



Wearing all the hats: a self-build story

UK Passivhaus Conference 2017

Content

1. Introduction: Meet the team / Meet the challenge
2. Site Life: what did we learn?
3. Performance: does it work?
4. Feedback: what does it feel like?



1. Project Introduction

1.1 Meet The Team



Marine Sanchez

- Principal Building Physics Engineer & Passivhaus Designer
- Enhabit: team of Building Physics Engineers & Project Managers
- Passivhaus experience: **Delivery of the 2 first Passivhaus Retrofits in the UK in 2010**, and kept delivering more ever since



Russel Hayden

- Owner, designer, project manager, procurement, and airtightness champion
- Architect

1.2 Meet The Challenge



1960's detached house near Manchester, in poor condition, retrofitted to EnerPHit

APRIL 2016

1.2 Meet The Challenge



All services to be fully upgraded



APRIL 2016

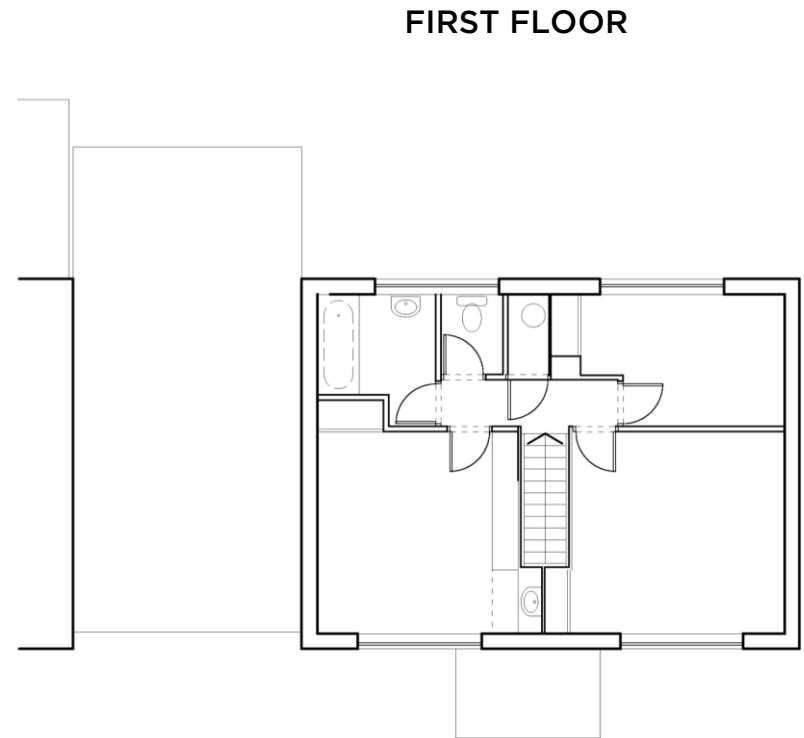
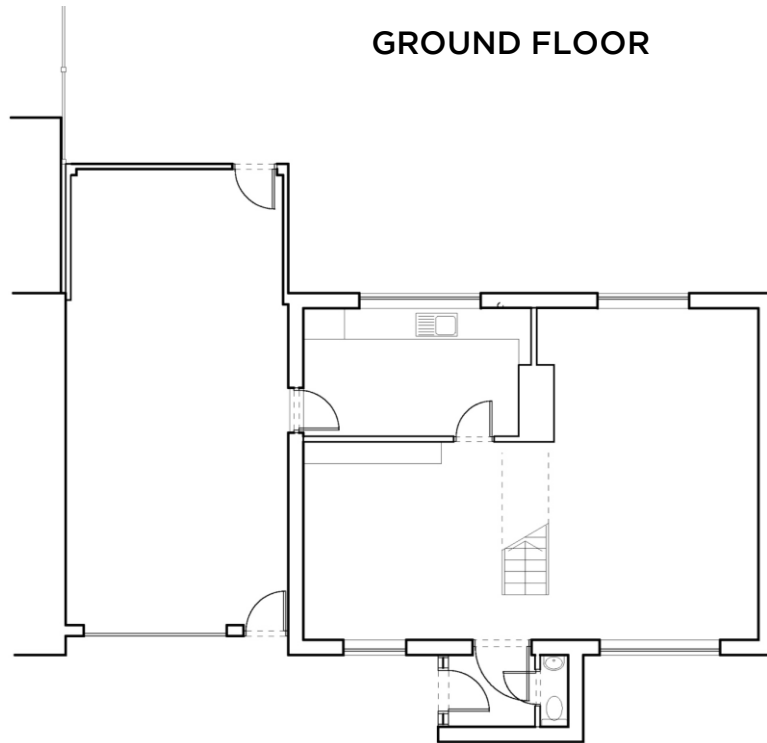
1.2 Meet The Challenge



