



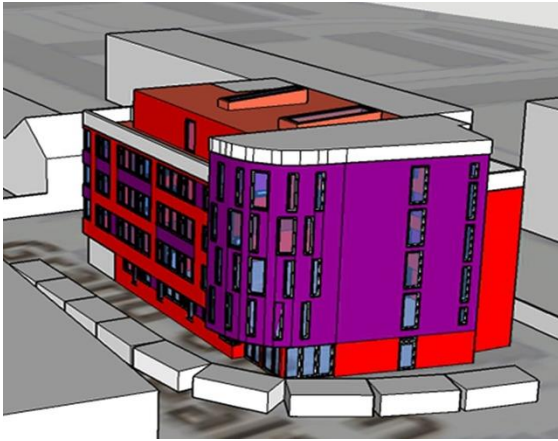
## Foleshill Health Centre, Coventry

**The greenest healthcare  
building in the UK**

# The story of Foleshill Health Centre

- Jamie Andrews, Investment Director CHP
- Eugene Prinsloo, Developments Director, CHP
- Julian Humphreys, Programme Manager CHP
- Who are CHP
  - LIFT
  - Head Tenant
- Foleshill video [www.youtube.com/watch?v=YzzBRp6XJRU](https://www.youtube.com/watch?v=YzzBRp6XJRU)





# Timeline

## Proof of Concept

Outline Business Case approval

Final Business Case approval

Works contract signed

Groundwork begin & Module construction begins

Foundations cast

Delivery and installation of modules

## Building watertight

Construction continues

Power & Water connected

Three air tests for Passivhaus certification

Practical Completion

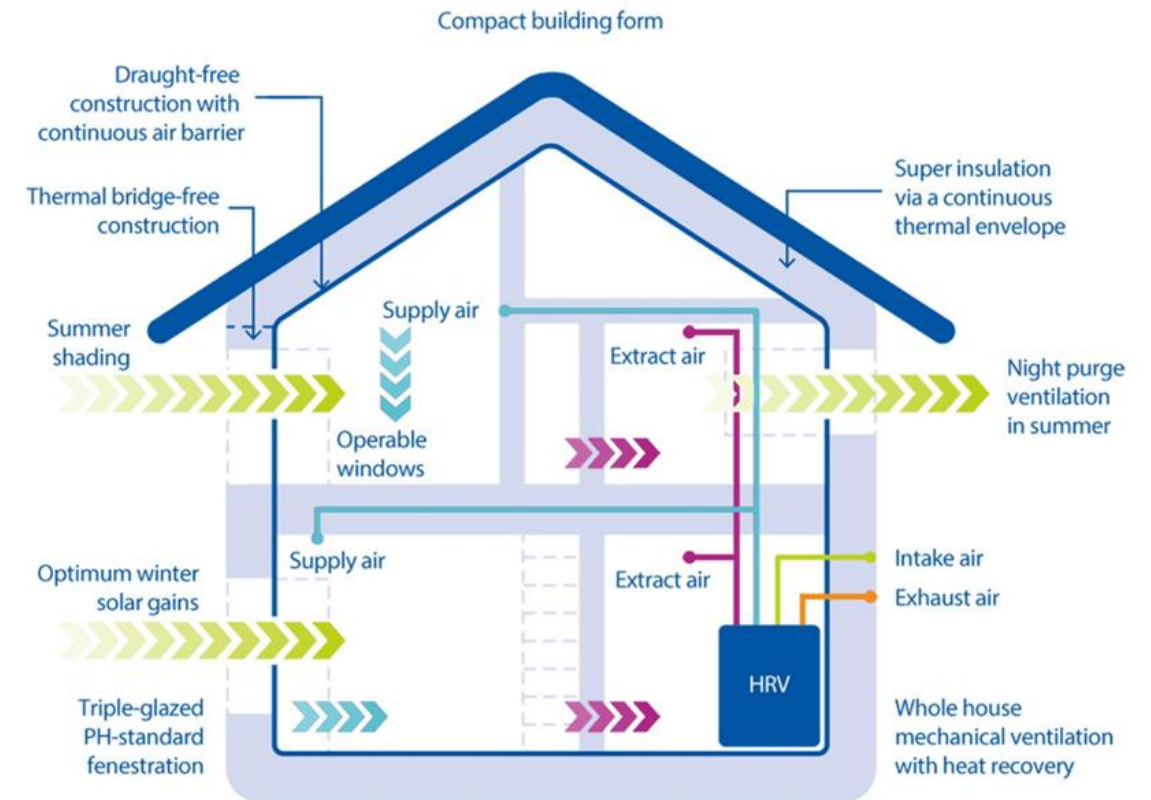
GP team move in and begin seeing patients

