

# City of London Housing Net Zero Action Plan



## Barbican Workshop 1: Understanding the buildings through the residents' eyes

May 2021 | Rev A

## Our team



**Anna MacKenzie** | Expertise in Net Zero action plans



**Naomi Grint** | Expertise in building fabric and ventilation improvements



**Kate Millen** | Expertise in low carbon heating systems



**Thomas Lefevre** | Expertise in Net Zero action plans

# Agenda

## 1.0

Welcome

## 2.0

Setting the scene – what we are doing and why

## 3.0

Small group discussions - heating system, energy efficiency and ventilation

## 4.0

Sharing summaries of small group discussions

## 5.0

Next steps and goodbyes

## Workshop principles

Share your experiences

Everyone's input is equally valued

Share "air time"

Be open to new concepts and ideas

All issues raised will be considered in our work

Discussions will focus on reducing energy and carbon emissions

Use the chat function for questions

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## Our experience

### Pan-London Retrofit Action Plan



### GLA Building Renovation Passport

Overzicht aanbevelingen				
	HUIDIGE SITUATIE	AANBEVELING	PRUICHSCHATTING	LABEL NA RENOVATIE
1	 <b>Ramen</b> Er is momenteel nog overal enkele beglazing aanwezig	Plaats nieuw schrijfwerk met hoogrendements beglazing	€ 800 - € 12 000	D
	 <b>Verwarming</b> Ketel is sterk verouderd en niet energiezuinig	Plaats een efficiënt verwarmingsstelsel	€ 450 - € 650	D
2	 <b>Muur</b> De muur is niet geïsoleerd voor een gedeelte van 140m²	Plaats isolatie	€ 13 500 - € 15 000	B
	 <b>Hellend dak</b> Het dak is beperkt geïsoleerd	Plaats bijkomende isolatie	€ 12 000 - € 16 000	B
3	 <b>Herbruikbaar energie</b> Er is geen hernieuwbare energie aanwezig	Overweeg plaatsing hernieuwbare energie	€ 7500 - € 10 000	A
4	 <b>Muur</b> De muur is geïsoleerd voor een gedeelte van 43m², maar er is niet voldoende isolatie aanwezig om de lange termijn doelstelling te halen	Overweeg bijkomende isolatie op het moment dat deze muur gerenoveerd wordt		A

### Scaling up retrofit for housing associations



### Energiesprong DEEP-ER



# Home retrofit: a key priority for the City of London Corporation

- The City of London's commitment to Net Zero
- Climate Change Committee guidance
- There are significant benefits of a Housing retrofit action plan beyond carbon

### Our Vision

The City of London is **Responsible, Sustainable and Competitive**

### Our aims

To support the achievement of net zero

To build climate resilience

To champion sustainable growth

### Our goals

**For the City of London Corporation**

City of London Corporation **scope 1 and 2 emissions are net zero by 2027 and scope 3 emissions are net zero by 2040.**

The City of London Corporation and its assets are **resilient to climate change.**

The City of London Corporation supports UK and overseas organisations to **become climate responsible.**