Blank canvas. Brief = simple, affordable, Passivhaus without compromising on design

MAY 2016

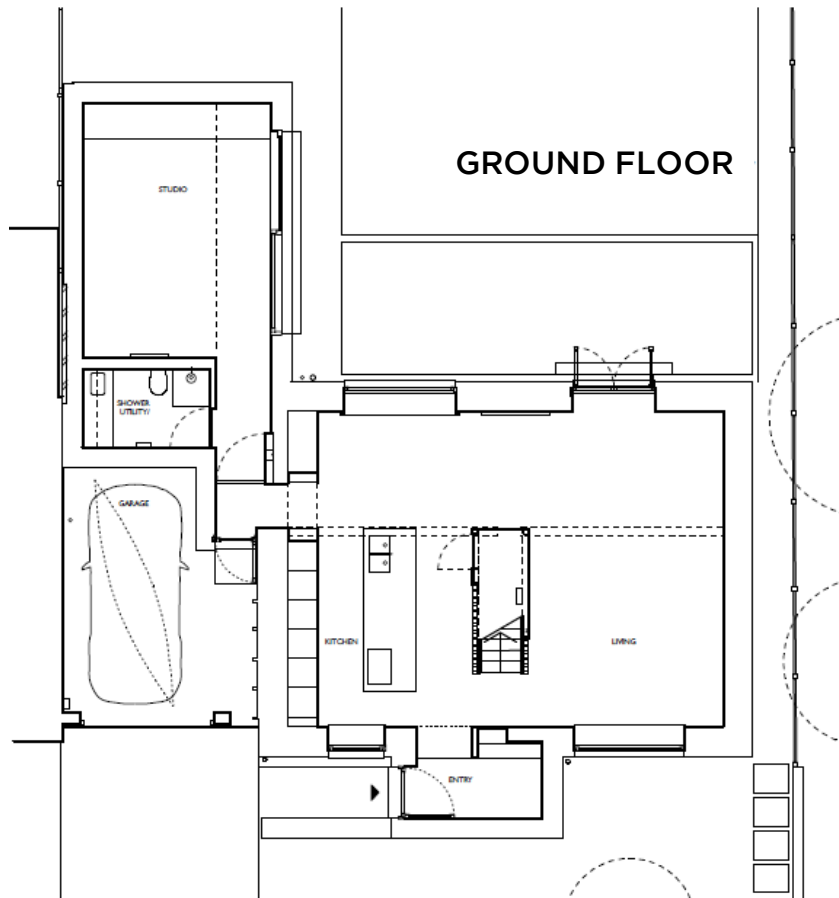
1.2 Meet The Challenge



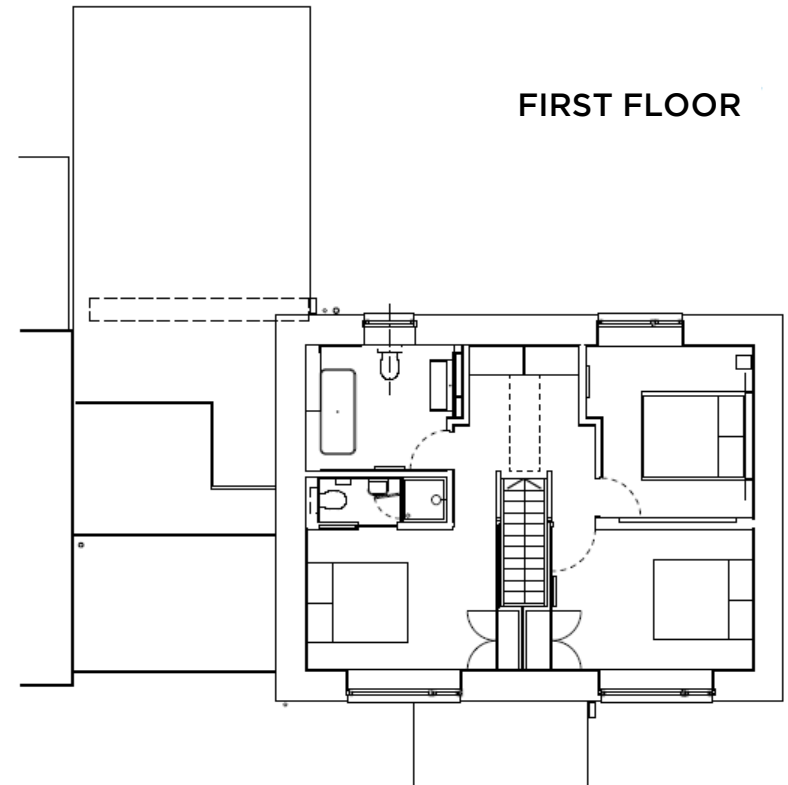
Scope: Retaining existing house + addition of work studio on GF

