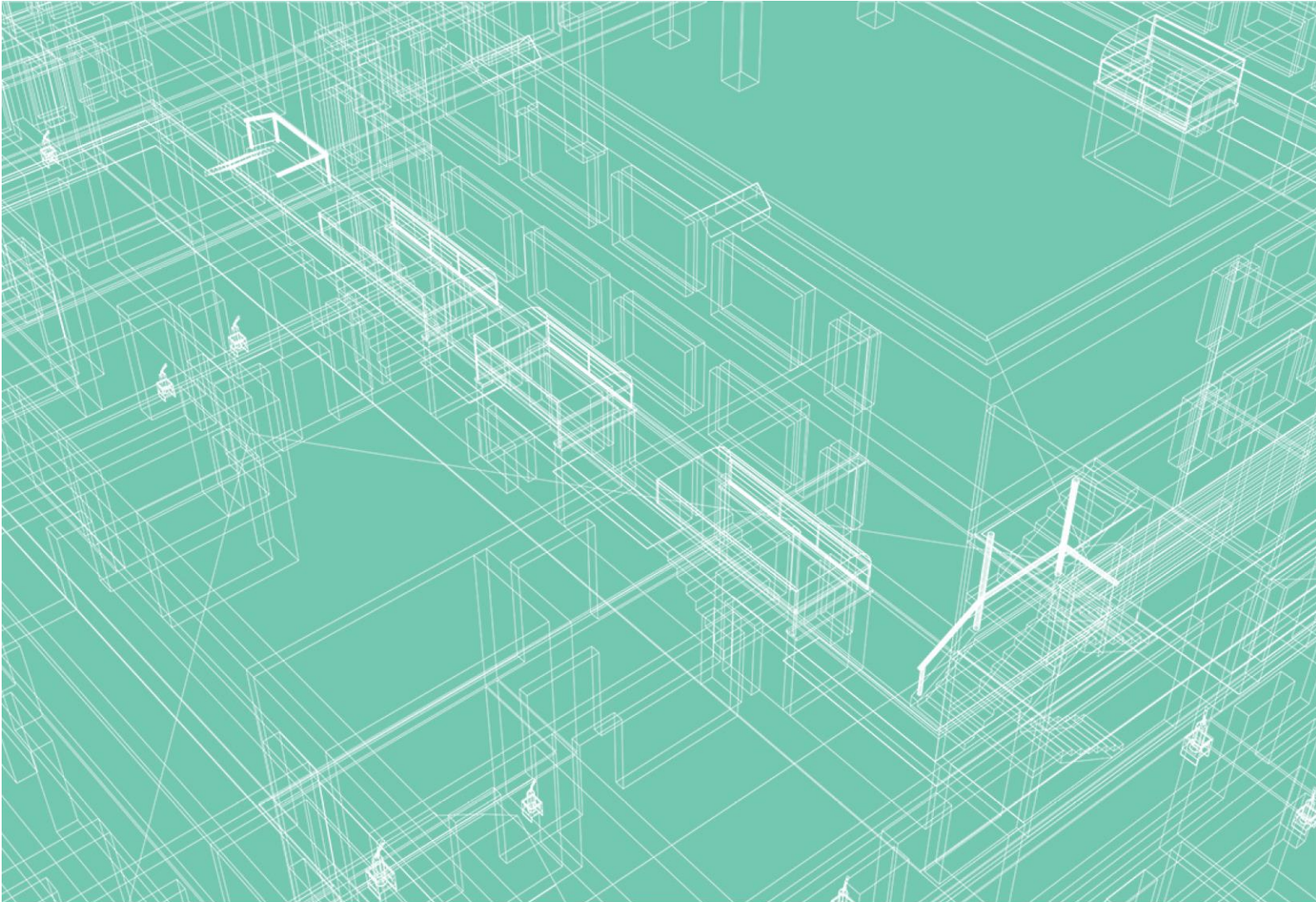


# **Attachment 18**

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Revised ESD Report

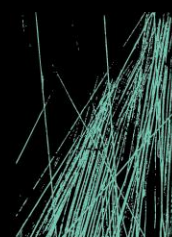
JHA



ESD REPORT

**HOLDSWORTH AVENUE,  
ST LEONARDS**

ESD SERVICES



**JHA**

JHASERVICES.COM

This report is prepared for the nominated recipient only and relates to the specific scope of work and agreement between JHA and the client (the recipient). It is not to be used or relied upon by any third party for any purpose.

