BrooksDevlin

248 Kilburn High Road, NW6 2BS

Code for Sustainable Homes Pre-Assessment

Prepared for: Studio 246 Media Ltd

Written by: Sara Bennett

Date: 30th September 2013

Revision:

Contents

1 Executive Summary

Studio 246 Media Ltd have appointed Brooks Devlin to produce a Code for Sustainable Homes (CSH) pre-assessment to inform the strategy to achieve Code level 4 for the proposed development of 14 new flats at 248 Kilburn High Road.

This report has used the SAP modelling results presented in the accompanying Energy Strategy document to inform the results presented here. This report details a robust strategy to achieve the CSH Level 4 standard in compliance with the requirements of The London Plan 2012.

The Code for Sustainable Homes is an environmental assessment system for new housing in England covering performance in nine key areas, known as 'Categories' listed below;

- Energy & CO2
- Water
- Materials
- Surface water Run-Off
- Waste
- Pollution
- Health & Wellbeing
- Management
- Ecology

These are weighted for each category producing an overall score to be achieved for each Code level. Within these nine categories, performance criteria are defined for the individual issues which are described in detail, together with the requirements for verification, in Section 2 of the Code Technical Guidance.

There are a number of mandatory elements of the Code and some are set at particular levels for Code Level 4 compliance, these have been detailed below;

- The minimum for Carbon Dioxide Emissions is 25% improvement of DER/TER for ENE1.

- The internal water use is also restricted to 105L per person per day, although through low water use sanitary ware these could be improved upon to meet 90L per person per day.

- The environmental impact of materials is assessed using the BRE Green Guide to Specification rating system, and it is mandatory that 3 elements meet an A+ to D rating, which should not be problematic.

- The surface water volume and discharge run-off rates need to meet the mandatory levels. Although as the site is assumed to be hard-standing, the impermeable area pre and post development can be measured to aid the reduction calculations required. It is prudent to involve an engineer at the early stages.

- The external waste storage location needs to have level access from all external doors of the dwellings to the storage area. The communal waste storage needs to meet the required sizes set by Camden Council.

In response to the energy modelling and Average Daylight Factor calculations, the proposed dwellings have, for the purposes of this assessment, been grouped as detailed in Table 1 below:

Spec	Spec Name
1	Block A (1-4) 2 bed flats
2	Block B (1 & 2) 1 bed flats
3	Block B (3-5) 1 & 2 bed flats
4	Block C (1) 2 bed flat
5	Block C (2-5) 2 & 3 bed flats

Table 1: Specification groups for the dwellings

The overall scores for each of the dwelling specification groups have been assessed and are required to meet the minimum of 68% for Code Level 4, these are detailed in Table 2 below:

WEIGHTED RESULTS	MAX	WEIGHTED VALUE	1	2	3	4	5
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 & 2 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats
ENERGY	31	1.17	22.66	23.25	23.25	23.25	23.25
WATER	6	1.50	6.00	6.00	6.00	6.00	6.00
MATERIALS	24	0.30	5.10	5.10	5.10	5.10	5.10
SURFACE WATER RUNOFF	4	0.55	1.10	1.10	1.10	1.10	1.10
WASTE	8	0.80	6.40	6.40	6.40	6.40	6.40
POLLUTION	4	0.70	2.80	2.80	2.80	2.80	2.80
HEALTH AND WELLBEING	12	1.17	9.33	8.17	9.33	8.17	9.33
MANAGEMENT	9	1.11	8.89	8.89	8.89	8.89	8.89
ECOLOGY	9	1.33	8.00	8.00	8.00	8.00	8.00
TOTAL			**70.28**	**69.70**	**70.87**	**69.70**	**70.87**
POTENTIAL CODE LEVEL			LEVEL 4	LEVEL 4	LEVEL 4	LEVEL 4	LEVEL 4

In order to provide a robust strategy, conservative assumptions have been made in a number of categories. These are detailed in the main body of the report where appropriate.