EXISTING - MAY 2016

1.2 Meet The Challenge



Scope: Retaining existing house + addition of work studio on GF



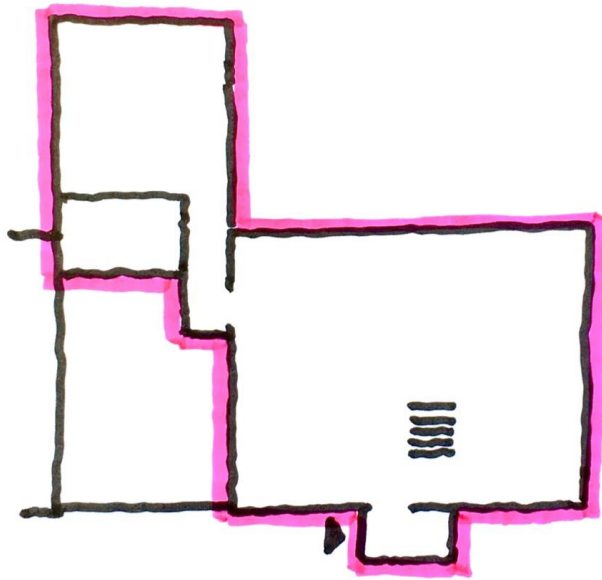
PROPOSED - MAY 2016



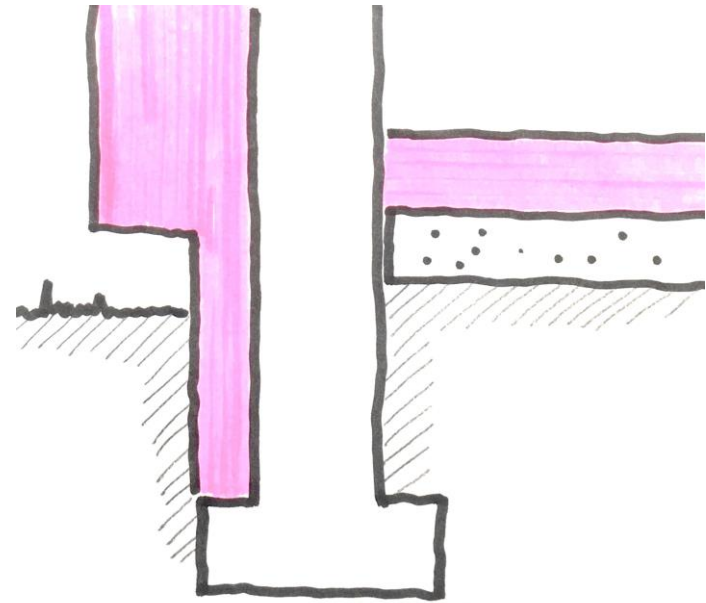
2. Site Life: what did we learn?

