



TMK CONSULTING ENGINEERS

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HEATING AND COOLING LOAD ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT
76 419 REGENCY ROAD, PROSPECT

PREPARED FOR: NIATRON PTY LTD

Prepared By: Mario De Lorenzo
Building Services Engineer



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1 EXECUTIVE SUMMARY

The purpose of this report is to provide a preliminary analysis of the energy efficiency of the apartments in the proposed residential building at 419 Regency Road, Prospect.

Section J0.2 of the Building Code of Australia 2016 states that *“the sole-occupancy units of a Class 2 building or a Class 4 part of a building must—*

- a) for reducing the heating or cooling loads—*
 - i. collectively achieve an average energy rating of not less than 6 stars; and*
 - ii. individually achieve an energy rating of not less than 5 stars, using house energy rating software;*

Therefore, each apartment must achieve a minimum 5 star rating, with the average star rating for the entire building being no less than 6 stars.

The Star ratings have been calculated utilising FirstRate v5.2.7, a house energy rating software accredited under the Nationwide House Energy Rating Scheme (NatHERS).

A summary of the results are outlined below:

- i. R2.0 insulation is required to all external walls.
- ii. R4.0 insulation is required to all exposed ceiling/roof spaces.
- iii. R1.0 insulation is required to all exposed floor spaces.
- iv. Glazing requirements for all apartments: double glazed low-e glass ($U=5.4$, $SHCG=0.49$)



2 INTRODUCTION

The objective of this report is to:

- a. Determine the outcome of House Energy Simulation for the proposed class 2 apartments against the star rating scheme.
- b. The program that has been used for this simulation was FirstRate Ver 5.2.9 which is approved software by CSIRO.

The aim of this report is to:

- a. Prove the energy consumption for each of the proposed apartments will achieve a minimum of 5.0 star rating, and an overall average of 6.0 stars by using the building materials as listed in the FirstRate feature report.



3 RESULTS

3.1 INTRODUCTION

These energy requirements have been calculated using a standard set of occupant behaviours and so do not necessarily represent the usage pattern or lifestyle of the intended occupants. They should be used solely for the purposes of rating the building. They should not be used to infer actual energy consumption or running costs.

3.2 REQUIREMENTS

In order to achieve a minimum average of 6 stars house energy rating, the following are required:

Insulation					
Level	Apartment	Walls: External	Walls: Bounding Apartments / Carpark / Lobby	Exposed Ceiling/Roof	Floor
Level 1	Apartments with carpark below	R2.0	n/a	n/a	R1.0
Level 2	Apartments	R2.0	n/a	R4.0	n/a
Level 3	Apartments	R2.0	n/a	R4.0	n/a

Glazing				
Level	Apartment / Location	U Value	SHGC	Requirement
Level 1	Apartments	5.4	0.49	All windows and sliding doors must achieve an overall system (framing, etc) U-Value Shading Coeff as specified
Level 2	Apartment	5.4	0.49	
Level 3	Apartments	5.4	0.49	



4 STAR RATING

4.1 INTRODUCTION

Typical apartments were assessed in each floor, including apartments above basement, between floors and top apartments. In addition, apartments facing all facades were assessed to determinate glazing and insulation requirements.

4.2 OUTCOME

With the glazing and insulation proposed, the star ratings demonstrate that not all apartments achieve a minimum of 5 stars and however, collectively they achieve a star rating of not less than 6 stars

Unit	Star Rating
APT 1	5.7
APT 2	6.3
APT 3	5.5
APT 4	6.6
APT 5	6.1
APT 6	6.2
APT 7	6.6
APT 8	7.4
APT 9	5.7
APT 10	5.9
APT 11	7
Average	6.3

Builder to ensure compliance with the following requirements:

- J0.2 (b) general thermal construction, comply with J1.2
- J0.2 (c) thermal breaks, comply with J1.3(d) and J1.5(c)
- J0.2 (d) for compensating for a loss of ceiling insulation, comply with J1.3(c)
- J0.2 (e) floor edge insulation, comply with J1.6(c) and J1.6(d)
- J0.2 (f) building sealing comply with Part J3



5 APPENDIX

Star Rating Features report

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 1

Energy Usage

Type	Energy MJ/m²
Total	103.9
Heating	64.8
Cooling	39.1

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	41.8
Unconditioned Room Area	3.5
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Kitchen/Living	25.3	kitchen	Y
Study	3.5	dayTime	Y
Bathroom	3.5	unconditioned	N
Bedroom	13.0	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	58.6
Cast Concrete	0.0	0	20.5
Internal Plasterboard Stud Wall	0.0	0	37.7

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	1.0	open	45.2

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	45.2

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	12.83

Window Directions

Direction	Area (m²)
S	11.4
E	1.4

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Study	89.8	318.0	6.7	23.8
Kitchen/Living	96.7	2443.0	67.3	1700.7
Bedroom	28.5	369.1	12.8	166.3

