

Chobham Manor Post Occupancy Evaluation

Good Homes Alliance Webinar Series - How to Design Good Homes

4th July 2023

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Chobham Manor

HBBB

Phase 1

Phase 1 contains 259 homes completed and fully occupied since 2018 Mix of tenures (social rent, affordable rent, shared ownership, private rent and market sale)





Typology summary

1 bed	27
2 bed	34
3 bed	146
4 bed	42
5 bed	10
Affordable - SO	В
Affordable - SR	71
Private	180

1b2p	27
2b3p	13
2b4p	21
3b4p	25
3b5p	97
3b6p	24
4b6p	26
4b7p	13
4b8p	3
5b7p	10

Nolan Mansions – Southern elevation

Villiers Gardens – Southern elevation

Windsor House – South and east elevations



Peleton Avenue (left) and Burnell House (right) - West facing



Park View Mansions – West facing elevation



Keirin Road-West facing elevation



Studies undertaken & participating households



Engagement across different tenures



Resident survey







Resident survey

82% (+11% neutral) "I am feeling proud of my home"

61% (+28% neutral) "There is a sense of community amongst my immediate neighbours" 73% (+22% neutral) "There is a real sense of community in the neighbourhood" 64% (+23% neutral) of all respondents intend to stay 5 or more years

76% (+22% neutral) of households with children intend to stay 5 or more years

What were the main reasons for moving to this neighbourhood?(Please rank your top 5 choices.)



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I am satisfied with the following in Chobham Manor...

	Average	Count	% of responses
Streets and walking routes	79%	96	<mark>7%%</mark> 39% 48%
Access to health provision e.g. GP surgeries	76%	96	<mark>6% 17% 38% 38%</mark>
Views of greenery including trees, green roofs and planting	75%	96	9 <mark>7% 16% 31% 42%</mark>
Public green spaces in Chobham Manor (not considering Queen Elizabeth Olympic Park)	72%	95	13% 14% 40% 32%
Play areas	72%	93	5% <mark>27%</mark> 35%30%
Local amenities such as cafes, restaurants and shops	71%	96	6%8% 15% 38% 33%
Cycle routes	70%	93	9 <mark>9 13% 18% 31% 34%</mark>
Environmentally sustainable lifestyle	61%	96	7% 14% 28% 31% 20%
On-street cycle parking	58%	89	9%7% <mark>45%20%19%</mark>
Community facilities	58%	92	9%10% 36% 32% 14%
Car parking	36%	92	33% 21% 24% <mark>17%</mark> 5%
Very dissatisfied Fairly dissatisfied dissatisfied	atisfied no	or	Fairly satisfied



The areas within/ around my block/ house function well.



My usage of water/electricity/heating matches my expectations:



Occupant feedback on district heating

"The cost is outrageous"

"Very expensive hot water"

"Even in the summer 'my daily usage' when I'm away on holidays (empty flat, no water usage at all) is still 4 kWh per day. This is 'usage' on top of the 'common heat availability charge' and 'fixed charges'. We don't even have access to our meter for our flat"

"Way too much especially if I have not used heating since I moved"

"The Heat Interface Unit inside the utility cupboard produces large amounts of excess heat that leak into the hallway making the area constantly warm"

"The utility cupboards are not ventilated so the Heat Interface Unit heats up the whole area including the hallway which in summer can stay over 25 degrees or hotter even at 4am"

"The district heating means having to run the tap for a long time to draw hot water"

[Resident Survey comments]

Basic POE properties = Blue

Electricity usage

Detailed POE properties with successful data collection = Orange

Average daily consumption during detailed monitoring period (for comparison) = Light Orange

Detailed POE properties with unsuccessful data collection = Yellow



Figure 58 - Average daily electrical consumption (kWh/day) per property based on resident supplied meter readings.

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Heating & hot water



Figure 61 - Space heating and hot water energy consumption for consented homes vs. SAP calculations (Oct 20-Oct 21).



