

#UKPHC18

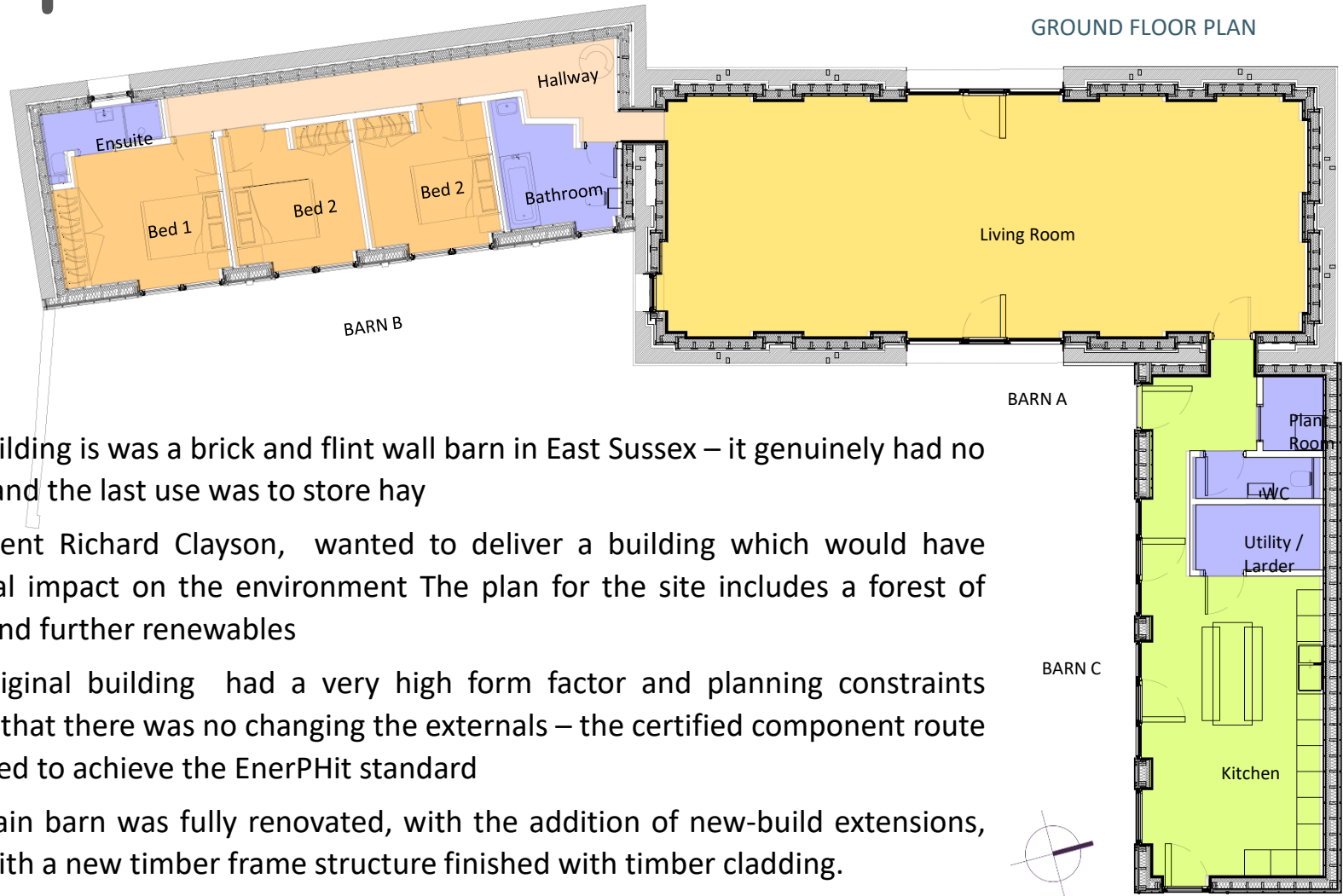
The Old Byres

Sarah Price

The Old Byres – East Sussex



Site plan



- The building is was a brick and flint wall barn in East Sussex – it genuinely had no doors and the last use was to store hay
- The client Richard Clayson, wanted to deliver a building which would have minimal impact on the environment The plan for the site includes a forest of trees and further renewables
- The original building had a very high form factor and planning constraints meant that there was no changing the externals – the certified component route was used to achieve the EnerPHit standard
- The main barn was fully renovated, with the addition of new-build extensions, built with a new timber frame structure finished with timber cladding.