Passivhaus Certification awarded

- **October 2017**
- **August 2018**
- **17 July 2020**
- **August 2020**
- **1 September 2020**
- **2 December 2020**
- **9/10/11 December 2020**
- **11 December 2020**
- **January to May 2021**
- **February 2021**
- **March to May 2021**
- **4 June 2021**
- **9 Aug 2021**
- **October 2021**

# What is Passivhaus?

- Fabric first construction: Triple glazed opening windows, thermal bridging prevention, impermeable membrane skin, highly insulated floating raft substructure
- Heating by sunlight, people, appliances then heat pumps
- MVHR ventilation with heat recovery, limited cooling and variable air volume for treatment rooms
- Renewable energy source – PV panels
- Point of Use electric heated domestic hot water
- Primary Energy Source - Electricity



# The Design Stage

- Passive / BREEAM / Offsite – from outset
- Tension between HTMs and Passivhaus requirements
- HTM03-01(2007) prescriptive AC rates exceed Passivhaus
- Treatment rooms: self contained 2-speed ventilation
- 100% fresh-air MHVR with 86% efficient heat recovery
- Electric point-of-use for HWS
- Early Contractor appointment
- Created collaborative integrated project team
- No fossil fuels



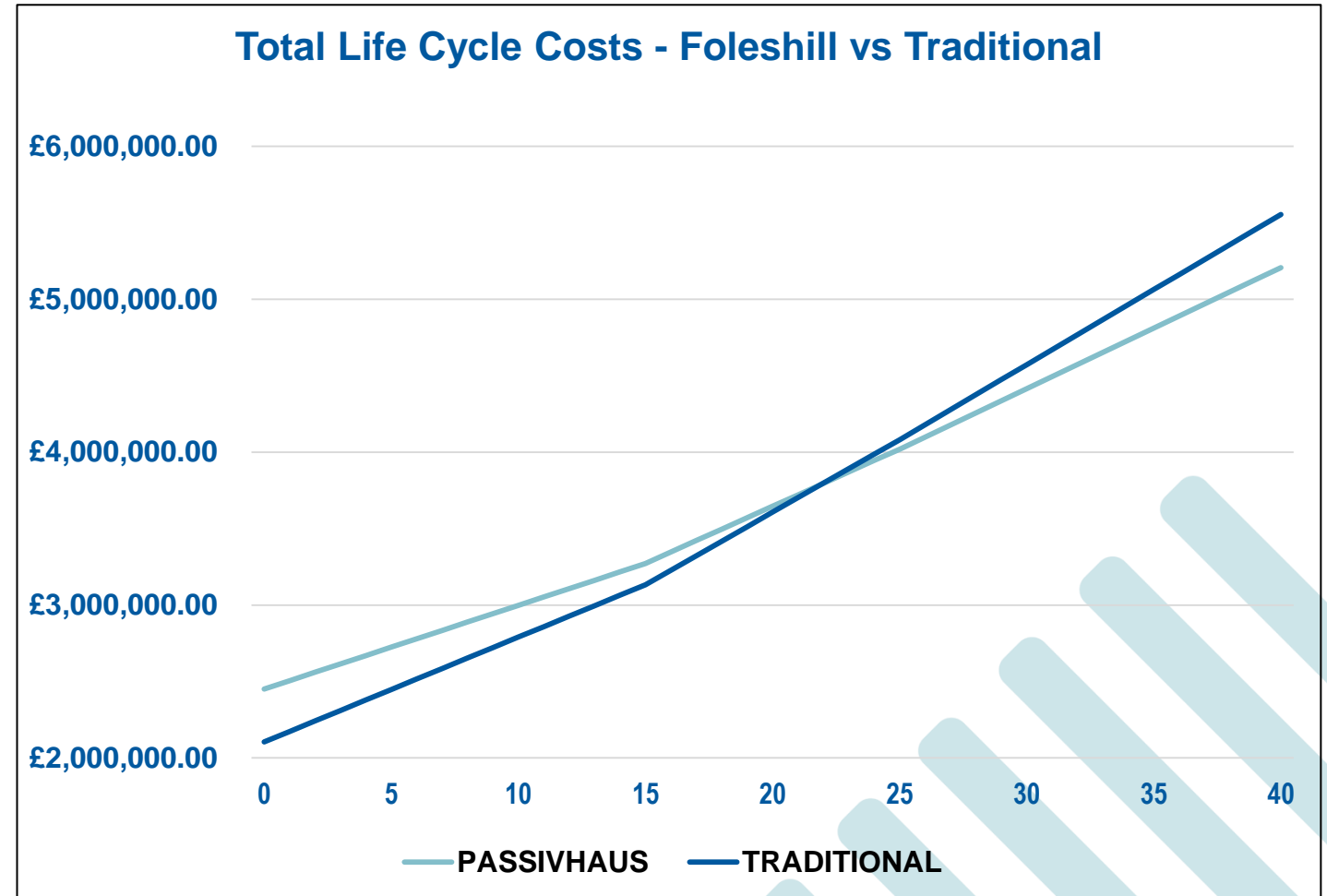
# The Construction Stage

- Confined Brownfield Site
- Offsite construction modular construction
- Known performance platform – enhanced for Passivhaus
- Stable fixed cost base for Cost Modelling
- Shaved 13-weeks off the site programme
- Utilising existing NHS Modular Framework
- Early Sub Contractor / project team engagement
- Collaborative integrated project team
- COVID