Heating & hot water

Normalised heating energy use: **28 kWh/m²/year**

Normalised DHW energy use: **30 kWh/m²/year**



Utility data summary

Utility	Chobham Manor Average Useage 2020-21	New build UK average useage	All homes UK average useage
Electricity Average annual KWh per sqm	31.5	42*	not available
Heat Average annual space heating per sqm (SH)	28	50***	145***
Average annual Domestic Hot Water (DHW) per sqm	30	not available	not available
Total Average (SH + DHW)	58	not available	not available
Water Average annual litres per person per day	126	not available	142**

* Innovate UK. Building Performance Evaluation Programme: Findings from domestic projects https://www.ukri.org/wp-content/uploads/2021/12/IUK-061221-DomesticBuildingPerformanceSummary2016.pdf

** Phase 1 RMA water statement noted UK national average of 142 litres/person/day

*** Mitchell and Natarajan (2020), UK Passivhaus and the energy performance gap, Energy & Buildings Journal, Issue 224

Comfort Does your home feel comfortable?



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Occupant feedback overheating

"So hot even with windows open and fans on. First thing my visitors comment on"

"This is a problem on the top floor/ back where a lot of sun seems to heat up the copper roof. Perhaps could be better insulated"

"We hit 37 degrees in summer 2020. It was unbearable, especially for my toddler"

"Air doesn't flow through the house as there's only windows on one side of the house"

"The problem is the heat. The property is east/west facing so gets the sun in the morning and the afternoon. all day. with no sun shading on the external windows the heat builds inside and cannot be ventilated sufficiently to cool it down"

"Flat is extremely hot in summer air con units should be allowed to be installed"

"I would like to have AC for hot summer days and nights"

"House far too warm in the summer, air con suggested given heightened temperature"

"Lack of air conditioning even as an option is terrible - indoor room temperatures can reach upwards of 32C on very hot days with the blinds closed!"

[Resident Survey comments]

"My flat hat 6-meter wide glazing without external shading. In summer, it overheats to the extent that it gets inhabitable if we don't use aircon. There is not much choice but to accept the additional costs. Like 20-25 £ per month"

[Home Interview comment (HI7)]

Hours of overheating

Main bedrooms

Evidence of overheating (<1% of occupied hours above 26 degrees) in bedrooms was observed in 9 of the 11 monitored properties.



Measured Overheating Hours - Main Bedroom (> 26°C)

Monitoring data showing hours of overheating above 26°C for main bedrooms studied in Detailed POE sample. The threshold line represents the CIBSE Guide A (2006) target line of 1% of annual occupied hours.

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Thermal comfort strategy

- At the time of designing Phase 1 the CIBSE TM59 document was **not available**.
- Dwellings were assessed against the following CIBSE
 Guide A (2006) criteria for overheating:

Living rooms: 1% of annual occupied hours must not exceed 28°C, operative temperature

Bedrooms: 1% of annual occupied hours must not exceed 26°C, operative temperature

 Analysis included overheating assessment under the UKCP09 future weather data, medium emission scenario, moderate percentile (50%), for a 2030 predicted London climate.



Thermal comfort optioneering

Design stage optioneering was conducted exploring measures such as:

- High vs. low thermal mass
- User of solar control glazing with differing solar g-values
- Use of night purge and natural ventilation
- Use of internal blinds

These strategies are both reliant on occupant behaviour rather than 'fixed' design solutions.



Thermal comfort optioneering

Standard g-value of 0.735 selected for windows, compared to solar glass at 0.37-0.49.

Rationale was "the negative impact on costs and the Fabric Energy Efficiency Standard (FEES), with a subsequent impact on meeting the LCS planning conditions relating to energy credits in the Code for Sustainable Homes"

High thermal mass was also not used.

Rationale was "it had a negative impact on construction issues such as increased wall thickness and type of plasterboard, internal area and costs, among other factors"



Strategy of standard glazed windows and low thermal mass was shown to pass overheating criteria, however this is likely to have been a contributing factor to overheating.