The most important thing: performance

Primary Energy: 158
(kWh/m²/a)

Heating Demand: 52
(kWh/m²/a)

Air Changes/Hr: 0.9
(@50pascals)

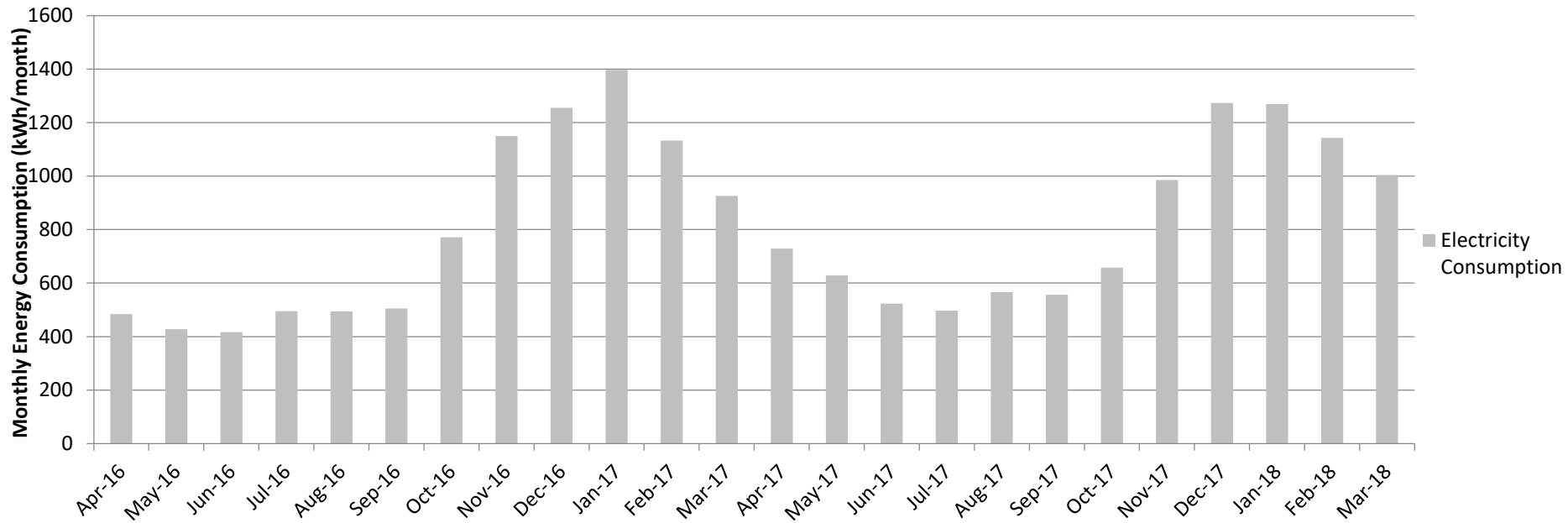
Heating Load: 24
(W/m²)

Primary Energy:

April 2016 – March 2016: 145.2 (kWh/m²/a)

April 2017 – March 2018: 151.1 (kWh/m²/a)

Monthly Energy Consumption



Design vs in-use performance

Some people don't live at 20 degrees – this house is heated to 22 – 24 degrees

Space Heating Demand:

April 2016 – March 2016: 65.4 (kWh/m²/a)*

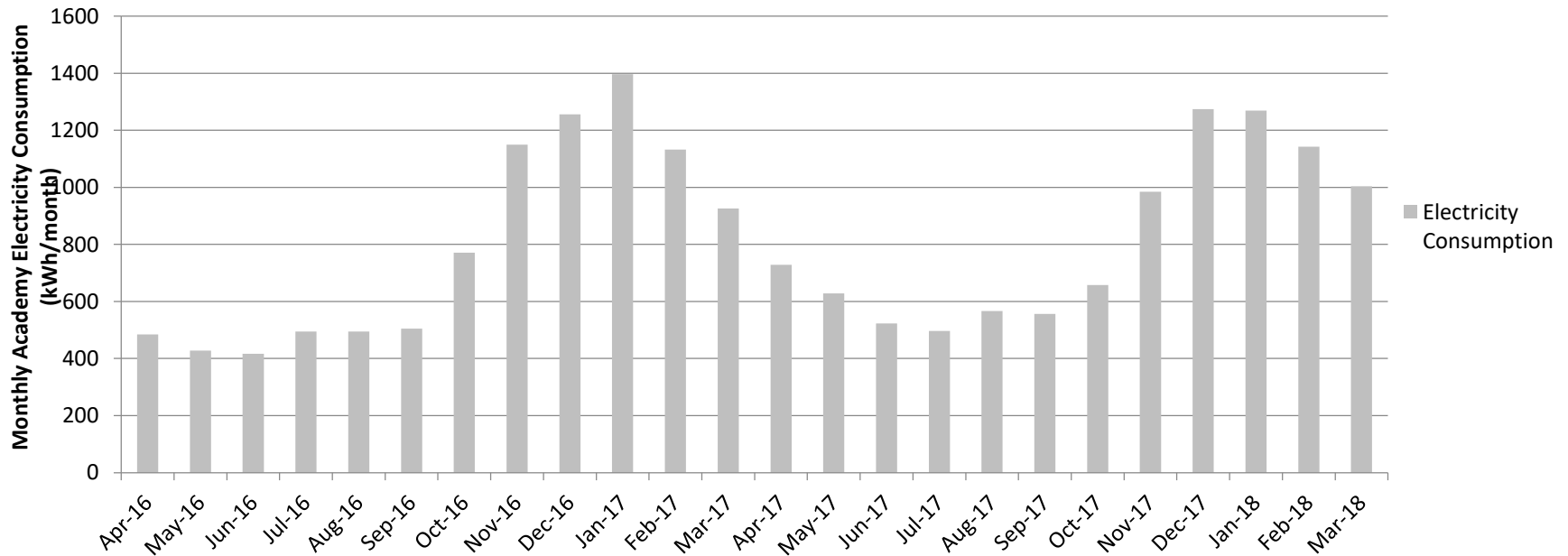
April 2017 – March 2018: 52.7 (kWh/m²/a)

Total Energy Cost:

April 2016 – March 2016: 945 (£/year)

April 2017 – March 2018: 1180 (£/year)

Electricity Consumption



Before and after



Before Barn A – East Elevation



Before Barn A – West Elevation



Before Barn C – South Elevation



After Barn A – East Elevation



After Barn A – West Elevation



After Barn C – South Elevation

Before and after



Before Barn C – North Elevation



After Barn C – North Elevation



Before Barn C – South Elevation



After Barn C – South Elevation

The Old Byres



Self-build can achieve Passivhaus standards without significantly adding to costs

- This self-build project was a labour of love for the client.
- Richard had no experience of building Passivhaus before, nor had any of the trades. Enhabit carried out the Passivhaus design and delivered site QA as often as budget allowed
- Hockley was the structural engineer, and Dawson and POW Architects provided drawings to deliver Richard's vision
- We always talk about Passivhaus being a team sport, this project is no exception, but it was captained by someone with single-minded determination
 - he project managed the build himself, finding local trades who were willing to learn to reach the standard
 - sourcing natural and local materials as far as possible, for example locally sourced larch cladding and softwood framing
- It is a fantastic demonstration of how Passivhaus can be delivered by a careful "lay" person at a reasonable cost (£1,700 m2 in total, including fees and f&f)
 - careful project management, choosing the right teams
 - airtightness strategy was simple, but the teams were trained by Enhabit providing toolbox talks
 - incentivised to achieve the required levels of airtightness
 - QA visits at key junctures

- Richard Clayson

Key stats

Location: Whydown Road, Hooe, TN39 4RF, United Kingdom

Construction: Timber frame/ masonry

Construction completion: 01/2016

Occupied since: 01/2016

Certification Date: 06/2017

Gross External Area: 239 m²

TFA: 169.20 m²

Form Factor Ratio: 5.54

Construction cost: £ 1700 / m²

Heat Source(s): Air Source Heat Pump

Primary Energy: 158
(kWh/m²/a)

Heating Demand: 52
(kWh/m²/a)

Air Changes/Hr: 0.9
(@50pascals)

Heating Load: 24
(W/m²)

TEAM CREDITS:

Client/ Developer: Richard Clayson

Project Manager: Richard Clayson

Architect: Enhabit Limited and Richard Clayson

PH Consultant: Enhabit Limited

Contractor: Langtorr Ltd

Certifier: Ccreate Consulting

Other Consultants: Green Building Store, Hockley & Dawson

ukpassivhaus conference 2018



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Thank you...

Dr Sarah Price

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