Notwithstanding this, it can be confirmed that based on the information available to date, the scheme has the potential to comfortably satisfy the minimum performance standards to achieve Code for Sustainable Homes Level 4.

2 Code for Sustainable Homes Category Score

The following tables detail the individual categories within the Code and the resultant scores for each specification group of dwellings. The comments column for each table details the assessments and assumptions made.

2.1 Energy

ENERGY & EMISSIONS		Max Score	PREDICTED SCORE					MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			1	2	3	4	5			
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 & 2 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
ENE1	CARBON DIOXIDE EMISSIONS	10	3.3	3.8	3.8	3.8	3.8	YES	To achieve and demonstrate a particular improvement standard over 2010 Part L1A of the Building Regulations.	SAP Modelling has shown this credits are achievable
ENE2	FABRIC ENERGY EFFICIENCY	9	9	9	9	9	9	NO	Fabric efficiency kWh/m2/year Min 48 with a scale up to 32 for flats	SAP Modelling has shown this credits are achievable
ENE 3	ENERGY MONITORING	2	1	1	1	1	1	NO	• 1 credit: electricity OR primary heating fuel consumption data are displayed by a correctly specified device • 2 credits: electricity AND primary heating fuel consumption data are displayed by a correctly specified device	Assumed at least the electricity to have a monitoring display, can get both gas and electric if needed.
ENE4	DRYING SPACE	1	1	1	1	1	1	N/A	To provide 4m+ length of drying line to 1 & 2 bed dwellings, 3+ bed need 6m+ length. Fittings can be internal or external, but fixings / footings must be provided and space is secure	Internal or external lines fixed into place, possibly retractable.
ENE5	ENERGY LABELLED WHITE GOODS	2	1	1	1	1	1	NO	To provide one of the following: • A+ rated fridge or fridge/freezers • A rated washing machine and dishwasher (if supplied) • Washer dryer or tumble dryer are B-rated OR • Information on the EU Energy Efficiency Labelling Scheme to all dwellings	Energy efficiency EU labelling scheme is to be given within the home user guide.
ENE 6	EXTERNAL LIGHTING	2	2	2	2	2	2	NO	1 credit: Space lighting to be low energy 2 credits : Security Lighting to be low energy, Max 150W, PIR & Daylight cut-off sensor	Communal space lighting to be low energy and security lighting to be low energy, 150W max, PIR and sensors
ENE 7	LZC TECHNOLOGIES	2	0	0	0	0	0	NO	Achieve either 10% for 1 credit or 15% for 2 credits, reduction in total development emissions	Adopting fabric first approach for Passivhaus
ENE 8	CYCLE STORAGE	2	1	1	1	1	1	NO	To provide sufficient number of secure cycle storage spaces: 1 Credit: 2 bed - 1 space / dwelling 2 Credits: 2 bed - 2 spaces / dwelling	Site plan shows 18 cycles, 12 is required for 1 credits and 22 is needed for 2 credits.
ENE 9	HOME OFFICE	1	1	1	1	1	1	NO	Requirements are: • 1.8m clear wall length with 2no. DSSO outlets and phone socket • Adequate ventilation • Average Daylight Factor > 1.5%	The average daylight factor calculations show a compliant room can meet the daylight target for each flat. The allocated room requires 2 double sockets and a phone line.

2.2 Water

WATER		Max Score	PREDICTED SCORE 1	2	3	4	5	MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
WAT 1	INDOOR WATER USE	5	3	3	3	3	3	YES	• < 105l/person/day - 3 credit, Levels 3 & 4 • < 90l/person/day - 4 credit • < 80l/person/day - 5 credit, Level 6	Maximum water consumption to be no greater than 105l/pp/day. Easy to do 90L for 4 credits - Spec to be 4/2.6 l WCs, 140l baths, 6l showers, flow restrictors on all taps
WAT 2	EXTERNAL WATER USE	1	1	1	1	1	1	NO	2 bed with private garden - 150L 3 bed with private garden - 200L All water butts are to be fitted with lid, drain cock and overflow to drains.	Default for those with just a balcony. B5 & C5 should have a 100L water butt to gain the credit.