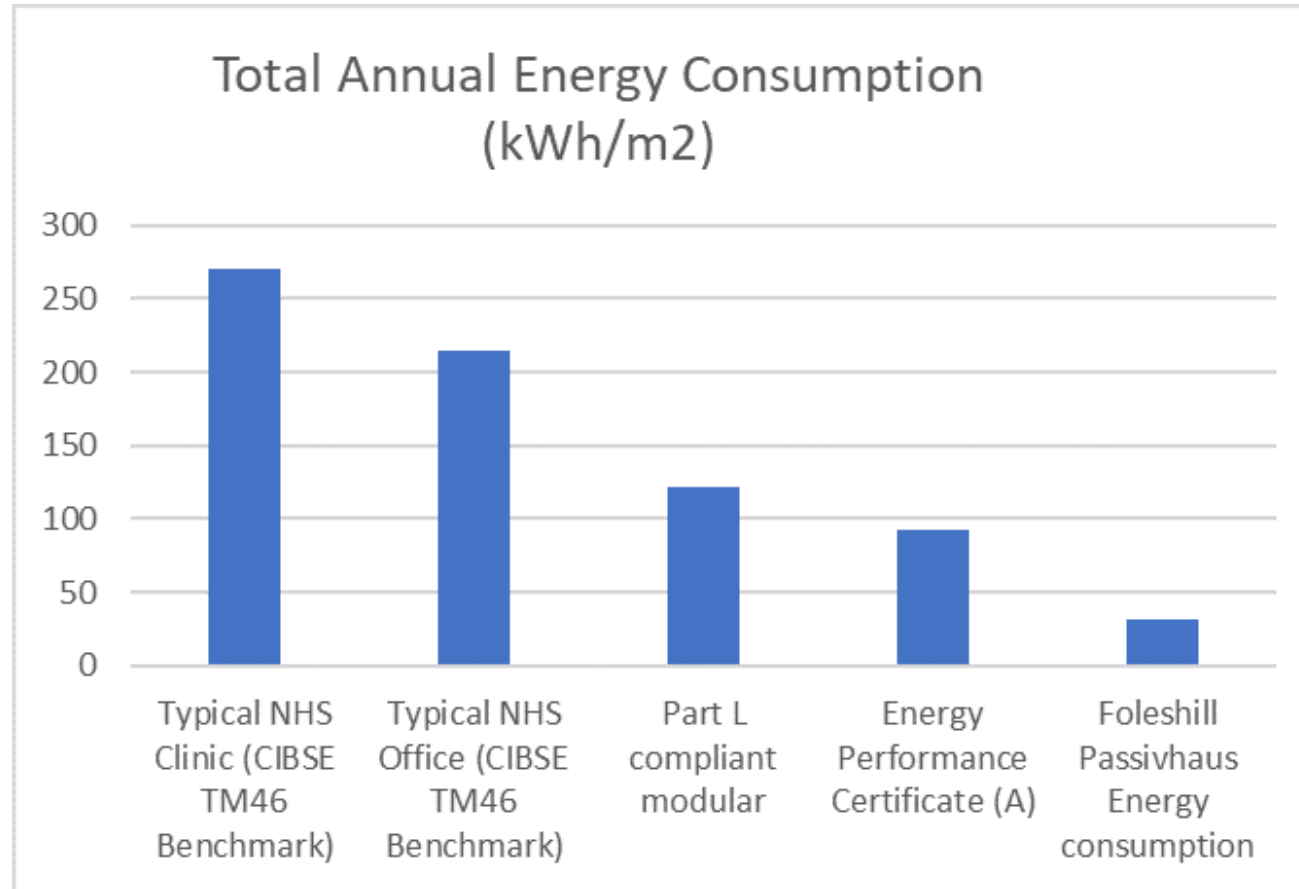


# Demonstrating the Benefits – Whole Life Costs

- 15, 25 & 40 year cost modelling
- Capital + Renewals + Operations (inc. Utilities) + Maintenance
- Foleshill Capital cost: +16.7% to traditional scheme
- Energy Inflation
- Electricity modelled £12k trad v £3k Passivhaus p/a



# Demonstrating the Benefits – Energy Performance



# Exceeding Building Regulations Part L

Foleshill's construction performs better than a standard Part L compliant building – air tight, energy efficient building moving to near net zero.

Performance Criteria	Part L Compliant	Foleshill
CO <sub>2</sub> emission rate (kgCO <sub>2</sub> /m <sup>2</sup> /annum)	28.3	11.9
Average Conductance of building (W/K)	552.7	164.75
Average U Value (W/m <sup>2</sup> K)	0.41	0.12
Building Fabric U Value : Wall (W/m <sup>2</sup> K)	0.23	0.09
Building Fabric U Value : Floor (W/m <sup>2</sup> K)	0.20	0.05
Building Fabric U Value : Roof (W/m <sup>2</sup> K)	0.15	0.08
Building Fabric U Value : Glazing (W/m <sup>2</sup> K)	1.5	0.64
Energy consumption for Lighting (kWh/m <sup>2</sup> )	37.16	18.17