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 2

Energy Usage

Type	Energy MJ/m²
Total	88.8
Heating	41.6
Cooling	47.2

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	43.7
Unconditioned Room Area	4.8
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Kitchen/Living	25.5	kitchen	Y
Bathroom	4.8	unconditioned	N
Bedroom 1	9.3	bedroom	Y
Bedroom 2	9.0	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	54.7
Cast Concrete	0.0	0	24.7
Internal Plasterboard Stud Wall	0.0	0	41.0

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	1.0	open	48.5

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	48.5

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	16.56

Window Directions

Direction	Area (m²)
N	6.5
E	10.1

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	43.5	1106.9	57.2	1455.5
Bedroom 2	61.5	552.8	49.8	448.1
Bedroom 1	46.9	434.5	51.0	472.9

Provisional Diagnostic Information

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 3

Energy Usage

Type	Energy MJ/m ²
Total	108.7
Heating	59.1
Cooling	49.6

Areas

Area	Size (m ²)
Net Conditioned Floor Area (NCFA)	51.7
Unconditioned Room Area	3.4
Garage Area	0.0

Zones

Zone	Area (m ²)	Conditioning Type	Conditioned
Kitchen/Living	33.3	kitchen	Y
Bedroom 1	10.1	bedroom	Y
Bathroom	3.4	unconditioned	N
Bedroom 2	8.4	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m ²)
Cast Concrete	0.0	0	46.3
Cast Concrete	2.0	0	42.8
Internal Plasterboard Stud Wall	0.0	0	32.9

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m ²)
SuspSlab	1.0	open	55.1

Roofs/Ceilings

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Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	55.1

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	21.60

Window Directions

Direction	Area (m²)
S	15.3
W	6.3

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	69.3	2304.9	44.4	1479.1
Bedroom 2	37.7	314.8	107.5	898.2
Bedroom 1	71.8	721.9	42.1	423.8

Provisional Diagnostic Information 07-09-2018 16:50:36 Ver:5.2.9 (3.13) Engine Ver:3.13 Accredited Rater: Assessor's Accreditation Number:null

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PTY LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 4

Energy Usage

Type	Energy MJ/m²
Total	80.7
Heating	28.7
Cooling	52.0

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	51.7
Unconditioned Room Area	3.4
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Kitchen/Living	33.3	kitchen	Y
Bedroom 1	10.1	bedroom	Y
Bathroom	3.4	unconditioned	N
Bedroom 2	8.4	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	42.8
Cast Concrete	0.0	0	46.3
Internal Plasterboard Stud Wall	0.0	0	32.9

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	1.0	open	55.1

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	55.1

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	21.60

Window Directions

Direction	Area (m²)
N	15.3
W	6.3

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	28.9	960.2	49.9	1660.1
Bedroom 2	30.5	255.0	97.3	813.0
Bedroom 1	40.4	406.1	46.1	463.2

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PTY LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 5

Energy Usage

Type	Energy MJ/m²
Total	92.6
Heating	33.8
Cooling	58.8

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	40.9
Unconditioned Room Area	4.7
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Bedroom 1	8.5	bedroom	Y
Bathroom	4.7	unconditioned	N
Bedroom 2	8.3	bedroom	Y
Kitchen/Living	24.1	kitchen	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	56.6
Cast Concrete	0.0	0	19.5
Internal Plasterboard Stud Wall	0.0	0	39.4

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	0.0	encl	45.6

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	45.6

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	15.79

Window Directions

Direction	Area (m²)
S	6.2
E	9.6

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	19.9	479.5	73.3	1768.0
Bedroom 2	72.9	602.8	62.3	515.2
Bedroom 1	52.8	449.9	44.6	380.5

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 6

Energy Usage

Type	Energy MJ/m²
Total	91.5
Heating	32.9
Cooling	58.7

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	43.7
Unconditioned Room Area	4.8
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Kitchen/Living	25.5	kitchen	Y
Bathroom	4.8	unconditioned	N
Bedroom 1	9.3	bedroom	Y
Bedroom 2	9.0	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	54.7
Cast Concrete	0.0	0	24.7
Internal Plasterboard Stud Wall	0.0	0	41.0

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	0.0	encl	48.5

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	48.5

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	16.56

Window Directions

Direction	Area (m²)
N	6.5
E	10.1

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	26.5	674.4	69.5	1768.0
Bedroom 2	55.6	500.2	56.0	503.9
Bedroom 1	44.6	412.9	60.8	563.6

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 7

Energy Usage

Type	Energy MJ/m²
Total	80.0
Heating	42.7
Cooling	37.2

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	53.4
Unconditioned Room Area	3.4
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Kitchen/Living	33.3	kitchen	Y
Bedroom 1	10.1	bedroom	Y
Bathroom	3.4	unconditioned	N
Bedroom 2	10.1	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	0.0	0	47.8
Cast Concrete	2.0	0	44.3
Internal Plasterboard Stud Wall	0.0	0	32.9