2.3 Materials

MATERIALS		Max Score	PREDICTED SCORE 1	2	3	4	5	MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 & 2 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
MAT 1	ENVIRONMENTAL IMPACT OF MATERIALS	15	10	10	10	10	10	YES	Mandatory requirement is for at least three of the following to achieve a Green Guide rating of between A+ & D: Roof, External Walls, Internal Walls (internal & party), Upper and Ground Floors & Windows	Mandatory for at last 3 items at A+ - D. Aim for 3 or more at A or higher, assuming 10
MAT 2	RESPONSIBLE SOURCING OF MATERIALS - BASIC BUILDING ELEMENTS	6	4	4	4	4	4	NO	Where 80% of the assesses materials in the following categories are responsible sourced: frame, ground floor, upper floors, roof, external walls, internal walls	All timber to be FSc / PEFC and as many other elements as possible to have EMAS / ISO14001. 4 assumed.
MAT 3	RESPONSIBLE SOURCING OF MATERIALS - FINISHING ELEMENTS	3	2	2	2	2	2	NO	Where 80% of the assessed finishing materials in the following categories are responsible sourced: Stairs, windows, doors, skirting, panelling, furniture etc	All timber from FSC sources including stairs and kitchens.

2.4 Surface Water Run-off

SURFACE WATER RUN-OFF		Max Score	PREDICTED SCORE					MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			1	2	3	4	5			
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
SUR 1	MANAGEMENT OF SURFACE WATER RUN-OFF	2	0	0	0	0	0	YES	Mandatory Requirements: 1) Peak Rate of Run-off • If post development has no increase then it does not apply. • If there is an increase, ensure that any discharge caused by the development 2) Volume of Run-off • Ensure post development , allowing climate change, is no greater volume in 100yr 6hr event OR • Reduce the post development peak to the limiting discharge additional 1 credit: No discharge from the site for up to 5mm rainfall depths additional 1 credit: Run-off from hard surfaces receives SUDS treatment	Currently assumed that post development will result in no increase in impermeable areas and therefore no increase in subsequent run-off. Adoption of green roof areas may yield modest reduction in run-off volumes and therefore credits may be achievable. However, for purposes of this assessment no credits are currently awarded.
SUR 2	FLOOD RISK	2	2	2	2	2	2	NO	FRA to include all sources in PPS25 - streams and rivers, coastal, groundwater, sewers and drains, surface water & infrastructure failure. 2 credits: development is in Zone 1 1 credit: development is in Zone 2 or 3 and GF levels and access routes are 600mm above the design flood level of the flood zone	EA Flood map shows low risk of flooding to Kilburn High Road, still requires Flood Risk Assessment to look at all sources of flooding.

2.5 Waste

WASTE		Max Score	PREDICTED SCORE					MANDATORY STANDARD?	MAIN REQUIRMENTS	COMMENTS
			1	2	3	4	5			
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
WAS 1	STORAGE OF RECYCLABLE WASTE	4	4	4	4	4	4	YES	• Volume of waste storage to meet BS 5906 as minimum, 100L single bed • Inclusive access (Checklist IDP), no stacking of containers • dedicated internal storage of 60litres capacity (3no bins, each >15litres) located in adequate internal space is provided where there is no external storage space nor LA collection scheme.	Camden council collect refuse and recycling including food and garden waste in relevant bags / eurobins for flats allocated to recycling choice. The GF plan shows the external waste store. To ensure main doors are level access.
WAS 2	CONSTRUCTION SITE WASTE MANAGEMENT	3	3	3	3	3	3	NO	1 Credit: SWMP includes target benchmarks, commitments and procedures to minimise, monitor, measure and report non-hazardous & hazardous waste 2 Credits: SWMP includes commitments and procedures to sort and divert waste from landfill (reuse, recycle, compost) by **50%**. 3 Credits: SWMP includes commitments and procedures to sort and divert waste from landfill (reuse, recycle, compost) by **85%.**	Target benchmarks and commitments for minimising waste for 1 credit, reducing non-hazardous waste to landfill by 50% for 2 credits or 85% for 3 credits.
WAS 3	COMPOSTING	1	1	1	1	1	1	NO	To provide one of the following: • Individual home composting facilities • LA kitchen waste collection scheme Note any provided composting facilities must be in dedicated location, checklist IDP and include appropriate information leaflet.	Camden Council collects food and garden waste free of charge, therefore this credit is default.

