THE CENTRE FOR FUTURE HOMES

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- About BCU
- Project 80
- Partnership with Keepmoat

BIRMINGHAM CITY University

Evidence Based Decision Making

Future Homes Research Centre

- Indoor Air Quality and Overheating
- Project 80
- Performance Monitoring
- STEAMsprint
- Occupier Research
- Behaviour insight
- Site Detail Data Capture
- Home User Guide
- Retrofit

BIRMINGHAM CITY University

Carbon Pact Research Centre

Cross Industry PHD Action Research

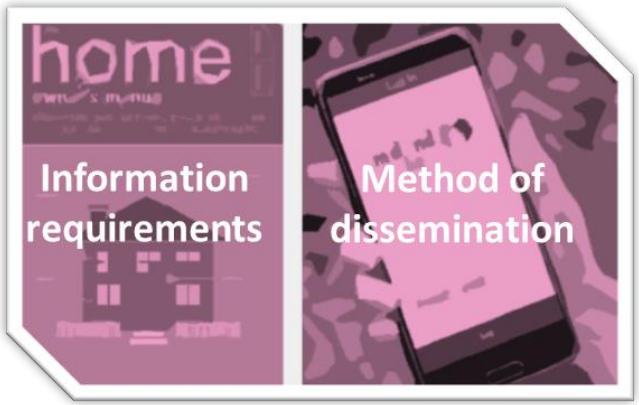
- Single Life Plastics and waste reduction
- Embodied Carbon
- Decarbonisation
- Transport
- Green Construction Site

ECO Drive

PROJECT 80
HOMES FOR THE FUTURE

Overview of Project 80

Research project which aims to develop homes that model the forthcoming FHS, and generate a significant body of knowledge to enable us to understand what works for us and our residents by:



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Key Partners

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Grosvenor Road

12 homes in Handsworth

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Specification

12 homes in Handsworth

	SAP 2012 Plot 5	SAP 10 Plot 1-2	SAP 10 Plot 3-4	SAP 10 Plot 5-12
Floor U-value	0.13	0.11	0.11	0.11
External wall U-value	0.18	0.13	0.13	0.13
Roof U-value	0.14	0.1	0.1	0.1
Window U-value	1.4	1.2	1.2	1.2
Door U-value	1.4	1.2	1.2	1.2
Air permeability	5.12	1.5	1.5	5.0
Heating	Gas boiler	ASHP	Panel Heaters HWHP	ASHP
Ventilation	Natural	MVHR	MVHR	Natural
PV	None	Yes	Yes	Yes
WWHR	No	Yes	Yes	Yes
y value	0.05	0.028	0.0274	0.028
Maximum Kg CO_2/yr	1626.71	~352.14	~268.98	~313.52