Air Permeability (m <sup>3</sup> /h.m <sup>2</sup> @ 50Pa)	10.0	0.58

# Achieving Passivhaus Standards

Certification awarded mid October 2021

Passive House Verification	
	Building: Foleshill Health Centre
	Street: Livingstone Road
	Postcode/City: CV6 5AR Coventry
	Province/Country: West Midlands GB-United Kingdom/ Britain
	Building type: Primary Healthcare Building
	Climate data set: GB0007a-Sutton Bonnington
	Climate zone: 3: Cool-temperate Altitude of location: 104 m
	Home owner / Client: Community Health Partnerships
	Street: Cheltenham House, 14-16 Temple Str
	Postcode/City: B2 5BG Birmingham
Province/Country: GB-United Kingdom/ Britain	

Comparison of Classic certification threshold and designer's submitted results:

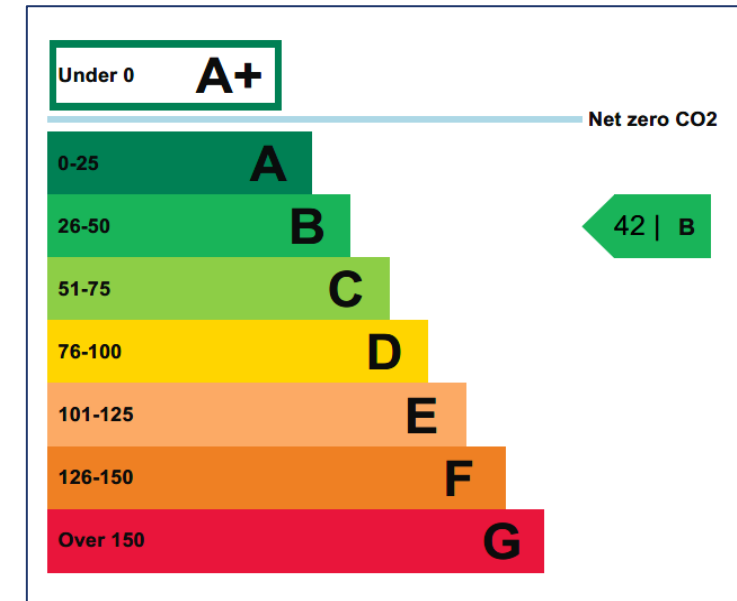
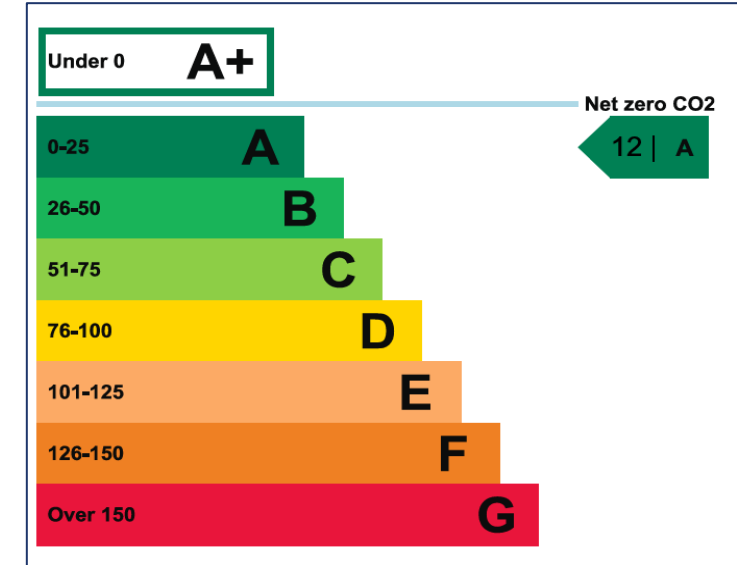
Performance Aspect	Passivhaus Classic Threshold	Foleshill's Result
Heating Demand (kWh/m <sup>2</sup> /pa)	15	14.48
Heating Load (W/m <sup>2</sup> )	10	9.6
Cooling Load (kWh/m <sup>2</sup> /pa)	15	1.35
Cooling Load (W/m <sup>2</sup> )	11	0.14
Overheating (% of annual hours over 25°C)	10	0
Airtightness (Air Changes of Occupied Volume/h)	0.6	0.51