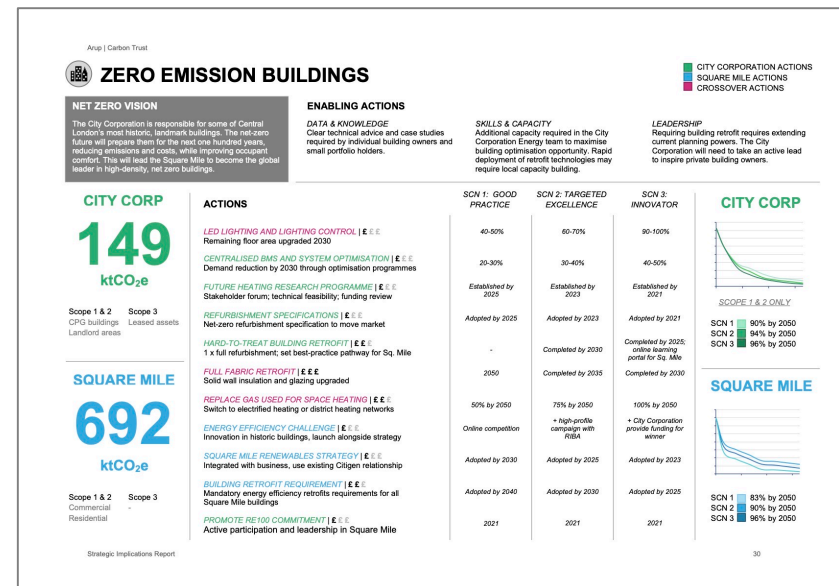
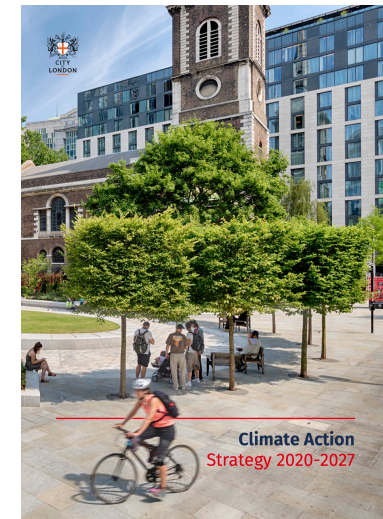
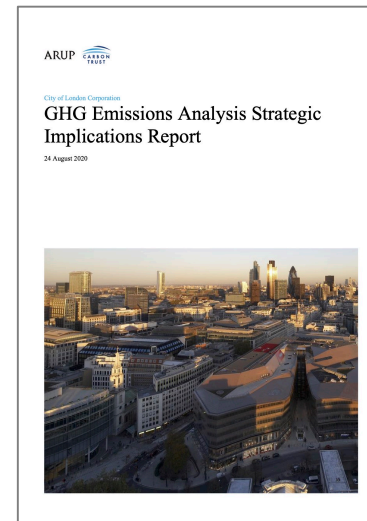
**For the Square Mile's fabric and function**

The Square Mile's scope 1, 2 and 3 emissions (BASIC+ definition) are **net zero by 2040.**

The Square Mile's buildings, public spaces and infrastructure are **resilient to climate change.**

**For society**

People in the Square Mile and beyond **benefit from a clean, green and safe environment and job creation.**





## Defining Net Zero

Low energy and net zero carbon buildings are supported by three key pillars: energy efficiency, low carbon heat and renewable energy.

### Energy efficiency

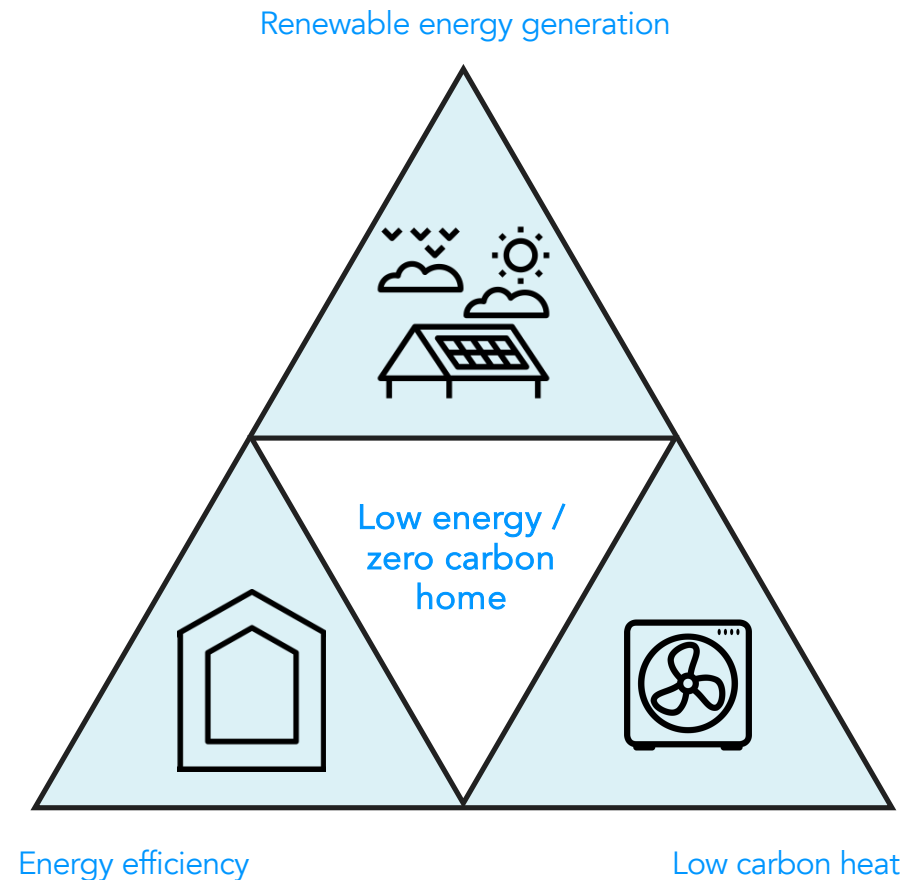
Buildings use energy for heating, hot water, ventilation, lighting, cooking and appliances. The efficient use of energy leads to reduced running costs and carbon emissions. It also reduces a building's impact on the wider energy supply network.

