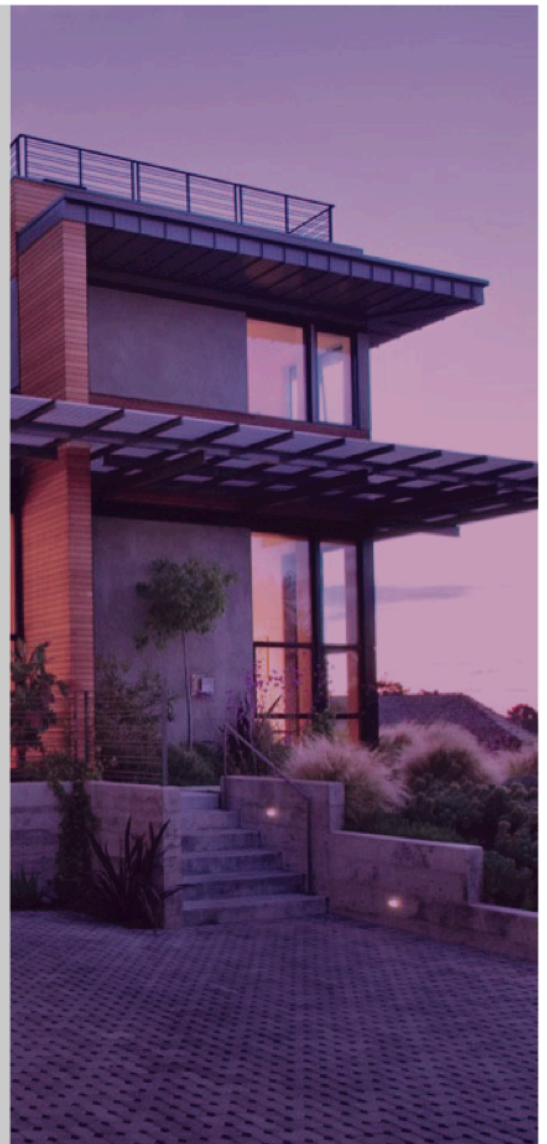




ENERGY EFFICIENCY REPORT

ABN: 95 164 564 210 | GPO Box 851 Sydney NSW 2001 | 1300 443 674
Association of Building Sustainability Assessors (ABSA)
No.100765



Project Address:
4 Brookvale Avenue
BROOKVALE NSW

Prepared for
Lotus Projects

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1. Introduction


Certified Energy has been commissioned to prepare an Energy Efficiency Report for the proposed development at 4 Brookvale Avenue Brookvale NSW. The development is comprised of multi-unit development. The aim of this report is to determine the appropriate Energy Efficiency provisions that this project must adopt to comply with the increased BASIX energy target commitments in NSW.

2. Methodology

Thermal Modelling was undertaken on each of the dwellings using Bers PRO v4.3 to assess the Heating and Cooling loads that are required to maintain an appropriate level of Thermal Comfort within each dwelling. These loads combine to produce a NatHERS energy star rating for each dwelling. Each dwelling must comply with maximum individual heating and cooling target caps as specified in the recently updated (1st July 2017) NSW BASIX Thermal Comfort Protocol. This report specifies the required amounts of insulation (R Values) and window performance (U Values) required for each dwelling to comply with these updated targets.

(refer development specification sheet)

3. Class Schedule

Project Certification Number	1012335665
Certification Date	09/03/2018
Assessor Name	Jamie Bonnefin
Assessor Number	100765
Assessor Company	Certified Energy
Assessor Signature	

Client Details	Lotus Projects
Project Address	Lot 45 4 Brookvale Ave Brookvale NSW 2100

Software	BERSPRO v4.3.0.1 (BERSPro)	Climate Zone	56
Averaged Simulated Energy: HEATING			37.2 MJ/m2 pa
Averaged Simulated Energy: COOLING			21.5 MJ/m2 pa
Averaged Simulated Energy: TOTAL			58.7 MJ/m2 pa

Averaged **NatHERS** Star Rating

5.5



Sole-Occupancy Unit (SOU) Thermal Performance Specifications

Unit Number	Certificate Number	Floor Area		Simulated Loads (area adjusted MJ/m2/y)		NatHERS	Rated with Downlights
		Conditioned	Unconditioned	Heating	Cooling	Star Rating	
01	1012335673	80.0	0.0	38.1	25.5	5.2/10	No
02	1012335681	83.0	0.0	34.0	22.4	5.7/10	No
03	1012335699	89.0	0.0	38.7	25.7	5.2/10	No
04	1012335772	74.0	0.0	35.3	22.7	5.4/10	No
05	1012335764	80.0	0.0	40.0	26.0	4.9/10	No
06	1012335756	76.0	0.0	27.3	22.8	6.1/10	No
07	1012335749	77.0	0.0	42.3	18.9	5.3/10	No
08	1012335731	81.0	0.0	37.7	20.4	5.4/10	No
09	1012335723	84.0	0.0	36.9	19.6	5.7/10	No
10	1012335715	77.0	0.0	35.7	18.2	5.8/10	No