## DOCUMENT CONTROL SHEET

Project Number	210498
Project Name	East Quarter – St Leonards
Description	Residential Building
Key Contact	Eddith Chu

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	DATE								

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## EXECUTIVE SUMMARY

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This report prepared by JHA identifies the Ecologically Sustainable Design (ESD) initiatives embedded in the proposed residential development at Holdsworth Avenue, St Leonards.

The aim of the project is to revitalise the Lane Cove precinct with a strong focus on sustainability to promote a healthier way of living not just for the present but in the years to come as well. Embedded in the design are the following sustainable initiatives:

- Passive design ensuring minimum 6 Star NatHERS rating
- Energy efficient LED lighting
- Control systems tuned to maximise building performance
- Solar photovoltaic system
- WELS star rated fixtures
- Supplemental bicycle parking spaces
- Activated public and communal open space with inclusive, passive, active and growing zones



## INTRODUCTION

This report prepared by JHA identifies the Ecologically Sustainable Design (ESD) initiatives embedded in the proposed residential development at Holdsworth Avenue, St Leonards.

### 1.1 PROJECT DESCRIPTION

The proposal will be a residential development consisting of the following:

- 4 floors of underground basement parking
- 5 apartment buildings consist of 245 ILUs
- Communal swimming pool
- Communal garden and landscape

### 1.2 SITE LOCATION

The subject site is located at 22-34 Berry Road, 21-31 Holdsworth Avenue and 42-46 River Road, St Leonards South.



Figure 1 – Aerial photo of the site

## SUSTAINABLE DESIGN INITIATIVES

---

### 1.3 BUILDING ENVELOPE

Consideration for passive design reduces the load on mechanical systems, which in turn results in more efficient sizing of the equipment and less energy being consumed. In addition to this, occupant thermal comfort is achieved without an over-reliance on air conditioning.

#### 1.3.1 GLAZING

The façades are fully glazed which will be major source of unwanted heat gain in summer and heat loss in winter. To combat this, a high performance glazing system will be selected. U value will be low to reduce heat loss and better contain the internal heat loads from equipment, lighting and people.

This project is targeting the use of single glazing low-e window throughout which could give better U value, lower SHGC and with the clear look.

#### 1.3.2 INSULATION

Insulation reduces heat flow and consequently heat loss in winter and heat gain in summer. A continuous thermal barrier is to be expected to minimise thermal bridging. The external fabric i.e. roof, floor and external walls will all be insulated to an optimised R value.

### 1.4 HEATING, COOLING AND VENTILATION SYSTEMS

It is proposed the air conditioning systems to be individual split.

In tandem with the high performance building fabric, this will ensure a high degree of thermal comfort for residents and reduced energy consumption.

All apartments will have operable windows to maximise cross ventilation and provide free cooling during favourable conditions. This will further reduce the building energy consumption.

All bathrooms, laundries and kitchen hoods will be exhausted to outside. Control strategy may be interlocked to light switch or manual on/off.

### 1.5 LIGHTING

All lighting fixtures are proposed to be LED.

LED technology minimises energy use whilst still achieving the desired lux levels.

Lighting in common areas will be provided with a motion sensor and/or time clock where appropriate to minimise times where lights are on but no one is around.

### 1.6 RENEWABLE ENERGY

A solar photovoltaic (PV) system is proposed to be installed on the rooftop of each high-rise building. The current design is allow to achieve a system size of 30kW or greater. Panels shall be orientated towards north with a tilt slightly less than the latitude without shading adjacent panels. This is to maximise electricity generation on a yearly basis.

## 1.7 INDOOR ENVIRONMENTAL QUALITY

### 1.7.1 DAYLIGHT

The majority of apartments and their living spaces are orientated with direct sunlight access. In conjunction with the glazed wall façade, ample daylight is provided.

This not only reduces the energy consumed by artificial lighting but access to daylight has shown to offer wellbeing benefits.

### 1.7.2 THERMAL COMFORT

A high degree of thermal comfort is expected for occupants. This is achieved via the following:

- Minimum NatHERS 6 Star rating for the whole development
- Continuous insulation with high R values separating the apartment from external conditions
- High performance glazing to minimise radiant heat
- Air conditioning to heat and cool the space to a comfortable temperature and maintain relative humidity levels

## 1.8 WATER CONSERVATION

### 1.8.1 WELS SCHEME

Appliances and fixtures with high WELS star ratings will be selected to reduce potable water consumption.

BASIX requirements will dictate final selections but below is a recommendation.