2.1 Site Life: K.I.S.S

K.I.S.S. = Keep It Simple → Architect & PH Designer's experience



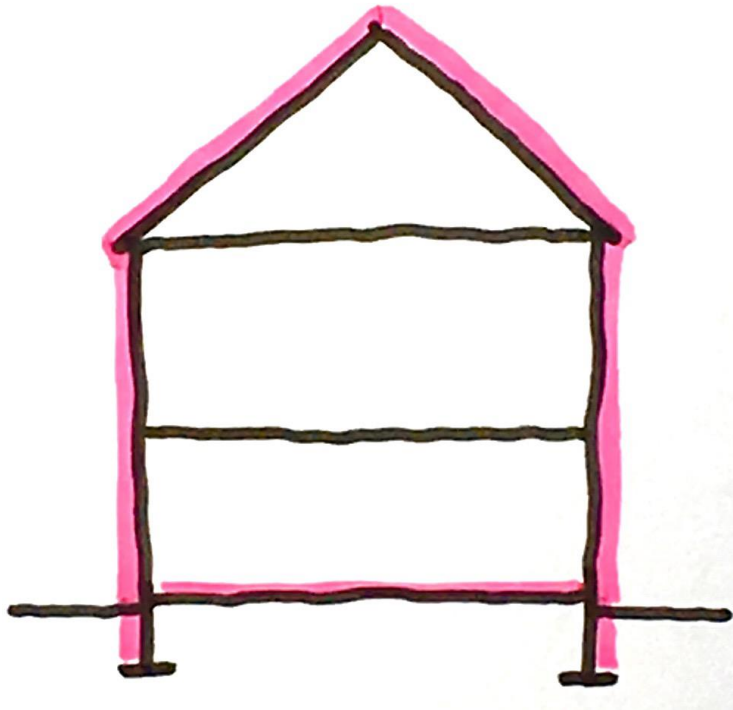
Include studio extension in PH envelope



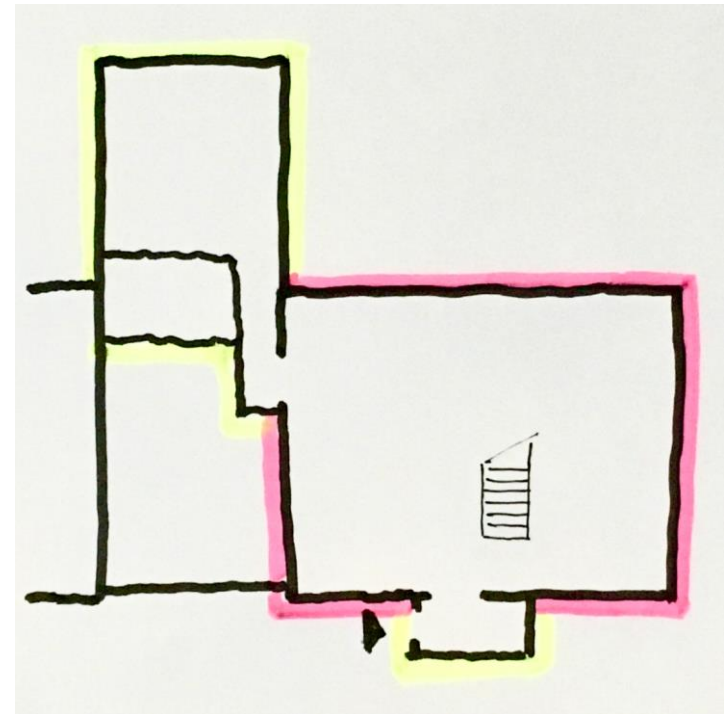
Retain GF slab and insulate above

2.1 Site Life: K.I.S.S

K.I.S.S. = Keep It Simple + Design with Passivhaus in mind from Day 1



Use of EWI



Limited Number of Build-Ups

2.1 Site Life: K.I.S.S

K.I.S.S. = Keep It Simple



Retain existing window openings



Resist renewables (for now)

2.2 Site Life: Passivhaus is different

Need for DESIGN QUALITY: Passivhaus takes longer



“Making the simple complicated is common place; making the complicated simple, awesomely simple, that’s creativity”

Charles Mingus

- Good design takes time
- Extended design time (education: Passivhaus introduction course)

2.2 Site Life: Passivhaus is different

Need for CONSTRUCTION QUALITY: it's not "business as usual" (although we wish it was!)