### Low carbon heating

Low carbon sources of heat are an essential feature of zero carbon buildings. Existing buildings need to undergo a transition away from gas as soon as possible.

### Renewable energy

The roofs of existing buildings should be utilised as far as possible for photovoltaic panels, to support the increased demand for renewable energy.



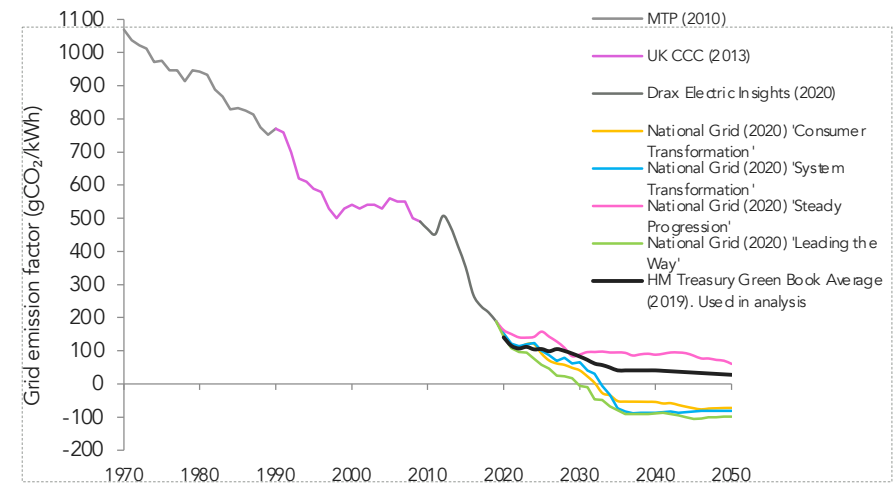
*The three pillars that constitute a low energy/zero carbon home.*



## The electricity revolution

### Towards a decarbonised and smarter electricity system

- The carbon content of electricity has fallen over the last few years.
- It is now three times less than 10 years ago and already lower than natural gas.
- It is forecasted to continue to reduce even further in the next 20-30 years. This underpins the current energy revolution and is why electrification of transport and heat is now seen as the best strategy to move away from fossil fuels.



*Long-term variations in emission factor of grid electricity show the rapid historical reduction in emission factors.*