Report stated "Results should be read as those following the overheating mitigation risk calculation methodology, but not as guaranteed real-life observations"

Other studies

Relative humidity monitoring



"It does get a bit damp and doesn't dry out" "Bathroom ventilation very poor, there's no

extractor fan, causes hard water mould"

"Air extractor makes no difference we have to shower with the door open"

Thermal imaging



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ÔFLIR





Figure 49 - Sample external thermal images.

Noise & light monitoring

Table 11 - Noise measurements undertaken across sample properties from the Detailed POE

		Background noise measurement (dB)			
194787-039 Apartment, 3b6p	Living	38	No noise issues were noted by the resident but they were interested in the		
	Kitchen	36			
	Bedroom (general)	32	reasurement, results showed acceptable levels of background noise in all roams		
	Bedroom (pointing at HIU)	34			
194787-065 Apartment, 3b5p	Living (window cracked open)	37	Slight noise issues were noted by the resident regarding impact noise from adjacent flats when walking on hard floors. This could not be messured as there was no adjacent noise at the time of the survey, tusted, the noise for the nearby main road was investigated in the living room, due to the eleva position of the apartment. Results showed acceptable levels of background noise even when the window was cracked open.		
	Living (window closed)	34			
194787-045 Apartment, 2b3p	GF hallway (pump off)	34	A noise issue was noted by the resident with respect to the water pump which is located on the ground floor in a cupboard. Results showed increased but intermittant noise levels when the pump was in operation in line with its operation		
	GF hallway (pump on)	43			
194787-038 Apartment, social rent, 2b4p	Living (doors and windows closed)	34 (quiet outside) 44 (noise outside)	Noise issues were noted by the resident regarding the adjacent road and builders work in the opposite block. Results showed acceptable levels of background noise when the balcony doors and windows were closed.		
	Living (doors and windows open)	46 to 63 (intermittent noise outside)	Intermittent noise was detectable when windows or doors were left open, which would be more of an issue in summer. The builders work in the apposite block contributed most significantly to the noise levels and so will reduce once works are complete.		
194787-066 Duplex apartment, 3B5P	TF bedroom (pump off)	31	A noise issue was noted by the resident with respect to the water pump which is located on the top floor in a capboard. Results showed increases but intermittent noise levels when the pump was in operation in line with		
	TF bedroom (pump on, door closed)	38			
	TF bedroom (pump on, door open)	47	operation. The addr and helps to time house address into the dearborn		
194787-043 Apartment, 3b5p	Kitchen (wine cooler on)	39	A noise issue was noted by the resident with respect to the optional wir cooler that was installed in the kitchen. Results showed increased and		
	Main bedroom	31	consistent noise levels compared to other apartments. A different (quieter) spec of wine cooler may be investigated in future properties. Measurement in the bedroom showed no issues.		
194787-047 Apartment 3b5p	Bedroom (vent on, normal)	36	A noise issue was noted by the resident with respect to the ventilation un which is located in a cupboard in the hallway and backs onto one of the bedrooms. Results showed increased noise levels when the ventilation wa operation but within typical limits. With the ventilation off, noise was not the start of the		
	Bedroom (vent off, manually isolated)	32	suse: is a more time in research new State's with the optication of the ventilation system and it was running in a constantly high mode. Better instruction of the controls and operation of the system would enable the resident to modulate the noise better (and avaid unnecessary energy consumption due to excessive ventilation).		

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Other studies

Urban Greening Factor assessment

UGF of 0.308 (Site designed before London Plan UGF standards were in place)



Project Delivery Team lessons learned workshop

Attendees included LLDC, L&Q, Taylor Wimpey, PRP, Make Architects



POE report



https://www.queenelizabetholympicpark.co.uk/-/media/chobham-manor-phase-1-poe-revised-version.ashx



Key Themes For Future Neighbourhoods

My Neighbourhood:

- Green infrastructure systems
- Connective public realm, play & traffic
- Quality & variety of buildings

My Block:

- Tenure sensitive design
- Communal Entrances accessible
- Cycle stores secure & inclusive
- Podium play spaces safe & integrated
- Green roofs design & install quality

My Home:

- A range of home designs
- Generous layouts
- Summer & winter performance







Thank you



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