2.6 Pollution

POLLUTION		Max Score	PREDICTED SCORE					MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			1	2	3	4	5			
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
POL 1	INSULANT ODP & GWP	1	1	1	1	1	1	NO	Insulation materials have Zero ODP and GWP < 5. Areas assessed include: Roof, Walls, Floors, DHW cylinder, all plumbing insulation, Cold Water storage tanks, External Doors	To ensure that all insulants to be GWP<5 in roofs, walls, floors, pipes and external doors.
POL 2	NOx EMISSIONS	3	3	3	3	3	3	NO	Credits are awarded based on NOx emissions from the main space heating and DHW system. • 1 credit < 100mg/kWh • 2 credits < 70mg/kWh • 3 credits < 40mg/kWh	Modelling at this stage is for gas and MVHR, ensuring the gas boiler is low Nox.

2.7 Health & Wellbeing

HEALTH & WELLBEING		Max Score	PREDICTED SCORE					MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			1	2	3	4	5			
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
HEA 1	DAYLIGHTING	3	2	1	2	1	2	NO	• Kitchens achieve ADF of 2% > 1 credit • Living, dining rooms and studies achieve ADF of 1.5% > 1 credit • 80% of the working plane in each kitchen, living room, dining room and study receives direct light from the sky > 1 credit	The average daylight factor calculations show the kitchen does not meet the 2% within Block B plots 1 & 2, Block C plot 1. See appenix for details,
HEA 2	SOUND INSULATION	4	1	1	1	1	1	NO	1 credit: Impact and airborne +/- 3dB better than Part E 3 credits: Impact and airborne +/- 5dB better than Part E 4 credits: Impact and airborne +/- 8dB better than Part E 3 credits: Attached dwelling by non-habitable rooms 4 credits: Detached dwelling	Robust Details are to be adopted, at this stage it is assumed a min +/- 3dB improvement over Part E performance for party walls and party floors.
HEA 3	PRIVATE SPACE	1	1	1	1	1	1	NO	Outdoor space, private or semi-private; • Minimum size • Accessible Checklist IDP • Accessible to only occupants	All dwellings have balconies or patios excluding B3 & B4. Communal terrace provided @ 60m2. All balconies and terraces have level threshold.
HEA 4	LIFETIME HOMES	4	4	4	4	4	4	PARTIAL	• 4 credits: All applicable LTH elements are complied with • 3 credits: Exemption of criteria 2 or 3 of LTH principles, but all other applicable LTH elements are complied with	All the flats have been designed to meet Lifetime Homes standard