Fixtures	WELS Star Rating
Showerheads	3 (>4.5 but <=6L/min)
Taps	3
Toilets	3
Dishwasher	4

## CONCLUSION

The proposed mixed use development aims to revitalise the heart of Lane Cove and create a community that is healthy, safe and resilient.

The core tenets of environmental, social and economic sustainability are placed front and centre as a design response to this vision.

The project incorporates ESD initiatives that go above and beyond regulatory requirements to produce a site that will consist comfort living condition, energy efficient, water efficient and pleasant living environment.



## APPENDIX A PROJECT COMMITMENTS

---

**BASIX Project Commitments**

Proposed: Class 2 Apartment Units  
 Address: 29 Holdsworth Avenue, St Leonards  
 Lot No / DP: 19/DP7259

**Water (All dwellings)**

Fixtures	Specification
Shower head rating	3 star (> 4.5 but <= 6 L/min)
Toilet rating	3 star
Kitchen taps rating	3 star
Bathroom taps rating	3 star
Dishwasher	4 star
Alternative water details	
Rainwater tank size	No RWT

**Thermal Comfort      Accreditation Number:      ABSA 20647**

External walls	Requirements
Concrete Block, lined	Medium colour    R1.5      Bulk insulation

**Internal walls**

Cavity wall, direct fix plasterboard	No insulation
--------------------------------------	---------------

**Partition walls**

AAC, plaster on studs	No insulation
AAC, plaster on studs	To corridor    R1.7 Bulk insulation
Concrete panel/blocks filled, plaster on studs	To firestair & lift shaft    R1.7 Bulk insulation

**Ceiling**

External ceiling - Concrete, plasterboard	Topfloor exposed ceiling    R3.5 Bulk insulation
---	--

**Roof**

Waterproofing membrane	Medium Colour (solar absorptance 0.475-0.7)
------------------------	---

**Floors**

Suspended concrete slab	Over Basement Carpark	R1.0 Bulk insulation
Suspended concrete slab	Exposed	R1.0 Bulk insulation

**Windows**

Aluminium frame ALM-004-03	Performance glazing with U-value 4.3 and SHGC 0.53
Aluminium frame ALM-004-04	Performance glazing with U-value 4.9 and SHGC 0.33
Aluminium frame ATB-006-04	Performance glazing with U-value 3.0 and SHGC 0.26

**Downlights**

Lighting specification	As per default worse case scenario 2 per 5 sq meters of ceiling area to each room.
------------------------	--

**Overshadowing details**

	Adjoining units calculated into model calculations
--	--

**Site**

Orientation of nominal north elevation	As shown on plans
--	-------------------

**Energy (All Dwellings)**

Hot water	Specification	Rating
Individual system	Gas instantaneous	5 star

**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	EER 3.0 - 3.5
Individual systems - bedroom areas	1-phase airconditioning	EER 3.0 - 3.5

**Heating**

Individual systems - living areas	1-phase airconditioning	EER 3.0 - 3.5
Individual systems - bedroom areas	1-phase airconditioning	EER 3.0 - 3.5

**Appliances**

Cooktop/oven	Gas cooktop & electric oven
Ventilated fridge space	No
Private outdoor clothes drying line	No
Clothes dryer	3 Star

**Alternative Energy**

Photovoltaic	23 kWp
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## APPENDIX B NATHERS REPORT

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# Nationwide House Energy Rating Scheme — Class 2 summary

## NatHERS Certificate No. 0007586320

Generated on 21 Apr 2022 using BERS Pro v4.4.1.5 (3.21)