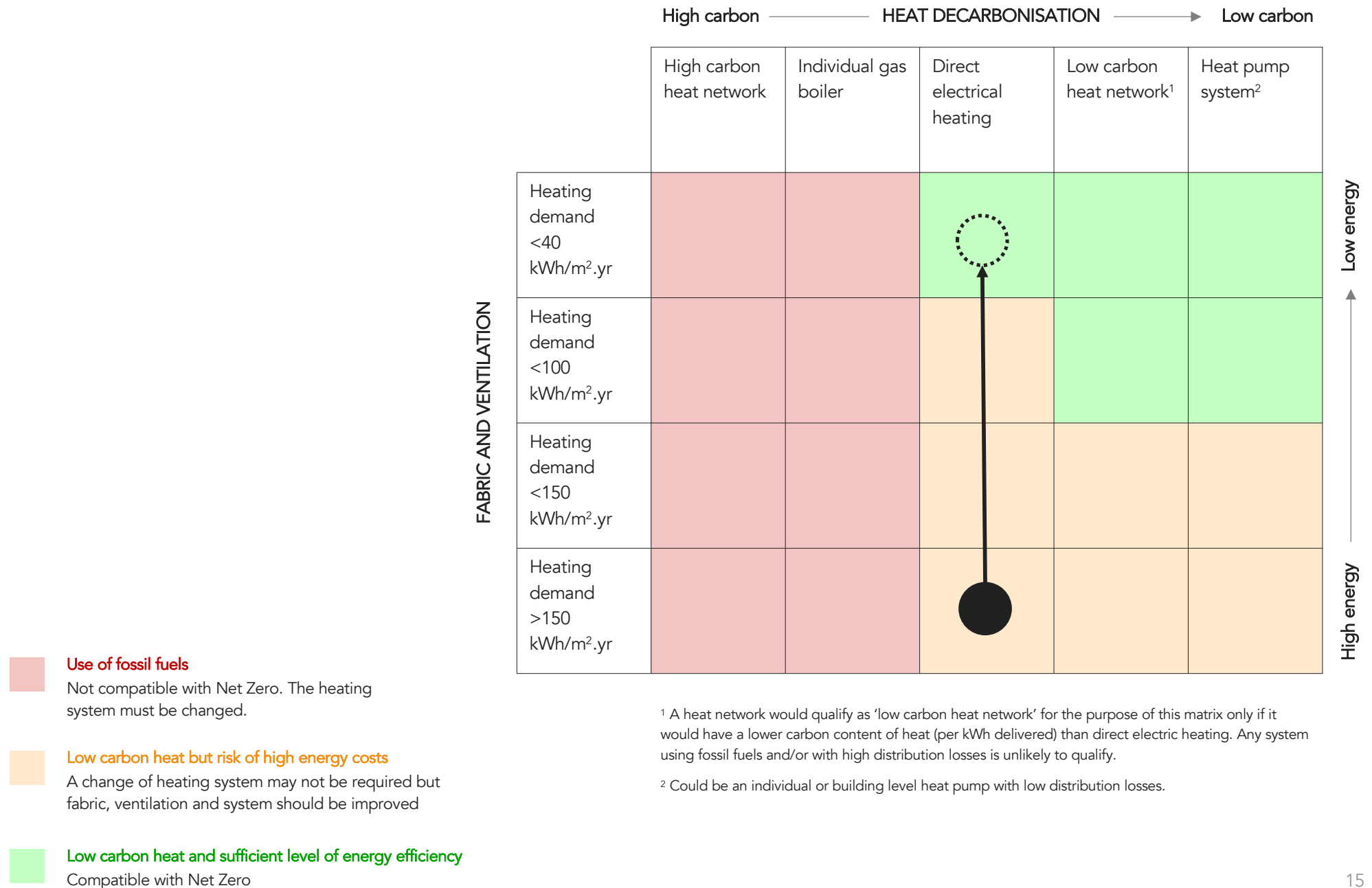
### Hydrogen is unlikely to be a solution for heating homes

Hydrogen is not expected to be widely available at the domestic scale, certainly before 2030 and possibly not before 2050. There are remaining uncertainties about how it will be produced and stored, and the impact of these choices on overall energy use, carbon emissions and crucially, what the costs will be for consumers.