Enthusiastic small contractor



Learning curve: need for additional time

2.2 Site Life: Passivhaus is different

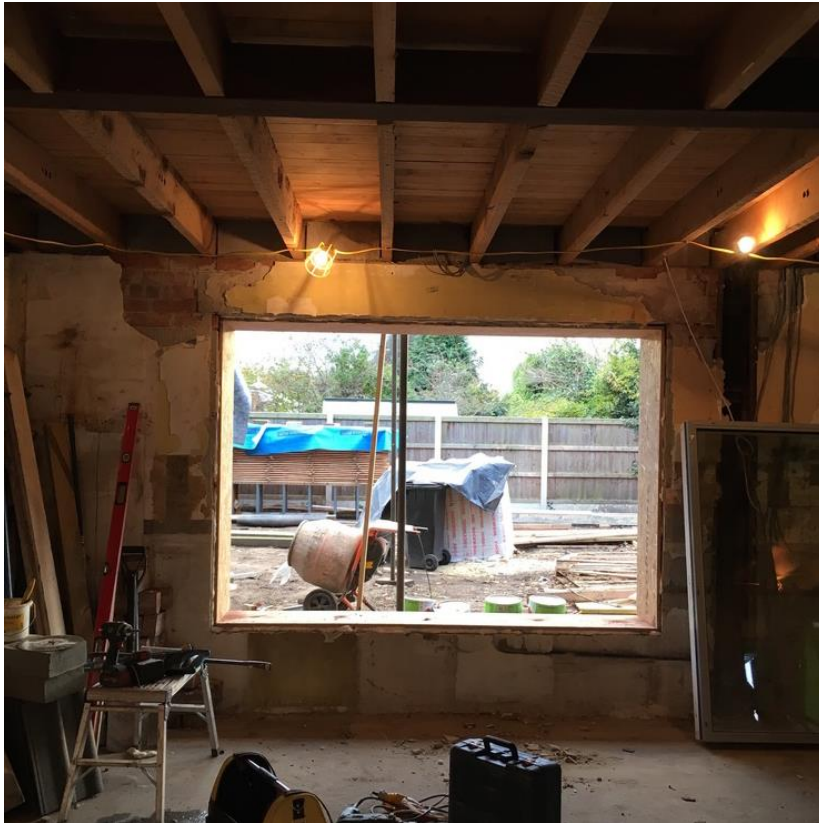
Need for PLANNING AHEAD / SEQUENCING: need to allow for additional time in programme ...



Sequencing & additional time not always easy to plan for, and can sometimes lead to a frustrated contractor...