### Property

**Address** 29 Holdsworth Avenue , St Leonards , NSW , 2065

**Lot/DP** 19/7259

**NatHERS climate zone** 56

**Accredited assessor** 

Lawrence Yu

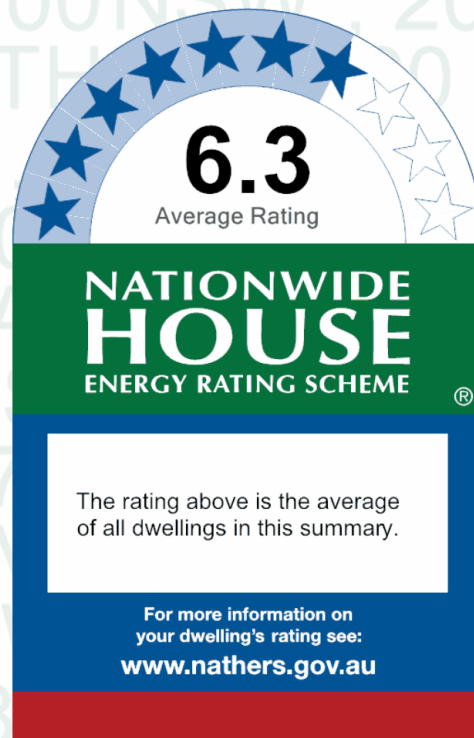
JHA Consulting Engineers

lawrence.yu@jhaengineers.com.au

02 9437 1000

**Accreditation No.** 20647

**Assessor Accrediting Organisation** ABSA



### Verification

To verify this certificate, scan the QR code or visit [hstar.com.au/QR/Generate?p=pudMdKerj](http://hstar.com.au/QR/Generate?p=pudMdKerj).  
When using either link, ensure you are visiting [hstar.com.au](http://hstar.com.au)

### Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m <sup>2</sup> /p.a.)	Cooling load (MJ/m <sup>2</sup> /p.a.)	Total load (MJ/m <sup>2</sup> /p.a.)	Star rating
<a href="#">0007583313</a>	A001	15.7	25.5	41.2	6.8
<a href="#">0007583321</a>	A002	20.3	25.2	45.5	6.4
<a href="#">0007583339</a>	A003	20.6	25.3	46	6.4
<a href="#">0007583347</a>	A004	42.3	22.7	65	5.1
<a href="#">0007583354</a>	A101	29	21.4	50.4	6

*Continued Over*

### National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated buildings are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at [www.abcb.gov.au](http://www.abcb.gov.au).

State and territory variations and additions to the NCC may also apply.

## Summary of all dwellings (continued)

Certificate number and link	Unit Number	Heating load (MJ/m <sup>2</sup> /p.a.)	Cooling load (MJ/m <sup>2</sup> /p.a.)	Total load (MJ/m <sup>2</sup> /p.a.)	Star rating
<a href="#">0007583362</a>	A102	29.6	28.8	58.4	5.4
<a href="#">0007583370</a>	A103	13.7	24.2	37.9	7.1
<a href="#">0007583388</a>	A104	4.8	24.1	28.9	7.8
<a href="#">0007583396</a>	A105	10.9	28.6	39.6	6.9
<a href="#">0007583404</a>	A106	34.5	26.6	61.1	5.3
<a href="#">0007583412</a>	A107	25	27.2	52.2	5.9
<a href="#">0007583420</a>	A201	31.3	19.8	51.1	5.9
<a href="#">0007583438</a>	A202	31.5	27.2	58.7	5.4
<a href="#">0007583446</a>	A203	14.3	23.6	37.8	7.1
<a href="#">0007583453</a>	A204	11.3	26.4	37.7	7.1
<a href="#">0007583461</a>	A205	24	27.3	51.3	5.9
<a href="#">0007583479</a>	A206	18.1	27.4	45.5	6.4
<a href="#">0007583487</a>	A207	36.6	28.2	64.8	5.1
<a href="#">0007583495</a>	A301	35	15.6	50.6	6
<a href="#">0007583503</a>	A302	35	21.1	56.2	5.6
<a href="#">0007583511</a>	A303	26.3	27	53.4	5.8
<a href="#">0007583529</a>	A304	25.2	27.7	52.8	5.9
<a href="#">0007583537</a>	A305	16.7	22.2	38.8	7
<a href="#">0007583545</a>	A306	22.1	18.9	41	6.8
<a href="#">0007583552</a>	A307	40.9	22.8	63.7	5.1
<a href="#">0007583560</a>	A401	41.9	22.1	64	5.1
<a href="#">0007583578</a>	A402	35	22.5	57.5	5.5
<a href="#">0007583586</a>	A403	35.3	27.9	63.2	5.2
<a href="#">0007583594</a>	A404	20.9	28.3	49.2	6.2
<a href="#">0007583602</a>	A405	25.8	24.2	50	6.1
<a href="#">0007583610</a>	A406	24	29.1	53.1	5.9
<a href="#">0007583628</a>	A407	41.2	22.1	63.3	5.2
<a href="#">0007583636</a>	A501	31.8	22.4	54.2	5.8
<a href="#">0007583644</a>	A502	37.2	23.6	60.8	5.3
<a href="#">0007583651</a>	A503	19.8	29.2	49	6.2
<a href="#">0007583669</a>	A504	10.3	28.4	38.7	7
<a href="#">0007583677</a>	A505	12	25	36.9	7.1
<a href="#">0007583685</a>	A506	37.5	24	61.4	5.3
<a href="#">0007583693</a>	A601	31.4	16.2	47.6	6.3
<a href="#">0007583701</a>	A602	36.7	24	60.7	5.3
<a href="#">0007583719</a>	A603	21.1	23.8	44.9	6.5
<a href="#">0007583727</a>	A604	22.2	26.9	49.1	6.2
<a href="#">0007583735</a>	A605	33.4	26	59.3	5.4
<a href="#">0007583743</a>	A606	20.4	22.8	43.2	6.6
<a href="#">0007583750</a>	A701	30.1	23.6	53.7	5.8