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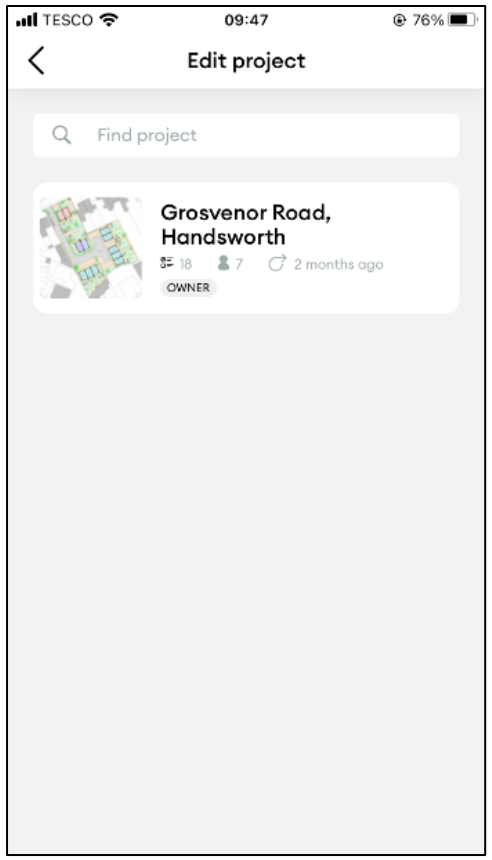
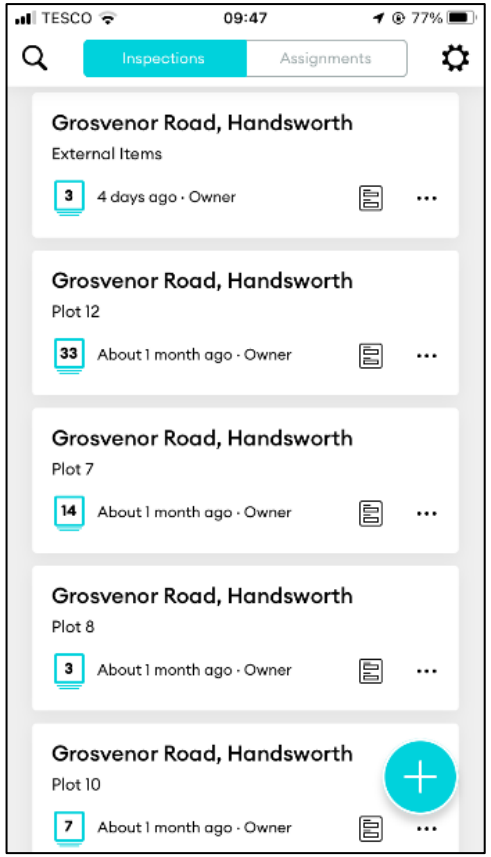
Data capture and Documentation