Smart meters and smart thermostats

# Mapping out each building's journey towards Net Zero



# Understanding the City of London Corporation' housing stock

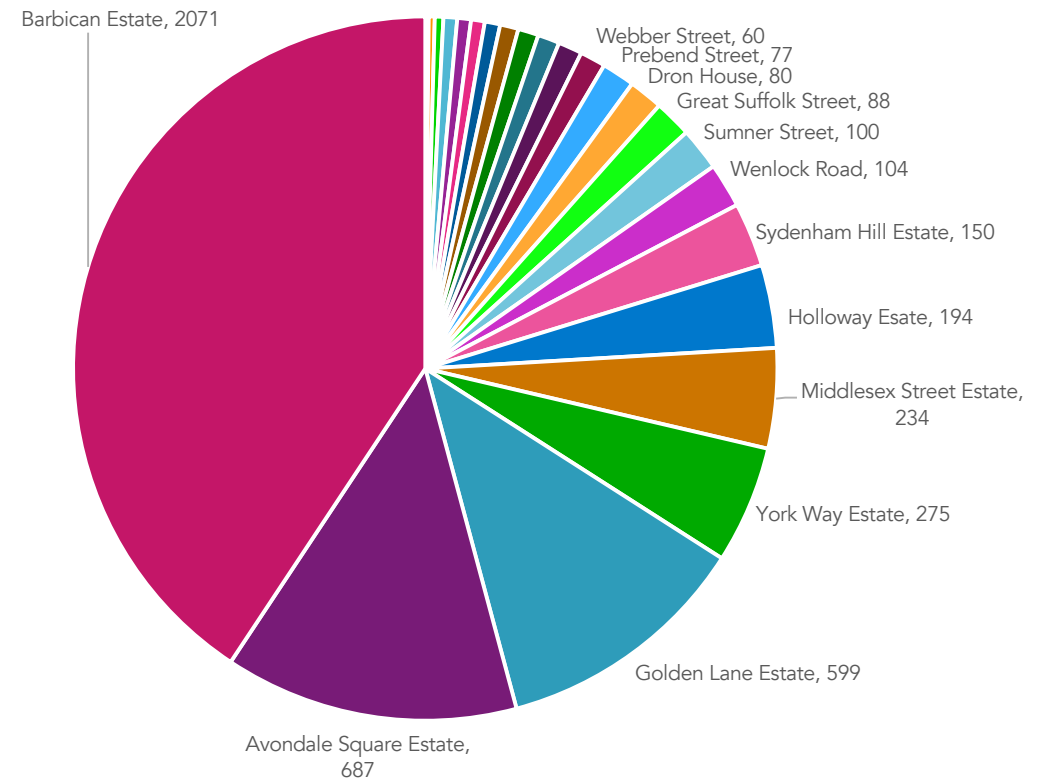
## Understanding the housing stock

We are seeking to understand the estates and stock portfolio across key areas:



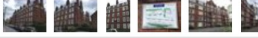
























- Which retrofit measures are suitable for each estate?
- What energy and carbon savings can be delivered?
- What are the opportunities and constraints at each site?
- Which sites are a priority?
- How much are measures likely to cost?
- Funding options

## Delivering an action plan

We will deliver a clear, well written, visual report that incorporates an action plan that the City of London can take forward.



## Our understanding of the aims and required outputs of the project

Aa Block	≡ Address 1	☑ Visited?	📷 Photo	≡ Stories	# No. Units	# Built In ...	☑ Conservation Area	≡ Current heating system	≡ Windows
Sumner Buildings	Sumner Street	☑		5	100	1930	<input type="checkbox"/>		
Horace Jones House	One Tower Bridge	☑		7	43	2015	<input type="checkbox"/>		
Dron House	Dron House	☑		4	80	1925	<input type="checkbox"/>		
Petticoat Tower	Middlesex Street Estate	☑		23	88	1972	<input type="checkbox"/>		
Petticoat Square	Middlesex Street Estate	☑		7	146	1972	<input type="checkbox"/>		
Commercial Street	Spitalfields	☑		4	11	1884	<input type="checkbox"/>		
Lamb Street	Spitalfields	☑		3-4	13	1884	<input type="checkbox"/>		
Brushfield Street	Spitalfields	☑		4	8	1884	<input type="checkbox"/>		
Basterfield House	Golden Lane Estate	☑		6	54	1957	☑		
Bayer House	Golden Lane Estate	☑		6	50	1956	☑		
Bowater House	Golden Lane Estate	☑		6	46	1956	☑		
Crescent House	Golden Lane Estate	☑		4	151	1962	☑		
Cullum Welch House	Golden Lane Estate	☑		6	72	1961	☑		
Cuthbert Harrowing House	Golden Lane Estate	☑		4	18	1955	☑		
Great Arthur House	Golden Lane Estate	☑		15	120	1957	☑		
Hatfield House	Golden Lane Estate	☑		7	56	1961	☑		
Stanley Cohen House	Golden Lane Estate	☑		4	32	1957	☑		
Andrewes House	Barbican Estate	☑		11	192	1969	☑		
Ben Jonson House	Barbican Estate	☑		11	204	1973	☑		
Brandon Mews	Barbican Estate	☑		2	26	1969	☑		
Breton House	Barbican Estate	☑		11	111	1972	☑		
Bryer Court	Barbican Estate	☑		11	56	1973	☑		
Bunyan Court	Barbican Estate	☑		11	69	1972	☑		
Cromwell Tower	Barbican Estate	☑		42	111	1973	☑		
Defoe House	Barbican Estate	☑		11	178	1973	☑		
Frobisher Crescent	Barbican Estate	☑		9	69	1982	☑		
Gilbert House	Barbican Estate	☑		11	88	1969	☑		

## Our plan of work

Phase 1 – Understanding the buildings

Phase 2 – Engaging with you

Phase 3 - Making retrofit clearer

Phase 4 - Establishing key actions and retrofit scenarios

Phase 5 – Recommendations and implementation plan

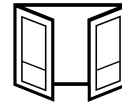
Survey results!