Certificate number and link	Unit Number	Heating load (MJ/m /p.a.)	Cooling load (MJ/m /p.a.)	Total load (MJ/m /p.a.)	Star rating
<a href="#">0007583768</a>	A702	43.9	25.5	69.5	4.8
<a href="#">0007583776</a>	A703	38.6	28.8	67.4	4.9
<a href="#">0007583784</a>	A704	28.7	29.4	58.1	5.4
<a href="#">0007583792</a>	A705	17.5	21.7	39.1	6.9
<a href="#">0007583800</a>	A706	31.8	25.4	57.2	5.6
<a href="#">0007583818</a>	A801	38.2	25.9	64.1	5.1
<a href="#">0007583826</a>	A802	45.3	10.8	56.1	5.6
<a href="#">0007583834</a>	A803	45.2	26.4	71.7	4.7
<a href="#">0007585722</a>	B001	38.6	23.8	62.4	5.2
<a href="#">0007585730</a>	B002	42.3	27.8	70.2	4.8
<a href="#">0007585748</a>	B003	36.9	24.1	60.9	5.3
<a href="#">0007585755</a>	B004	14.4	24.6	39	6.9
<a href="#">0007585763</a>	B005	37.5	26.5	64	5.1
<a href="#">0007585771</a>	B101	24.3	18.2	42.6	6.7
<a href="#">0007585789</a>	B102	39.7	26	65.7	5
<a href="#">0007585797</a>	B103	14.5	21.5	36	7.2
<a href="#">0007585805</a>	B104	12.6	28.8	41.4	6.8
<a href="#">0007585821</a>	B105	19.7	24.7	44.4	6.5
<a href="#">0007585839-01</a>	B106	15.1	21.8	36.9	7.2
<a href="#">0007585847</a>	B107	13	24	37	7.1
<a href="#">0007585854</a>	B201	25	18	43	6.7
<a href="#">0007585862</a>	B202	29.8	23.1	52.9	5.9
<a href="#">0007585870</a>	B203	17.3	26.2	43.5	6.6
<a href="#">0007585888</a>	B204	18.7	29.2	47.9	6.3
<a href="#">0007585896</a>	B205	13.8	24.4	38.2	7.1
<a href="#">0007585904</a>	B206	7.7	25.9	33.6	7.4
<a href="#">0007585912</a>	B207	11.7	22.6	34.4	7.3
<a href="#">0007585920</a>	B301	25.6	17.8	43.4	6.6
<a href="#">0007585938</a>	B302	30.3	22.8	53	5.9
<a href="#">0007585946</a>	B303	17.6	25.1	42.7	6.7
<a href="#">0007585953</a>	B304	10.6	28.3	38.9	7
<a href="#">0007585961</a>	B305	14.3	23.6	37.8	7.1
<a href="#">0007585979</a>	B306	8	24.9	33	7.4
<a href="#">0007585987</a>	B307	12.2	22.5	34.7	7.3
<a href="#">0007585995</a>	B401	27.4	28.7	56.1	5.6
<a href="#">0007586001</a>	B402	30.7	22.4	53.1	5.8
<a href="#">0007586019</a>	B403	39.2	20.4	59.6	5.4
<a href="#">0007586027</a>	B404	19.9	29.2	49.2	6.2
<a href="#">0007586035</a>	B405	22.8	28.8	51.6	5.9
<a href="#">0007586043</a>	B406	20.9	22.7	43.6	6.6
<a href="#">0007586050</a>	B407	18.7	24	42.7	6.7
<a href="#">0007586068</a>	B501	27.8	19.2	47	6.3