# Gaining an EPC

- Foleshill's May 2021 **EPC is A rated**
- Scored 12, halfway between Net Zero CO<sub>2</sub> and B Rating

## COMPARISON

- Traditional health centre's January 2019 **EPC is B rated**
- Scored 42, <sup>2</sup>/<sub>3</sub>rds of way towards C rating



# Comparison with Recent New Build Health Centre

Table below compares:

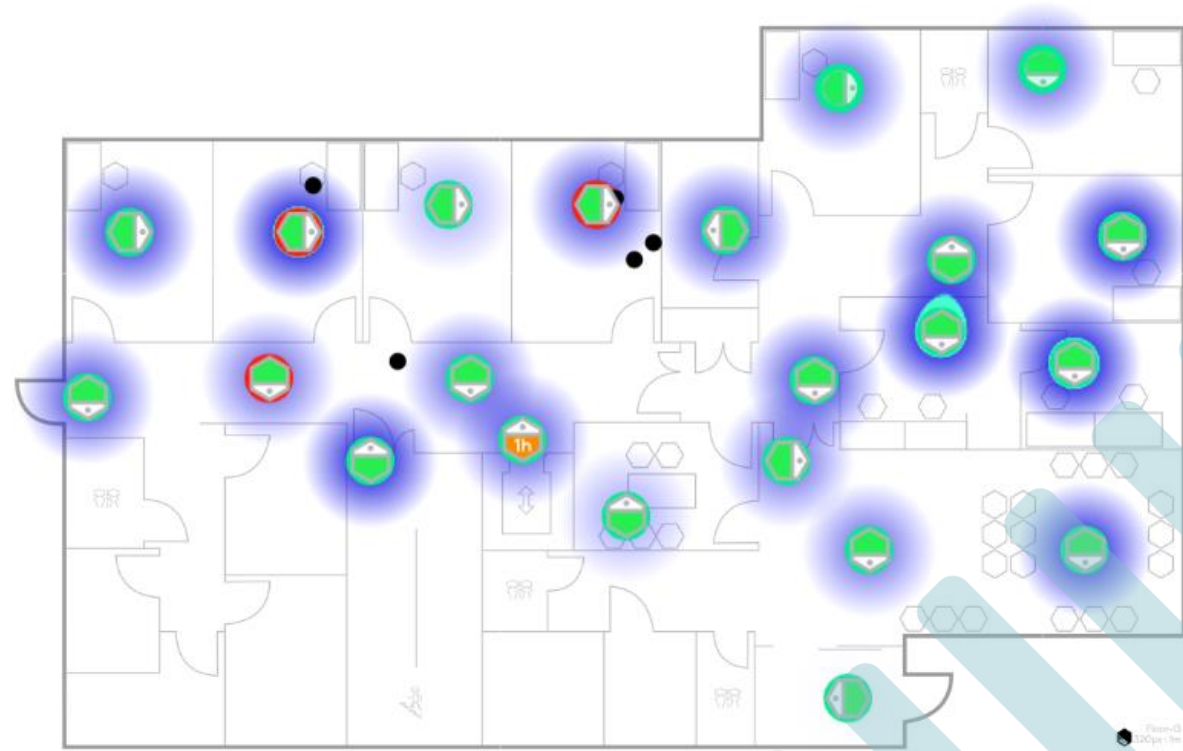
A. Foleshill – completed May 2021

B. Benchmark West Midlands health centre – completed January 2019

	Benchmark	Foleshill
GIA (m <sup>2</sup> )	664	619
Floor Levels	2	2
Site Works Programme (Weeks)	49	36
Capital Cost (%)	100	116.7
25 year Costs (Renewals + Maintenance)	100	86.3
25 year Costs (Utilities/Energy)	100	98.5
40 year Total Costs	100	93.7
EPC Rating	B	A
EPC CO <sub>2</sub> emissions (kgCO <sub>2</sub> /m <sup>2</sup> /annum)	36.28	11.9
EPC Primary Energy Usage (kWh/m <sup>2</sup> /annum)	212	93

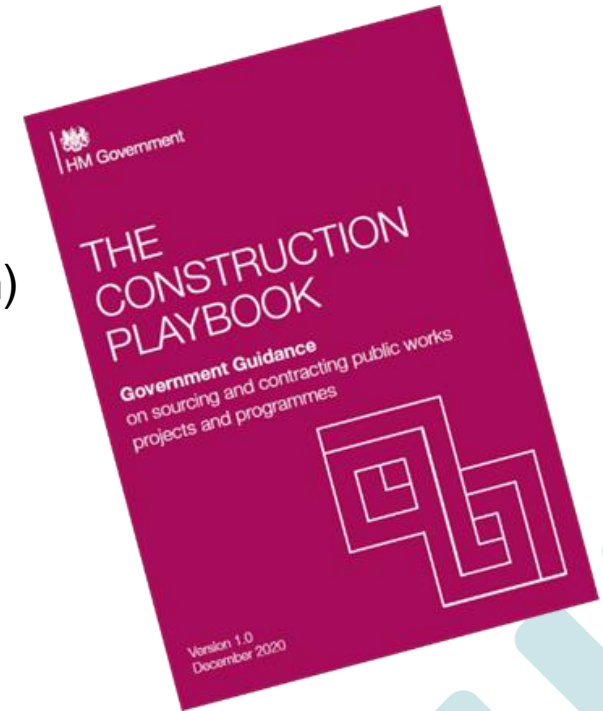
# Measuring Performance in Use

- 3 year post-occupancy monitoring to validate
- Measuring comfort, environmental and consumption parameters
- Quarterly reports to NHSE & CCG
- Post occupancy DQI
- BREEAM – Excellent accreditation
- Utilisation



# Foreshill and the HMG Construction Playbook

- ✓ Innovative project – a pathway beacon
- ✓ Strides taken towards 2050 net zero carbon commitment
- ✓ Focus on whole life carbon approach