Project Certification Number	1012335665
Certification Date	09/03/2018

Sole-Occupancy Unit (SOU) Thermal Performance Specifications

Unit Number	Certificate Number	Floor Area		Simulated Loads (area adjusted MJ/m ² /y)		NatHERS	Rated with Downlights
		Conditioned	Unconditioned	Heating	Cooling	Star Rating	
11	1012335707	82.0	0.0	43.6	14.4	5.5	No

4. Specification Sheet

BASIX Project Commitments

Proposed: 11 Units
 Address: 4 Brookvale Ave, Brookvale NSW 2100
 Lot No / DP: 45/6040

Water (All dwellings)

Fixtures	Specification	
Shower head rating	3 star (> 6 but <= 7.5 L/min)	
Toilet rating	4 star	
Kitchen taps rating	4 star	
Bathroom taps rating	4 star	
Clothes washer	2 star	
Dishwasher	2 star	

Thermal Comfort

External walls	Requirements	
Tilt up concrete	All Units	Medium colour, R2.5 insulation (bulk + foil, reflective both sides)

Internal walls

Cavity wall, direct fix plasterboard	All internal walls	No insulation
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Partition walls

Concrete panel/blocks filled, plaster on studs		No insulation
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Ceiling

External ceiling - Concrete, plasterboard	All Units	No insulation
Internal ceiling - Concrete above plasterboard	All Units	No insulation

Roof

Waterproofing membrane	All Units	Medium Colour (solar absorptance 0.475-0.7) No insulation
Corrugated iron	Exposed ceiling/roof only	Medium Colour (solar absorptance 0.475-0.7) Anticon Blanket HP R1.8 (Bulk + Foil, Reflective Side Down, Anti-glare up)

Floors

Suspended concrete slab	All Units	No insulation
Suspended concrete slab	Units above carpark only (Units 1, 2 & 3)	R1.0 Bulk insulation

Windows

Aluminium frame ALM-004-01	All Units (excl U7, U9 & U11)	U-value 4.8 and SHGC 0.59
Aluminium frame ALM-003-01	Unit 1 (entry door only)	U-value 4.8 and SHGC 0.51
Aluminium frame ALM-004-03	U7, U9 & U11	U-value 4.3 and SHGC 0.53

Overshadowing details

Adjoining units calculated into model calculations

Site

Orientation of nominal north elevation	As shown on plans
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Energy (All Dwellings)

Hot water	Specification	
Central system	Gas instantaneous	
Lifts	Gearless traction with V V V F motor	

Ventilation

Bathroom exhaust	Individual fan, ducted to façade or roof	
Control switch	Manual switch on/off	
Kitchen exhaust	Individual fan, ducted to façade or roof	
Control switch	Manual switch on/off	
Laundry	Individual fan, ducted to façade or roof	
Control switch	Manual switch on/off	

Cooling

Individual systems - living areas	1-phase airconditioning	3.5 star
Individual systems - bedroom areas	1-phase airconditioning	3.5 star

Heating

Individual systems - living areas	1-phase airconditioning	3.5 star
Individual systems - bedroom areas	1-phase airconditioning	3.5 star

Lighting

Carpark	Fluorescent	Daylight sensors
Garbage room	Fluorescent	Motion sensors
Plant/Service room	Fluorescent	Motion sensors
Hallway/Lobby	Fluorescent	Zoned switching with motion sensor
Fire stairs	Fluorescent	Zoned switching with motion sensor
Store rooms	Fluorescent	Manual on/manual off

Appliances

Cooktop/oven	Gas cooktop & electric oven
Ventilated fridge space	No
Private outdoor clothes drying line	No

5. NatHERS Certificates

Nationwide House Energy Rating Scheme* — Class 2 summary



Certificate number: **0002535950**

Certificate Date: **08 Mar 2018**

★ Average Star rating: **5.5**

Assessor details

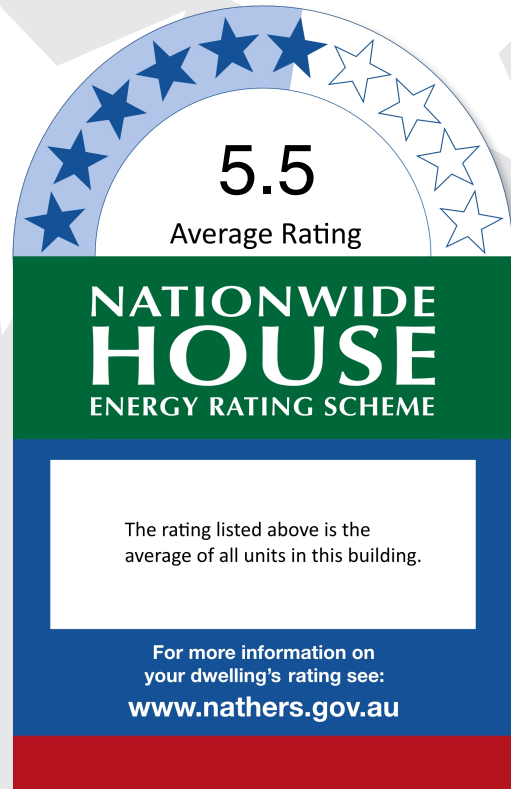
Accreditation number: **100765**
Name: **Jamie Bonnefin**
Organisation: **Certified Energy**
Email: **jamie@certified.energy**
Phone: **1300 443 674**
Declaration of interest: **None**
Software: **BERS Pro v4.3.0.2b (3.13)**