Certificate number and link	Unit Number	Heating load (MJ/m /p.a.)	Cooling load (MJ/m /p.a.)	Total load (MJ/m /p.a.)	Star rating
<a href="#">0007586076</a>	B502	29.6	26.9	56.5	5.6
<a href="#">0007586084</a>	B503	14.2	29.3	43.5	6.6
<a href="#">0007586092</a>	B504	9.5	27.6	37.2	7.1
<a href="#">0007586100</a>	B505	5.8	28.4	34.2	7.3
<a href="#">0007586118</a>	B506	15	26.2	41.1	6.8
<a href="#">0007586126</a>	B601	28	18.8	46.8	6.3
<a href="#">0007586134</a>	B602	29.7	27	56.7	5.6
<a href="#">0007586142</a>	B603	27.3	29.3	56.6	5.6
<a href="#">0007586159</a>	B604	23.1	26.2	49.2	6.1
<a href="#">0007586167</a>	B605	9	28.6	37.6	7.1
<a href="#">0007586175</a>	B606	16.1	25.6	41.7	6.8
<a href="#">0007586183</a>	B701	28.4	18.6	47	6.3
<a href="#">0007586191</a>	B702	30	26.7	56.7	5.6
<a href="#">0007586209</a>	B703	27.8	28.7	56.5	5.6
<a href="#">0007586217</a>	B704	23.6	25.8	49.4	6.1
<a href="#">0007586225</a>	B705	9.2	27.7	36.9	7.1
<a href="#">0007586233</a>	B706	16.4	25.2	41.6	6.8
<a href="#">0007586241</a>	B801	45.4	20.6	65.9	5
<a href="#">0007586258</a>	B802	31.1	22.9	53.9	5.8
<a href="#">0007586266</a>	B803	34.5	16	50.5	6
<a href="#">0007583842</a>	C001	44.5	25.7	70.1	4.8
<a href="#">0007583859</a>	C002	44.1	26.2	70.3	4.8
<a href="#">0007583867</a>	C003	45.2	22.1	67.2	4.9
<a href="#">0007583875</a>	C004	20.5	28.5	49	6.2
<a href="#">0007583883</a>	C005	36.8	14.4	51.3	5.9
<a href="#">0007583891</a>	C101	23	19.4	42.4	6.7
<a href="#">0007583917</a>	C102	34.3	22.6	56.8	5.6
<a href="#">0007583925</a>	C103	42	22.7	64.7	5.1
<a href="#">0007583933</a>	C104	14.3	27.5	41.8	6.8
<a href="#">0007583941</a>	C105	8.3	23	31.4	7.6
<a href="#">0007583958</a>	C201	16.7	21.1	37.8	7.1
<a href="#">0007583966</a>	C202	14.3	27.9	42.1	6.7
<a href="#">0007583974</a>	C203	22.3	23.4	45.6	6.4
<a href="#">0007583982</a>	C204	12	24.2	36.2	7.2
<a href="#">0007583990</a>	C205	37.7	24.1	61.8	5.3
<a href="#">0007584006</a>	C206	29.1	21.7	50.8	6
<a href="#">0007584014</a>	C207	17	17.5	34.4	7.3
<a href="#">0007584022</a>	C301	13	18.6	31.6	7.5
<a href="#">0007584030</a>	C302	15.5	26.5	41.9	6.8
<a href="#">0007584048</a>	C303	27.1	17.7	44.8	6.5
<a href="#">0007584055</a>	C304	15.4	18.5	33.9	7.4
<a href="#">0007584063</a>	C305	38.7	29.2	67.9	4.9