- ✓ Offsite and Modular Construction (Modern Methods of Construction)
- ✓ Outcome based approach
- ✓ Early supply chain involvement
- ✓ Use of an existing procurement framework
- ✓ Driving greater value through public spending
- ✓ Up front investment of time and resources to set the project up for success on site
- ✓ Promoting social value through improvement of wellbeing



# Foleshill the Greenest Health Care Building in the UK

- We believe it is today ..... so far
- It's EPC rating is tantalising close to Net Zero CO<sub>2</sub>
- There are over 7,000 GP practices in England occupying over 9,000 buildings\* In 2019, those buildings emitted 167ktCO<sub>2</sub>e\*
- Foleshill is the greenest and newest of them
- We hope it is the inspiration for other buildings to follow

\* Delivering a 'Net Zero' National Health Service, PAR133



# Find out more

Foleshill Case Study online

If you want to know more about Foleshill and its progress and performance now that it is operational, or learn more about CHP's work:

[www.communityhealthpartnerships.co.uk](http://www.communityhealthpartnerships.co.uk)

Email: [info@communitypartnerships.co.uk](mailto:info@communitypartnerships.co.uk)

[Sign up for the CHP newsletter](#)





**Delivered for the NHS and the people of Coventry by  
Community Health Partnerships**

**In partnership with Portakabin, Tooley Foster,  
AECOM, Arden Estate Partnerships**