2.2 Site Life: Passivhaus is different

Need for CONSTRUCTION QUALITY: made it easier with K.I.S.S. principle



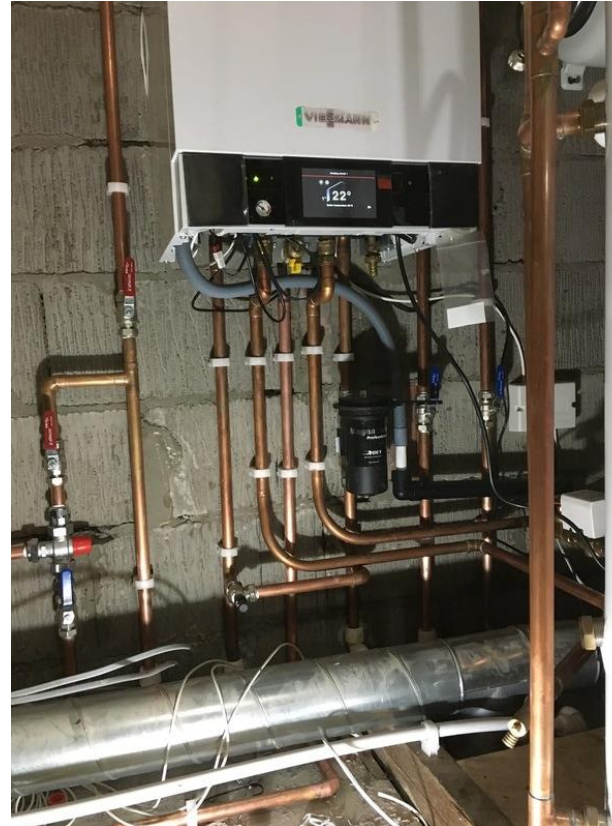
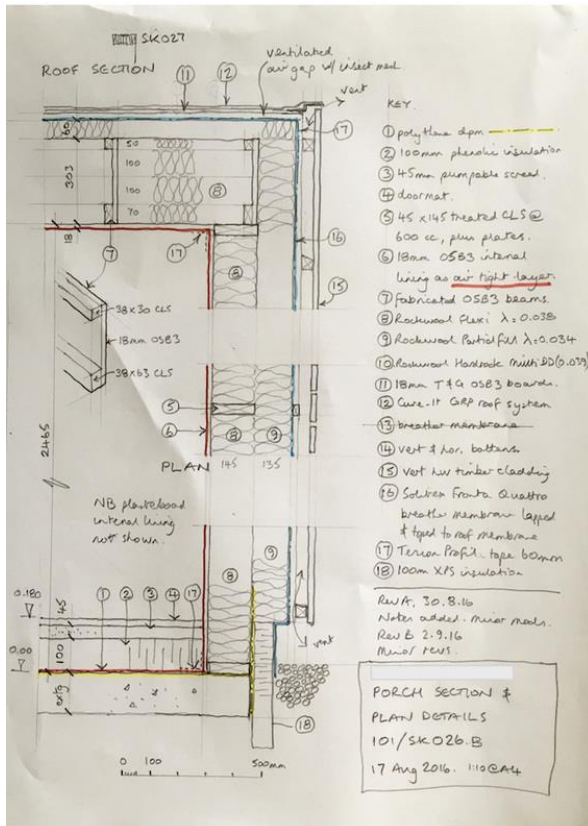
Easy window installation (plywood boxes)



EWI (+ experienced sub-contractor)

2.2 Site Life: Passivhaus is different

Need for ATTENTION TO DETAIL: at all levels, from design all the way to site



- Amount of detail: design
 - surprising
 - team education

- Amount of detail: site
 - toolbox talks
 - plumbing system different from typical (use of microbore)