captego





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Gallery

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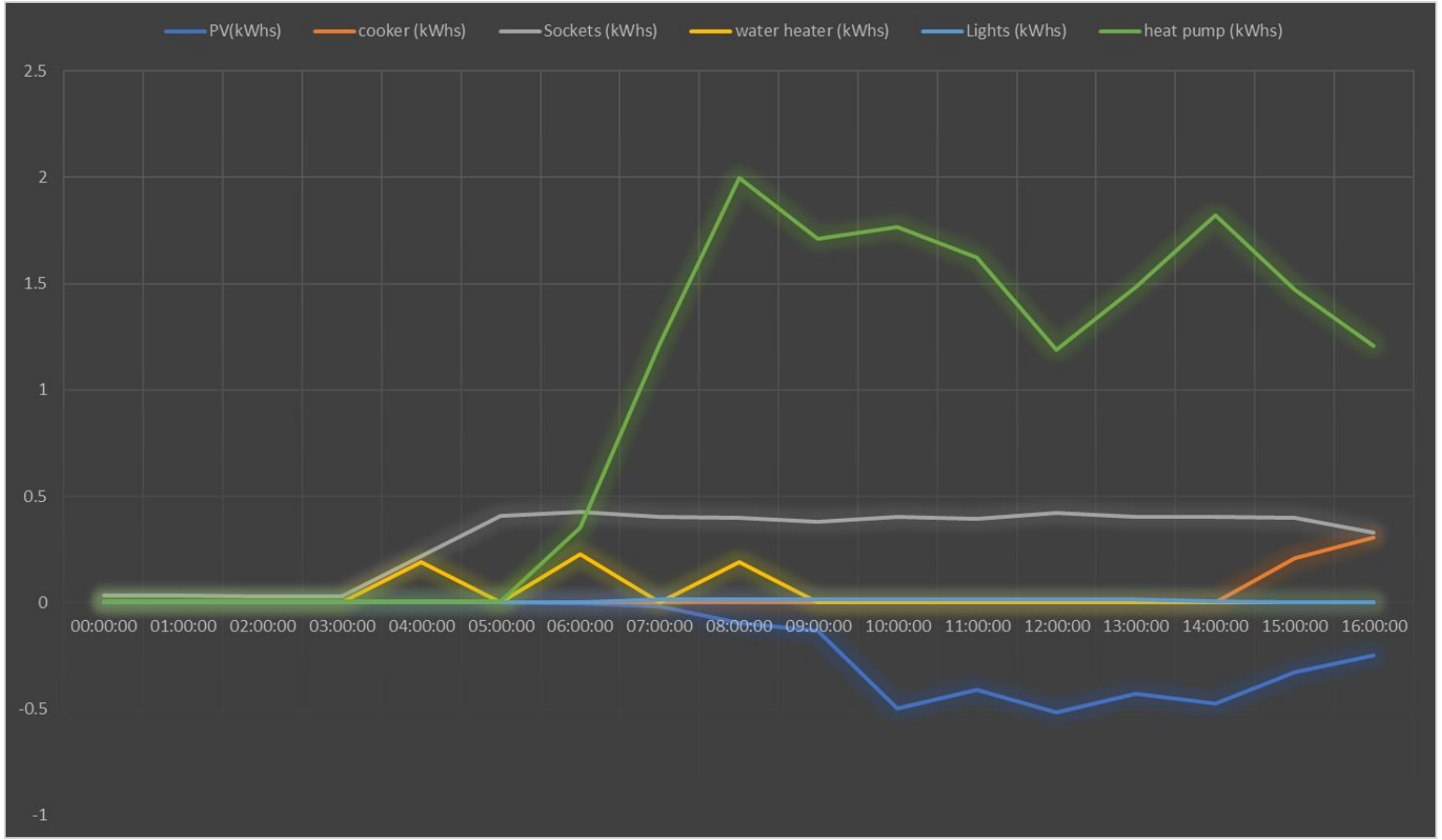
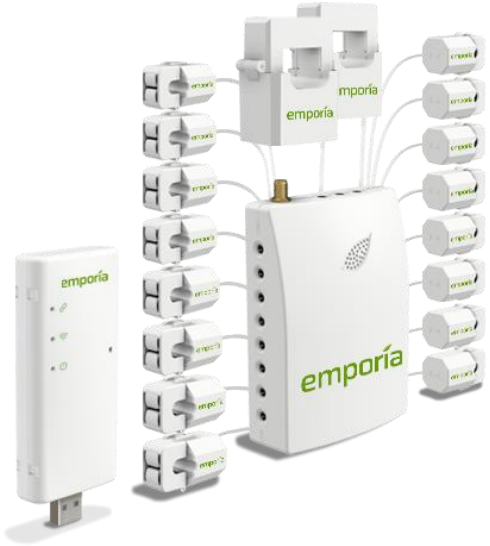
Data Collection

Research – energy use, temperature & indoor air quality monitoring





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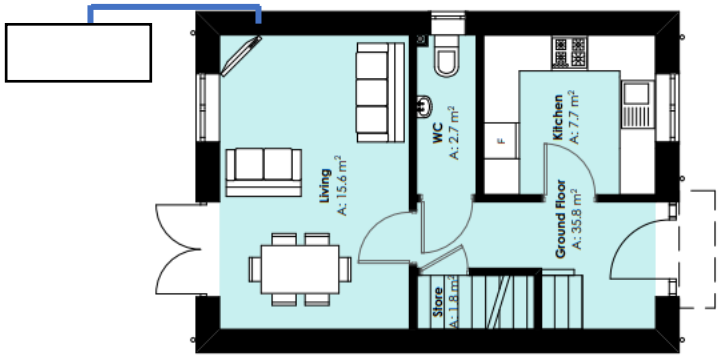
Early Lessons