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	0.0	encl	55.8

SuspSlab	1.0	open	1.0
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Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	56.8

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	16.54

Window Directions

Direction	Area (m²)
S	16.0
W	0.5

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	50.8	1691.0	47.4	1579.1
Bedroom 2	6.6	66.1	4.3	43.3
Bedroom 1	66.8	671.6	49.3	495.8

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 8

Energy Usage

Type	Energy MJ/m²
Total	58.7
Heating	17.4
Cooling	41.3

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	53.4
Unconditioned Room Area	3.4
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Kitchen/Living	33.3	kitchen	Y
Bedroom 1	10.1	bedroom	Y
Bathroom	3.4	unconditioned	N
Bedroom 2	10.1	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	44.3
Cast Concrete	0.0	0	47.8
Internal Plasterboard Stud Wall	0.0	0	32.9

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	0.0	encl	55.8

SuspSlab	1.0	open	1.0
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Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	56.8

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	16.54

Window Directions

Direction	Area (m²)
N	16.0
W	0.5

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	16.8	559.1	52.9	1759.4
Bedroom 2	1.2	11.7	5.4	54.4
Bedroom 1	41.5	417.1	53.3	536.3

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 9

Energy Usage

Type	Energy MJ/m²
Total	105.0
Heating	51.0
Cooling	54.0

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	61.0
Unconditioned Room Area	4.0
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Bedroom 1	10.5	bedroom	Y
Bedroom 2	9.2	bedroom	Y
Study	8.8	dayTime	Y
WIR	4.3	nightTime	Y
Bathroom	4.0	unconditioned	N
Kitchen/Living	28.2	kitchen	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	66.0
Internal Plasterboard Stud Wall	0.0	0	58.2
Cast Concrete	0.0	0	28.7

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	0.0	encl	65.0

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Cont:Attic-Continuous	4.0	0.0	65.0

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	21.12

Window Directions

Direction	Area (m²)
S	11.4
E	9.7

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Study	197.2	1742.6	90.4	798.7
WIR	26.3	112.0	13.9	59.2
Kitchen/Living	17.6	495.1	58.8	1656.3
Bedroom 2	37.0	340.9	82.7	761.7
Bedroom 1	76.0	801.9	40.0	421.6

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 10

Energy Usage

Type	Energy MJ/m²
Total	98.5
Heating	30.0
Cooling	68.5

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	43.7
Unconditioned Room Area	4.8
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Kitchen/Living	25.5	kitchen	Y
Bathroom	4.8	unconditioned	N
Bedroom 1	9.3	bedroom	Y
Bedroom 2	9.0	bedroom	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	54.7
Cast Concrete	0.0	0	24.7
Internal Plasterboard Stud Wall	0.0	0	41.0

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
SuspSlab	0.0	encl	48.5

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Cont:Attic-Continuous	4.0	0.0	101.8

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	16.56

Window Directions

Direction	Area (m²)
N	6.5
E	10.1

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Kitchen/Living	20.7	526.5	75.3	1917.2
Bedroom 2	52.3	470.7	81.5	732.7
Bedroom 1	44.8	415.5	62.8	581.6

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	NIATRON 10 PYT LTD
Rated Address	419 REGENCY ROAD PROSPECT
Accredited Rater	
Date	
Reference	APT 11

Energy Usage

Type	Energy MJ/m²
Total	69.5
Heating	22.7
Cooling	46.8

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	64.2
Unconditioned Room Area	3.4
Garage Area	0.0

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Bedroom 1	10.3	bedroom	Y
Bedroom 2	10.9	bedroom	Y
Study	6.2	dayTime	Y
Kitchen/Living	36.8	kitchen	Y
Bathroom	3.4	unconditioned	N

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Cast Concrete	2.0	0	84.9
Internal Plasterboard Stud Wall	0.0	0	40.1
Cast Concrete	0.0	0	26.9

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
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SuspSlab	0.0	encl	67.7
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Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Cont:Attic-Continuous	4.0	0.0	67.7

Windows

Type	U-Value	SHGC	Area (m²)
ALM-001-03 A Aluminium A SG High Solar Gain Low-E	5.40	0.49	16.44

Window Directions

Direction	Area (m²)
N	15.3
S	0.6
W	0.5

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	0	0
Downlight	0	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
Bathroom	175.0	602.8	149.6	515.2
Kitchen/Living	13.0	479.5	48.0	1768.0
Bedroom 1	43.8	449.9	37.0	380.5

Provisional Diagnostic Information 07-09-2018 16:50:42 Ver:5.2.9 (3.13) Engine Ver:3.13 Accredited Rater: Assessor's Accreditation Number:null