2.8 Management

MANAGEMENT		Max Score	PREDICTED SCORE					MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			1	2	3	4	5			
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
MAN 1	HOME USER GUIDE	3	3	3	3	3	3	NO	Home User Guide to be supplied to all dwellings in alternative formats	Low cost credits to achieve. All information to be provided as detailed by credit requirements.
MAN 2	CONSIDERATE CONSTRUCTORS	2	1	1	1	1	1	NO	1 credit: Commitment to achieve best practice, 24 - 31.5 2 credits: Commitment to achieve beyond best practice, 32- 40 Other schemes can be used	Assuming contractor is to register with the scheme and aiming for compliance.
MAN 3	CONSTRUCTION SITE IMPACTS	2	2	2	2	2	2	NO	Where procedures to cover 2 (1 credit) or 4 (2 credits) or more of the following. • Set targets, monitor and report on CO2 production for energy use from site activities • Monitor and report on CO2 production or energy use for commercial transport to and from site • Set targets, monitor and report on water consumption from site activities • Adopt best practice for air (dust) pollution from site activities • Adopt best practice for ground and surface water pollution during construction • 80% of site timber is reclaimed, re-used or responsibly sourced	Ensure contractors produce best practice policies for air and water pollution, also monitoring and recording the water and electricity use on site during the construction phase.
MAN 4	SECURITY	2	2	2	2	2	2	NO	Where an ALO or CPDA from the local police force is consulted at the design stage and their recommendations are incorporated into the design of the dwelling section 2 complied with.	Full compliance with Section 2 Physical Security from Secured by Design AND liaison with ALO at pre-planning and incorporation of comments. Windows and doors are Rationel.

2.9 Ecology

ECOLOGY		Max Score	PREDICTED SCORE					MANDATORY STANDARD?	MAIN REQUIREMENTS	COMMENTS
			1	2	3	4	5			
			Block A (1-4) 2 bed flats	Block B (1 & 2) 1 bed flats	Block B (3-5) 1 bed flats	Block C (1) 2 bed flat	Block C (2-5) 2 & 3 bed flats			
ECO 1	ECOLOGICAL VALUE OF LAND	1	1	1	1	1	1	NO	Credits are awarded where evidence demonstrates that the development site is confirmed as land of inherently low ecological value by either: • Meeting ECO 1 checklist criteria • Low ecological value confirmed by suitably qualified ecologist	Site was previously hard landscaped so assuming it is of low ecological value.
ECO 2	ECOLOGICAL ENHANCEMENT	1	1	1	1	1	1	NO	Requires the appointment of Suitably qualified Ecologist and: Development adopts all of Ecologists Key recommendations and 30% of all additional recommendations	Incorporate all key recommendations and 30% of additional recommendations by the ecologist into a landscaping scheme.
ECO 3	PROTECTION OF ECOLOGICAL FEATURES	1	1	1	1	1	1	NO	• Default where site is confirmed as low ecological value • Where existing features potentially affected by site works are adequately protected during the construction works	Assumed default as site is of low ecological value
ECO 4	CHANGE IN ECOLOGICAL VALUE OF SITE	4	2	2	2	2	2	N/A	1 credit - Minor negative change of -9 to -3 species/Ha 2 credits - Neutral - change of -3 to + 3 species/Ha 3 credits - Minor enhancement of +3 to +9 species/Ha 4 credits - Major enhancement of > +9 species/Ha	The ecologist will calculate the species per hectarre pre development against the post development landscaping plan, at this stage a neutral change is assumed.
ECO 5	BUILDING FOOTPRINT	2	1	1	1	1	1	N/A	1 credit : Flats achieve NIFA to NIGFA ratio of 3:1 2 credits: Flats achieve NIFA to NIGFA of 4:1	ECO 5 calc = 3.794

3 Appendix A ADF Calculations

The average daylight factor (ADF) calculations are used to measure the amount of daylight in the room due to the size of all the surfaces and the size of the opening with an approximate frame size. The glazing transmittance is set to a default figure until the glazing manufacturer is known. The scores can be corrected once the window schedule and the glazing are known to the actual figure.

The ADF calculations are used in 2 elements of the Code assessment, the Daylighting in HEA1 and also to determine the ADF level within the room allocated as the Home Office.