Brick layers

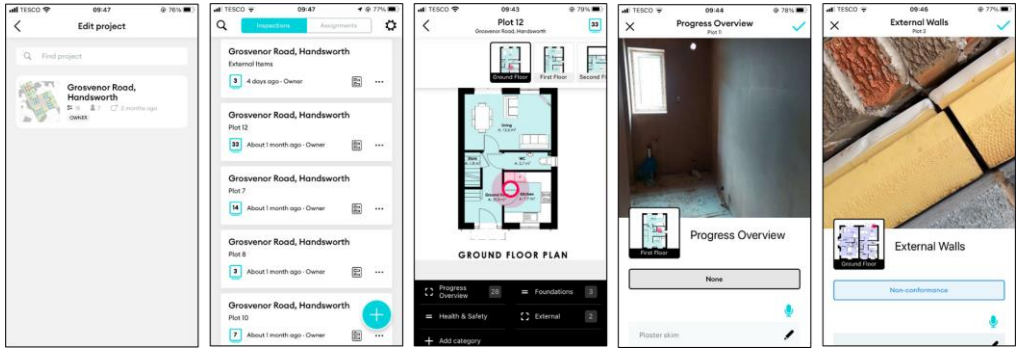
UVHWC space

Residents

ASHP position



App/details capturing



Other

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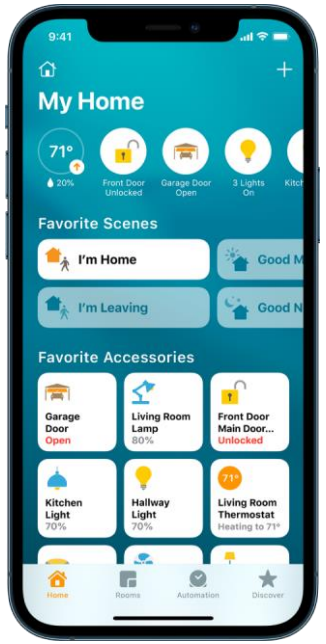
Putting the Occupier at the Heart of the Journey

Resident Workshop

User Guide



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BCU Objectives

Creating better homes for occupants

Sustainable and Healthy Homes

Solutions	People Buildings Services	**Living Lab**	**Involvement** ▪Research ▪Teaching ▪Project support	**Outputs** ▪Data/ evidence/ research funding ▪Students Learning ▪Policy Impact

Knowledge base for future projects - Understanding Occupants needs and impact Performance: energy, carbon and costs

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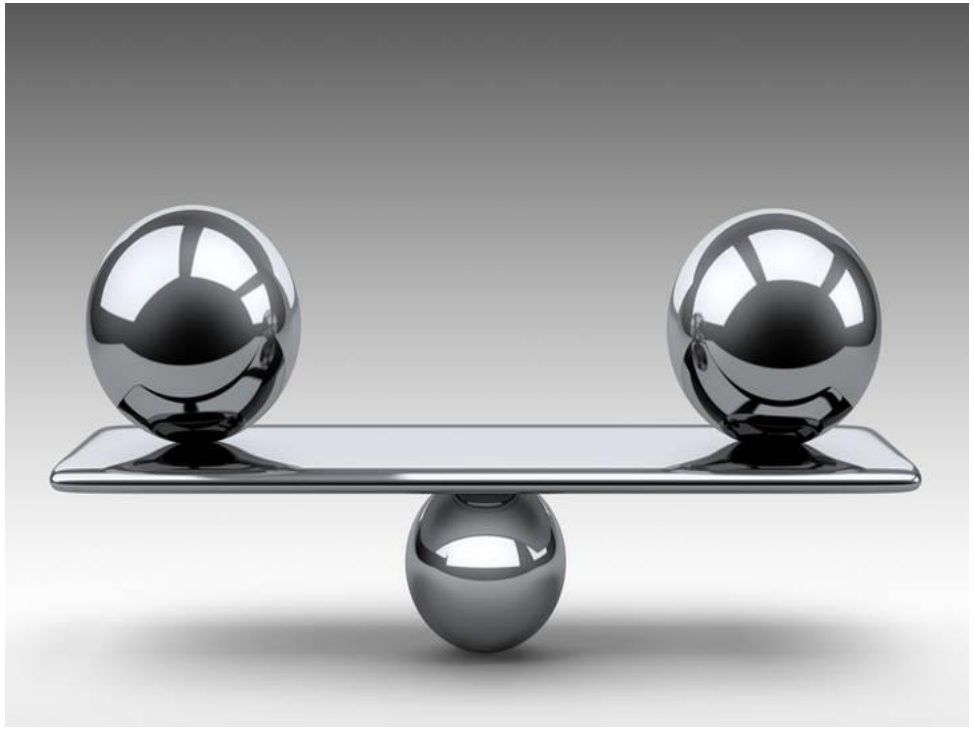
Improvements = Added Complexity