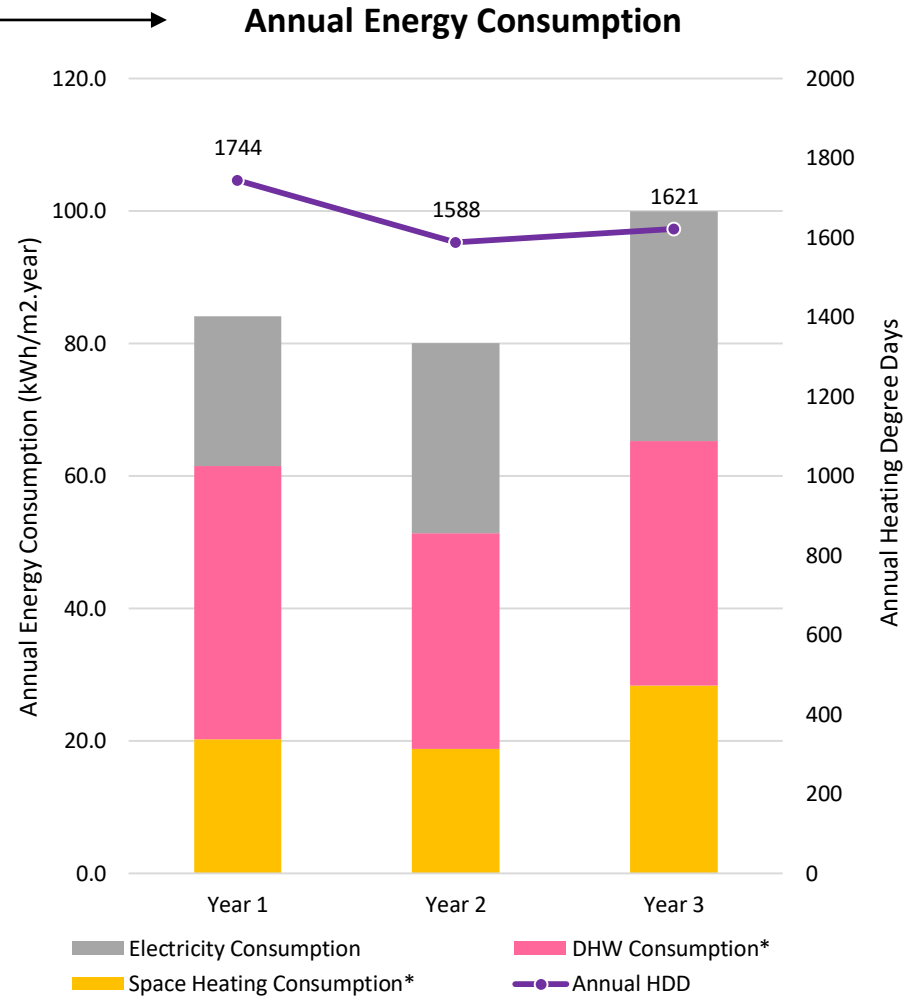
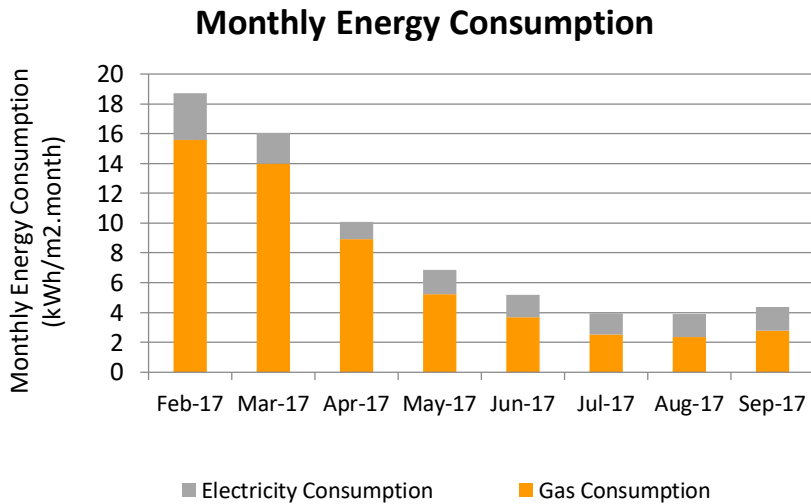
3. Performance: does it work?

3.1 Performance: Energy monitoring

Barmouth Road (EnerPHit)
Year 3 monitoring

Churwell Avenue

- during construction
- 1st winter coming up





4. Feedback: and how does it feel?

4.1 Feedback: We have a Passivhaus!

Moved in in February 2017



Feels very special



4.2 Feedback: Health

Plenty of freshness thanks to the MVHR



No need for windows opened at night



Insomnia replaced by vivid dreams

4.2 Feedback: Health

Condensation ... but on the outside



Takes a bit of getting used to!



No mould

4.3 Feedback: Acoustics

Sleeping through aircraft overheat, thunder and police car chase!



No noise from outside ...



... and no noise disturbing the neighbours

4.4 Feedback: Thermal comfort

Great feeling of comfort



Summer delight ... and looking forward to winter



No "close the door!" argument

4.5 Feedback: #Winning

What would we do without deep window reveals!



4.5 Feedback: #Winning

Less time cleaning, more time playing!



Less dust = less cleaning



No spiders

4.5 Feedback: #Winning

Quick dry!



With clothes ...



... and with hair too!



Key lessons

Key lessons

- K.I.S.S.
- No need to compromise on design with PH
- Allow for Passivhaus learning curve & adequate sequencing
- Premium for PH: worth it
- COMFORT, COMFORT, COMFORT ...
... and more!
- Feedback loop



www.thebox-haus.weebly.com