Within the HEA1 Daylighting element, 2 credits are available for ADF's and a further credit for the view of sky – which has not been calculated at this stage. The daylighting credits are given as follows;

- 1 credit when the kitchen meets 2%
- A further credit when the living room, dining room & home office achieve 1.5%

Within the Home Office, ENE9 criteria, the room allocated as the Home Office should meet 1.5% ADF along with being able to house a desk and have 2 double sockets and a phone point. From the ADF calculations, shown on the next page, the following rooms can be allocated as the Home Office:

DWELLING TYPE	PLOTS	HO ROOM ALLOCATION	ENE 9	HEA 1
A	1, 2, 3	BED 1	1	2
A	4	BED 1	1	2
B	1	LIVING OR BED 1	1	1
B	2	LIVING OR BED 1	1	1
B	3	LIVING OR BED 1	1	2
B	4	LIVING OR BED 1	1	2
B	5	BED 2	1	2
C	1	BED 2	1	1
C	2, 4	BED 2	1	2
C	3	BED 2	1	2
C	5	BED 2	1	2

DWELLING TYPE	UNIT NO.	ROOM	PERIMETER m	FTC m	FLOOR AREA m²	TOTAL SURFACE AREA m²	WINDOW TYPE	GLAZING AREA m²	VERTICAL SKY	THETA	WINDOW ADF	ROOM ADF	KITCHEN ADF > 2%	LIVING / DINING ROOM > 1.5%	BEDROOM > 1.5%
2 BED FLAT BLOCK A	1,2,3	KITCHEN/ DINING/ LIVING	25.32	2.400	30.02	120.8	1.13 x 1.8	1.42	27.0	65	0.61	3.63	YES	YES	-
							1.13 x 1.8	1.42	27.0	65	0.61				
							3.8 x 2.1	5.59	27.0	65	2.40				
		BED 1	14.34	2.400	12.28	59.0	1.8 x 1.8	2.27	27.0	65	2.00	2.00	-	-	YES
		BED 2	15.11	2.400	11.98	60.2	1.5 x 1.5	1.58	27.0	65	1.36	1.36	-	-	NO
2 BED FLAT BLOCK A	4	KITCHEN/ DINING/ LIVING	23.25	2.400	27.26	110.3	2.6 x 2.1	3.82	27.0	65	1.80	2.87	YES	YES	-
							1.8 x 1.8	2.27	27.0	65	1.07				
		BED 1	13.89	2.400	11.92	57.2	2.16 x 1.15	1.74	27.0	65	1.58	1.58	-	-	YES
		BED 2	12.83	2.400	8.63	48.1	1.65 x 1.15	1.33	27.0	65	1.44	1.44	-	-	NO
1 BED FLAT BLOCK B	1	KITCHEN/ DINING/ LIVING	21.50	2.400	28.11	107.8	2.88 x 1.8	3.63	27.0	65	1.75	1.75	NO	YES	-
		BED 2	14.95	2.400	12.23	60.3	2.45 x 2.1	3.60	27.0	65	3.10	3.10	-	-	YES
1 BED FLAT BLOCK B	2	KITCHEN/ DINING/ LIVING	25.45	2.400	31.50	124.1	2.88 x 1.8	3.63	27.0	65	1.52	1.52	NO	YES	-
		BED 1	14.55	2.400	11.40	57.7	2.45 x 2.1	3.60	27.0	65	3.24	3.24	-	-	YES