## Summary of survey responses - Barbican

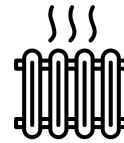
### Response rate

- 40 responses from Barbican residents
- Representation across most buildings.

### Headlines



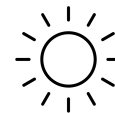
50% of respondents said they open windows in the winter as it gets too warm



1/3 of respondents use additional plug-in electric heaters



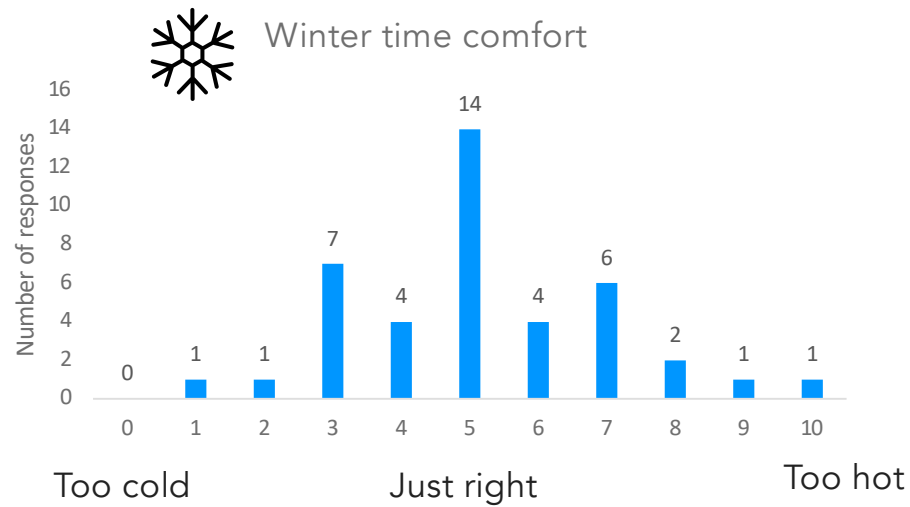
Winter comfort levels – large range, and no pattern between top, middle or lower flats.



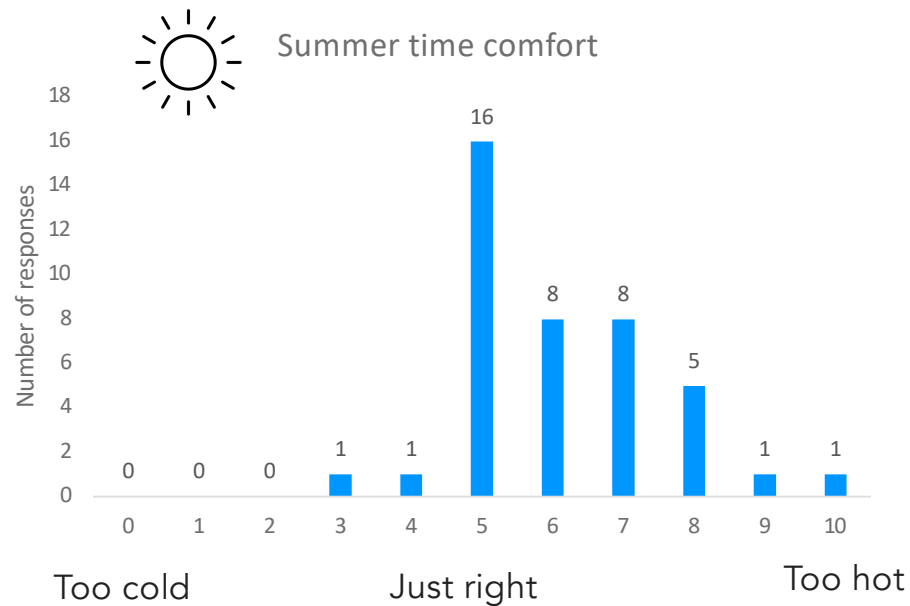
Summer comfort levels on the slightly too warm side.



## Summary of survey responses - Barbican



Winter comfort levels – large range, and no pattern between top, middle or lower flats.



Summer comfort levels on the slightly too warm side.

## Emerging themes

### Heating

Controls

Trimmers

Heat where it's needed  
and not where it's not

Frobisher crescent

### Energy efficiency

Insulation

Windows

Drafts

### Ventilation

Inconsistent  
ventilation strategy

### Renewable energy

Solar photovoltaic  
panels

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