Certificate number and link	Unit Number	Heating load (MJ/m /p.a.)	Cooling load (MJ/m /p.a.)	Total load (MJ/m /p.a.)	Star rating
<a href="#">0007584071</a>	C306	32.6	28.1	60.6	5.3
<a href="#">0007584089</a>	C307	20.2	13.8	34	7.4
<a href="#">0007584097</a>	C401	13.2	18.8	32	7.4
<a href="#">0007584105</a>	C402	16	26.3	42.3	6.7
<a href="#">0007584113</a>	C403	27.8	17.7	45.6	6.4
<a href="#">0007584121</a>	C404	16.1	18.4	34.5	7.3
<a href="#">0007584139</a>	C405	39.6	28.5	68.1	4.9
<a href="#">0007584147</a>	C406	30.3	27.2	57.5	5.5
<a href="#">0007584154</a>	C407	19.7	13.6	33.4	7.4
<a href="#">0007584162</a>	C501	25.2	27.2	52.4	5.9
<a href="#">0007584170</a>	C502	31.2	28.1	59.3	5.4
<a href="#">0007584188</a>	C503	30	22.6	52.6	5.9
<a href="#">0007584196</a>	C504	25.3	28.6	53.9	5.8
<a href="#">0007584204</a>	C505	35.4	23.2	58.7	5.4
<a href="#">0007584212</a>	C506	28.8	27.1	55.9	5.6
<a href="#">0007584220</a>	C507	16.4	13.9	30.3	7.6
<a href="#">0007584238</a>	C601	21.7	29.4	51.1	5.9
<a href="#">0007584246</a>	C602	23.3	27.2	50.5	6
<a href="#">0007584253</a>	C603	17.1	24.4	41.4	6.8
<a href="#">0007584261</a>	C604	27.1	27.9	55	5.7
<a href="#">0007584279</a>	C605	26.5	24.7	51.2	5.9
<a href="#">0007584287</a>	C606	17.9	25.2	43.1	6.7
<a href="#">0007584295</a>	C701	10.5	22	32.5	7.4
<a href="#">0007584303</a>	C702	23.7	27	50.7	6
<a href="#">0007584311</a>	C703	17.3	24.3	41.6	6.8
<a href="#">0007584329</a>	C704	27.4	27.7	55.2	5.7
<a href="#">0007584337</a>	C705	24.3	24.7	49	6.2
<a href="#">0007584345</a>	C706	15.3	25.2	40.5	6.9
<a href="#">0007584352</a>	C801	10.2	21.7	31.9	7.5
<a href="#">0007584360</a>	C802	24.2	26.7	50.9	6
<a href="#">0007584378</a>	C803	17.6	24	41.6	6.8
<a href="#">0007584386</a>	C804	27.9	27.3	55.2	5.7
<a href="#">0007584394</a>	C805	23.3	24	47.3	6.3
<a href="#">0007584402</a>	C806	13.9	25.8	39.8	6.9
<a href="#">0007584410</a>	C901	31.4	27.2	58.6	5.4
<a href="#">0007584428</a>	C902	34.7	26.5	61.1	5.3
<a href="#">0007584436</a>	C903	43.5	21.2	64.7	5.1
<a href="#">0007584444</a>	D001	33.3	22.8	56	5.6
<a href="#">0007584451</a>	D002	36.8	24.4	61.2	5.3
<a href="#">0007584469</a>	D003	43.5	27.9	71.4	4.7
<a href="#">0007584477</a>	D004	37.3	27.2	64.5	5.1
<a href="#">0007584485</a>	D005	43.2	22.6	65.9	5

Certificate number and link	Unit Number	Heating load (MJ/m /p.a.)	Cooling load (MJ/m /p.a.)	Total load (MJ/m /p.a.)	Star rating
<a href="#">0007584493</a>	D006	26.9	17	43.9	6.6
<a href="#">0007584519</a>	D101	12.8	18.7	31.6	7.5
<a href="#">0007584527</a>	D102	18.1	19.2	37.3	7.1
<a href="#">0007584535</a>	D103	9.9	27.8	37.7	7.1
<a href="#">0007584543</a>	D104	33.4	19.1	52.5	5.9
<a href="#">0007584550</a>	D105	25.8	24.9	50.8	6
<a href="#">0007584568</a>	D106	16.8	24.3	41.1	6.8
<a href="#">0007584576</a>	D107	17.3	22.3	39.6	6.9
<a href="#">0007584584</a>	D108	20.9	27.6	48.5	6.2
<a href="#">0007584592</a>	D109	23.1	25.8	48.9	6.2
<a href="#">0007584600</a>	D201	13.5	19.6	33.2	7.4
<a href="#">0007584618</a>	D202	21.4	28.5	50	6.1
<a href="#">0007584626</a>	D203	24.1	24.9	48.9	6.2
<a href="#">0007584634</a>	D204	19.2	18	37.2	7.1
<a href="#">0007584642</a>	D205	21.7	26.4	48.1	6.2
<a href="#">0007584659</a>	D206	13.9	18.2	32	7.4
<a href="#">0007584667</a>	D207	26.9	23.6	50.5	6
<a href="#">0007584675</a>	D208	17.5	22.9	40.4	6.9
<a href="#">0007584683</a>	D209	17.9	22.1	40	6.9
<a href="#">0007584691</a>	D301	16.5	14.9	31.4	7.6
<a href="#">0007584709</a>	D302	24.9	21.9	46.7	6.4
<a href="#">0007584717</a>	D303	28	18.9	47	6.3
<a href="#">0007584725</a>	D304	22.9	14.2	37.1	7.1
<a href="#">0007584733</a>	D305	11	25.8	36.7	7.2
<a href="#">0007584741</a>	D306	39.2	14.1	53.4	5.8
<a href="#">0007584758</a>	D307	30.2	29.2	59.4	5.4
<a href="#">0007584766</a>	D308	21.1	26.6	47.8	6.3
<a href="#">0007584774</a>	D309	21.6	16.8	38.4	7
<a href="#">0007584782</a>	D401	19.1	26.7	45.9	6.4
<a href="#">0007584790</a>	D402	24.5	23.8	48.3	6.2
<a href="#">0007584808</a>	D403	30.2	26.9	57.1	5.6
<a href="#">0007584816</a>	D404	23.6	14.1	37.7	7.1
<a href="#">0007584824</a>	D405	11.5	25.3	36.8	7.2
<a href="#">0007584832</a>	D406	40	14.4	54.4	5.8
<a href="#">0007584840</a>	D407	26.6	25.9	52.5	5.9
<a href="#">0007584857</a>	D408	21.8	25.6	47.4	6.3
<a href="#">0007584865</a>	D409	22.2	16.1	38.3	7.1
<a href="#">0007584873</a>	D501	13.1	15.1	28.2	7.8
<a href="#">0007584881</a>	D502	20.9	23.2	44	6.6
<a href="#">0007584899</a>	D503	20.8	24.1	44.9	6.5
<a href="#">0007584907</a>	D504	8	28.1	36	7.2
<a href="#">0007584915</a>	D505	14.8	25.8	40.6	6.9