AAO: **ABSA**

Dwelling details

Street: **4 Brookvale Avenue**
Suburb: **Brookvale**
State: **NSW**
Postcode: **2100**

Scan to access this certificate online and confirm this is valid.



Summary of all dwellings

Certificate Details

Certificate number	Unit number	Heating load	Cooling load	Total load	Star Rating
0002532570-01	1	38.1	25.5	63.5	5.2
0002535847	2	34.0	22.4	56.5	5.7
0002535854	3	38.7	25.7	64.3	5.2
0002535870	4	35.3	22.7	58.0	5.4
0002532588-01	5	40.0	26.0	66.0	4.9
0002535839	6	27.3	22.8	50.1	6.1
0002535862	7	42.3	18.9	61.2	5.3
0002535888	8	37.7	20.4	58.0	5.4
0002535813	9	36.9	19.6	56.4	5.7
0002535821	10	35.7	18.2	53.9	5.8
0002532596-01	11	43.6	14.4	57.9	5.5

6. ABSA Certificates



NatHERS Rated 5.5/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

Lotus Projects

ISSUED TO

4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

1012335665

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

37.2 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

21.5 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - COOLING

58.7 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Australian Building Sustainability Association to provide NatHERS house energy ratings.



NatHERS Rated 5.2/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335673

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

38.1 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

25.5 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

63.6 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

80.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

80.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 01 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE
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Sustainability Association to provide NatHERS
house energy ratings.



NatHERS Rated 5.7/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335681

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

34.0 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

22.4 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

56.4 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

83.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

83.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 02 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

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house energy ratings.



NatHERS Rated 5.2/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335699

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

38.7 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

25.7 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - COOLING

64.4 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

89.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

89.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 03 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

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NatHERS Rated 5.4/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

Lotus Projects

ISSUED TO

Unit 04 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

1012335772

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

35.3 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

22.7 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

58.0 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

74.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

74.0 m²

FLOOR AREA - TOTAL

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

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Sustainability Association to provide NatHERS
house energy ratings.



NatHERS Rated 4.9/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335764

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

40.0 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

26.0 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

66.0 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

80.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

80.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 05 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE
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NatHERS Rated 6.1/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335756

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

27.3 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

22.8 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

50.1 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

76.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

76.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 06 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

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ASSESSOR accredited by the Australian Building
Sustainability Association to provide NatHERS
house energy ratings.



NatHERS Rated 5.3/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335749

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

42.3 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

18.9 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

61.2 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

77.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

77.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 07 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE
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house energy ratings.



NatHERS Rated 5.4/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335731

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

37.7 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

20.4 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - COOLING

58.1 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

81.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

81.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 08 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Australian Building Sustainability Association to provide NatHERS house energy ratings.



NatHERS Rated 5.7/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

Lotus Projects

ISSUED TO

Unit 09 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

1012335723

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

36.9 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

19.6 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

56.5 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

84.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

84.0 m²

FLOOR AREA - TOTAL

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

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house energy ratings.



NatHERS Rated 5.8/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335715

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

35.7 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

18.2 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - COOLING

53.9 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

77.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

77.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 10 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Australian Building Sustainability Association to provide NatHERS house energy ratings.



NatHERS Rated 5.5/10 STARS*

*www.nathers.gov.au



BUILDING ENERGY EFFICIENCY CERTIFICATE

1012335707

CERTIFICATION NUMBER

09/03/2018

DATE

56

CLIMATE ZONE

BERSPPro - v4.3.0.1 (BERSPro)

SOFTWARE

43.6 MJ/m² pa

SIMULATED ENERGY CONSUMPTION - HEATING

14.4 MJ/m² pa

SIMULATED ENERGY CONSUMPTION -
COOLING

58.0 MJ/m² pa

TOTAL SIMULATED ENERGY CONSUMPTION

82.0 m²

FLOOR AREA - CONDITIONED

0.0 m²

FLOOR AREA - UNCONDITIONED

82.0 m²

FLOOR AREA - TOTAL

Lotus Projects

ISSUED TO

Unit 11 4 Brookvale Ave

ADDRESS

Site Lot 45

Brookvale

NSW

2100

Jamie Bonnefin

ASSESSOR NAME

100765

ASSESSOR NUMBER

Certified Energy

COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE
ASSESSOR accredited by the Australian Building
Sustainability Association to provide NatHERS
house energy ratings.