DWELLING TYPE	UNIT NO.	ROOM	PERIMETER m	FTC m	FLOOR AREA m^2	TOTAL SURFACE AREA m^2	WINDOW TYPE	GLAZING AREA m^2	VERTICAL SKY COMPONENT	THETA	WINDOW ADF	ROOM ADF	KITCHEN ADF > 2%	LIVING / DINING ROOM > 1.5%	BEDROOM > 1.5%
3 BED FLAT BLOCK C	2, 4	KITCHEN/ DINING/ LIVING	26.68	2.400	35.94	135.9	2.1 x 2.1	3.09	27.0	65	1.18	1.95	YES	YES	-
							1.6 x 1.8	2.02	27.0	65	0.77				
		BED 2	14.93	2.400	12.05	59.9	2.18 x 1.25	1.91	27.0	65	1.66	2.95	-	-	YES
							0.99 x 2.1	1.46	28.0	67	1.30				
		BED 3	12.07	2.400	8.80	46.6	0.96 x 1.45	0.97	27.0	65	1.09	1.09	-	-	NO
3 BED FLAT BLOCK C	3	KITCHEN/ DINING/ LIVING	26.68	2.400	35.94	135.9	2.1 x 2.1	3.09	27.0	65	1.18	1.95	YES	YES	-
							1.6 x 1.8	2.02	27.0	65	0.77				
		BED 2	14.93	2.400	12.05	59.9	2.37 x 1.25	2.07	27.0	65	1.80	3.10	-	-	YES
							0.99 x 2.1	1.46	28.0	67	1.30				
		BED 3	12.07	2.400	8.80	46.6	0.96 x 1.45	0.97	27.0	65	1.09	1.09	-	-	NO
2 BED FLAT (BLOCK C)	5	KITCHEN/ DINING/ LIVING	29.37	2.400	35.78	142.0	2.38 x 1.8	3.00	27.0	65	1.10	3.41	YES	YES	-
							2.3 x 1.25	2.01	27.0	65	0.74				
							2.55 x 2.1	3.75	27.0	65	1.37				
							0.55 x 1.45	0.56	27.0	65	0.20				
		BED 1	14.25	2.400	11.32	56.8	2.52 x 2.1	3.70	27.0	65	3.39	5.28	-	-	YES
							2.3 x 1.25	2.01	28.0	67	1.89				
		BED 2	15.23	2.400	12.16	60.9	2.97 x 1.25	2.60	29.0	67	2.28	4.85	-	-	YES
							2.05 x 2.1	3.01	27.0	65	2.57				

DWELLING TYPE	UNIT NO.	ROOM	PERIMETER m	FTC m	FLOOR AREA m^2	TOTAL SURFACE AREA m^2	WINDOW TYPE	GLAZING AREA m^2	VERTICAL SKY COMPONENT	THETA	WINDOW ADF	ROOM ADF	KITCHEN ADF > 2%	LIVING / DINING ROOM > 1.5%	BEDROOM > 1.5%
1 BED FLAT BLOCK B	3	KITCHEN/ DINING/ LIVING	23.62	2.400	28.66	114.0	2.88 x 1.8	3.63	27.0	65	1.66	2.52	YES	YES	-
							1.5 x 1.8	1.89	27.0	65	0.86				
		BED 1	14.16	2.400	12.30	58.6	2.7 x 1.25	2.36	27.0	65	2.10	2.10	-	-	YES
1 BED FLAT BLOCK B	4	KITCHEN/ DINING/ LIVING	21.99	2.400	27.25	107.3	2.65 x 1.8	3.34	27.0	65	1.62	2.53	YES	YES	-
							1.5 x 1.8	1.89	27.0	65	0.92				
		BED 1	14.54	2.400	11.42	57.7	2.7 x 1.25	2.36	27.0	65	2.13	2.13	-	-	YES
2 BED FLAT BLOCK B	5	KITCHEN/ DINING/ LIVING	23.63	2.400	32.90	122.5	2.6 x 2.1	3.82	27.0	65	1.62	4.85	YES	YES	-
							3.65 x 1.8	4.60	27.0	65	1.95				
							2.38 x 1.8	3.00	27.0	65	1.27				
		BED 1	15.80	2.400	12.91	63.7	1.82 x 1.25	1.59	27.0	65	1.30	1.30	-	-	NO
		BED 2	12.34	2.400	8.14	45.9	1.68 x 1.25	1.47	27.0	65	1.67	1.67	-	-	YES
2 BED FLAT BLOCK C	1	KITCHEN/ DINING/ LIVING	27.67	2.400	42.33	151.1	2.1 x 2.1	3.09	27.0	65	1.06	1.76	NO	YES	-
							1.6 x 1.8	2.02	27.0	65	0.69				
		BED 1	14.11	2.400	11.58	57.0	1.85 x 2.1	2.72	27.0	65	2.48	2.48	-	-	YES
		BED 2	15.29	2.400	12.52	61.7	1.85 x 2.1	2.72	27.0	65	2.29	2.29	-	-	YES