	22.68	36% of 99%	
11	WF01-8 - V Float super g	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
12	WF01-9	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
13	WF01-10	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
14	WF01-11	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
15	WF01-12	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
16	WF01-13	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
17	WF01-14	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
18	WF01-15	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
19	WF01-16	SE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	5% of 92%	
20	WF05	SE		2.70	8.40		3.3	0.22				0.00	1.00	1.00	22.68	30% of 92%	
21	WF06	SE		1.50	6.00		3.3	0.22				0.00	1.00	1.00	9.00	12% of 92%	
22	WF07	SE		1.50	4.50		3.3	0.22				0.00	1.00	1.00	6.75	9% of 92%	
23	WF08	SE		1.50	3.00		3.3	0.22				0.00	1.00	1.00	4.50	6% of 92%	
24	WF01-17 ComfortPlus Su	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
25	WF01-18	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
26	WF01-19	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
27	WF01-20	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
28	WF01-21	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
29	WF01-22	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
30	WF01-23	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
31	WF01-24	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
32	WF01-25	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
33	WF01-26	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%	
34	WF09	NW		1.50	4.00		3.4	0.31				0.00	1.00	1.00	6.00	11% of 97%	
35	WF10	NW		1.50	9.70		3.4	0.31				0.00	1.00	1.00	14.55	26% of 97%	
36	WF01-27 V Float super g	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
37	WF01-28	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
38	WF01-29	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
39	WF01-30	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
40	WF01-31	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
41	WF01-32	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
42	WF01-33	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
43	WF01-34	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
44	WF01-35	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
45	WF01-36	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%	
46	WF11	NE		1.50	9.70		3.3	0.22				0.00	1.00	1.00	14.55	25% of 82%	
47	WF12	NE		1.50	5.40		3.3	0.22				0.00	1.00	1.00	8.10	14% of 82%	
48																	
49																	
50																	

BCA VOLUME ONE GLAZING CALCULATOR (first issued with BCA 2013) HELP

Building name/description: **BUPA St Ives** Application: **Class 9c aged care** Climate zone: **5**

Storey: **Level 2**

Facade areas:

	N	NE	E	SE	S	SW	W	NW	internal
Option A		225m²		215m²		193m²		223m²	
Option B									n/a
Glazing area (A)	58.7m²		79.5m²		68.7m²		56.6m²		

Number of rows preferred in table below: **50** (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	WS01-1 - ComfortPlus S	SW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	5% of 96%		
2	WS01-2	SW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	5% of 96%		
3	WS01-3	SW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	5% of 96%		
4	WS01-4	SW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	5% of 96%		
5	WS01-5	SW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	5% of 96%		
6	WS01-6	SW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	5% of 96%		
7	WS01-7	SW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	5% of 96%		
8	WS02	SW		1.50	4.50		3.4	0.31				0.00	1.00	1.00	6.75	10% of 96%		
9	WS03	SW		1.50	6.00		3.4	0.31				0.00	1.00	1.00	9.00	13% of 96%		
10	WS04	SW		3.30	8.40		3.4	0.31				0.00	1.00	1.00	27.72	40% of 96%		
11	WS01-8 - 10.38LamGy/8/6	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
12	WS01-9	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
13	WS01-10	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
14	WS01-11	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
15	WS01-12	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
16	WS01-13	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
17	WS01-14	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
18	WS01-15	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
19	WS01-16	SE		1.50	2.40		3.6	0.17				0.00	1.00	1.00	3.60	5% of 96%		
20	WS05	SE		3.30	8.40		3.6	0.17				0.00	1.00	1.00	27.72	35% of 96%		
21	WS06	SE		1.50	6.00		3.6	0.17				0.00	1.00	1.00	9.00	11% of 96%		
22	WS07	SE		1.30	4.50		3.6	0.17				0.00	1.00	1.00	5.85	7% of 96%		
23	WS08	SE		1.50	3.00		3.6	0.17				0.00	1.00	1.00	4.50	6% of 96%		
24	WS01-17 ComfortPlus S	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
25	WS01-18	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
26	WS01-19	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
27	WS01-20	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
28	WS01-21	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
29	WS01-22	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
30	WS01-23	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
31	WS01-24	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
32	WS01-25	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
33	WS01-26	NW		1.50	2.40		3.4	0.31				0.00	1.00	1.00	3.60	6% of 97%		
34	WS09	NW		1.50	4.00		3.4	0.31				0.00	1.00	1.00	6.00	11% of 97%		
35	WS10	NW		1.50	9.70		3.4	0.31				0.00	1.00	1.00	14.55	26% of 97%		
36	WS01-27 V Float super g	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
37	WS01-28	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
38	WS01-29	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
39	WS01-30	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
40	WS01-31	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
41	WS01-32	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
42	WS01-33	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
43	WS01-34	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
44	WS01-35	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
45	WS01-36	NE		1.50	2.40		3.3	0.22				0.00	1.00	1.00	3.60	6% of 82%		
46	WS11	NE		1.50	9.70		3.3	0.22				0.00	1.00	1.00	14.55	25% of 82%		
47	WS12	NE		1.50	5.40		3.3	0.22				0.00	1.00	1.00	8.10	14% of 82%		
48																		
49																		
50																		

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Figure 6: Glazing calculator—Level 2

BCA VOLUME ONE GLAZING CALCULATOR (first issued with BCA 2013) HELP

Building name/description: **BUPA St Ives** Application: **Class 9c aged care** Climate zone: **5**

Storey: **Level 3**

Facade areas:

	N	NE	E	SE	S	SW	W	NW	internal
Option A		72.5m²		48.6m²		80.9m²		48.7m²	
Option B									n/a
Glazing area (A)	28.6m²		9.74m²		15m²		8.19m²		

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	WT01 - Vfloat Clear 10mm	SW		1.50	10.00		6.3	0.71				0.00	1.00	1.00	15.00	100% of 100%		
2	WT02 - Low e Energy Tech	SE		1.40	4.00		4.4	0.33				0.00	1.00	1.00	5.60	57% of 73%		
3	WT03	SE		2.30	1.80		4.4	0.33				0.00	1.00	1.00	4.14	43% of 73%		
4	WT04 - EnergyTech	NW		1.40	5.85		5.0	0.44				0.00	1.00	1.00	8.19	100% of 91%		
5	WT05 - 10.38LamGy/8/6	NE		1.40	10.40		3.6	0.17				0.00	1.00	1.00	14.56	51% of 91%		
6	WT06	NE		1.40	10.00		3.6	0.17				0.00	1.00	1.00	14.00	49% of 91%		
7																		
8																		
9																		
10																		

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Figure 7: Glazing calculator—Level 3

APPENDIX—ARCHITECT DRAWINGS SHOWING EXTERNAL FINISHES

Figure 8: External Finishes—Ground Floor

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Figure 9: External Finishes—Level 1

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Figure 10: External Finishes—Level 2



Figure 11: External Finishes—Level 3