Complexity
To make better



Understanding
to make work

Avoiding Unintended Consequences

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Case Study

Comparison between homes built to different regulations
monitoring, interviews and analysis

- **User experience and learning**
- Design and Build
- **Costing, economics and carbon accounting**
- Building performance and modelling: energy, carbon, air quality
- **Evaluation of industry implications, whole life, economics and preparation**

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Outcomes

Creating better homes for occupants

- Building the knowledge base for future builds through evidence
- Influencing building regulations and future policy
- Creating a practical approach to sustainability and healthy homes
- Working collaboratively across sectors, agencies, disciplines and people

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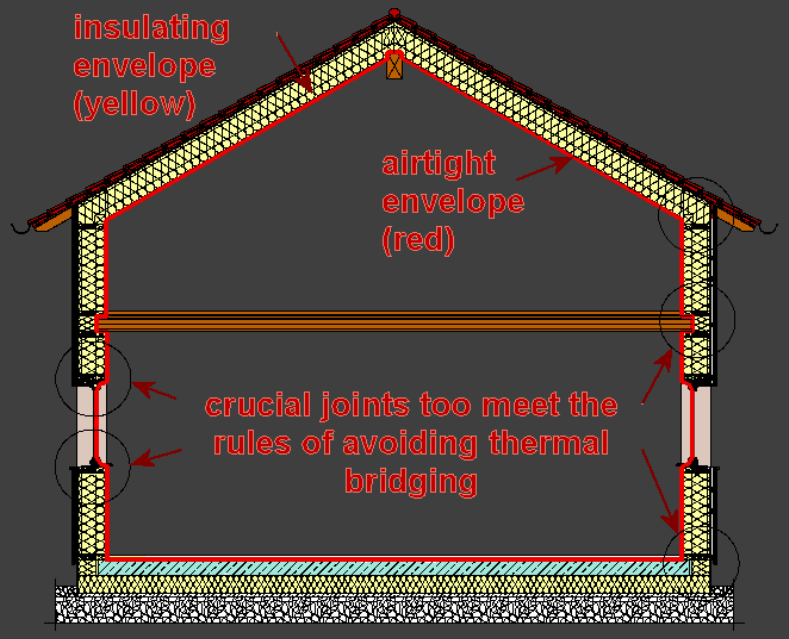
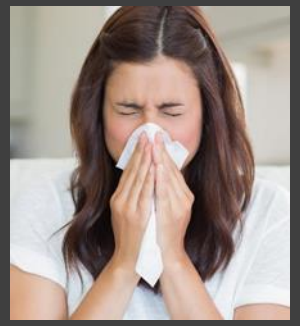
Performance Gap

Predicting energy efficiency is easier said than done, especially once human behaviours becomes part of the calculation

Recent studies have shown that human behaviours is at least as important as the physical characteristics of a building in influencing energy use, and that carbon emissions from dwellings are most sensitive to internal temperature changes

Healthy Homes





Lambley Lane Research

Keepmoat

AES Sustainability Consultants

NHBC

Building Alliance BA

BIRMINGHAM CITY University

Homes England

Collaboration

Thank you and Questions?