Certificate number and link	Unit Number	Heating load (MJ/m /p.a.)	Cooling load (MJ/m /p.a.)	Total load (MJ/m /p.a.)	Star rating
<a href="#">0007584923</a>	D506	32.2	26.6	58.7	5.4
<a href="#">0007584931</a>	D507	34.2	23.6	57.9	5.5
<a href="#">0007584949</a>	D508	18.3	26.3	44.6	6.5
<a href="#">0007584956</a>	D601	13.6	15.2	28.7	7.8
<a href="#">0007584964</a>	D602	19.3	24.6	43.9	6.6
<a href="#">0007584972</a>	D603	14	23.1	37.1	7.1
<a href="#">0007584980</a>	D604	16.2	25	41.2	6.8
<a href="#">0007584998</a>	D605	33.5	19.6	53	5.9
<a href="#">0007585003</a>	D606	25.9	23.8	49.7	6.1
<a href="#">0007585011</a>	D701	13.8	15	28.8	7.8
<a href="#">0007585029</a>	D702	17.5	27	44.4	6.5
<a href="#">0007585037</a>	D703	15.4	28.7	44.1	6.6
<a href="#">0007585045</a>	D704	21	26.3	47.4	6.3
<a href="#">0007585052</a>	D705	36.9	27.2	64.1	5.1
<a href="#">0007585060</a>	D706	26.9	21.8	48.7	6.2
<a href="#">0007585078</a>	D801	20.8	20	40.8	6.9
<a href="#">0007585086</a>	D802	20.3	23.6	43.9	6.6
<a href="#">0007585094</a>	D803	44.2	22.1	66.3	4.9
<a href="#">0007586571</a>	E001	21.9	8.3	30.2	7.6
<a href="#">0007586621</a>	E002	37.6	14.4	52	5.9
<a href="#">0007586639</a>	E003	32.6	13.8	46.4	6.4
<a href="#">0007586522</a>	E004	27.8	11.9	39.7	6.9
<a href="#">0007586647</a>	E005	35.7	11.2	46.9	6.3
<a href="#">0007586654</a>	E101	43.1	11.5	54.6	5.7
<a href="#">0007586662</a>	E102	35.2	11.8	47	6.3
<a href="#">0007586688</a>	E103	37.8	11.8	49.6	6.1
<a href="#">0007586696</a>	E105	31	9.4	40.5	6.9
<a href="#">0007586704</a>	E106	30.3	12.9	43.2	6.7
<a href="#">0007586712</a>	E201	31.9	19.2	51.1	5.9
<a href="#">0007586720</a>	E202	25.2	16.2	41.5	6.8
<a href="#">0007586738</a>	E301	44.4	26.9	71.3	4.7
<a href="#">0007586746</a>	E302	38.7	19.3	58	5.4
Average		25.01	23.26	48.27	6.26

## Explanatory Notes

### About this report

This summary rating is the average rating of all NCC Class 2 dwellings in a development. The individual dwellings' ratings are a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate the energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances, or energy production of solar panels. For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

### Accredited Assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO). AAOs have specific quality assurance processes in place,



and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

### Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content, input and creation of the NatHERS Certificate is by the assessor. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

## APPENDIX C BASIX REPORT

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