

#UKPHC19

## The Barrel Store

# An Enerphit Youth Hostel in a Cotswold stone barn

Toby Cambray (Greengauge) and James Duggan (DJP Construction)







- **Location:** New Brewery Arts, Cirencester
- **Building Type:** Youth Hostel
- **TFA:** 265m<sup>2</sup>
- **Construction:** Timber frame/masonry
- **Completion Date:** 03/2016
- **Occupied since:** 03/2016

- **Key Team:**
- Client/Developer: New Brewery Arts
- Architect: Potter & Holmes
- Passivhaus and M&E Consultant: Greengauge
- Contractor: DJP Construction
- Certifier: Warm
- Structural Engineer: E&M West



## Design Philosophy

- Heavily constrained by existing building
- Energy Calculation approach to EnerPHit
  - good form factor
  - high internal gains
- Minimal Solar Gain
  - Small openings
  - Deep Reveals
  - Overshading
- New Timber Frame within stripped-out stone 'shell'
  - Existing Trusses Remained

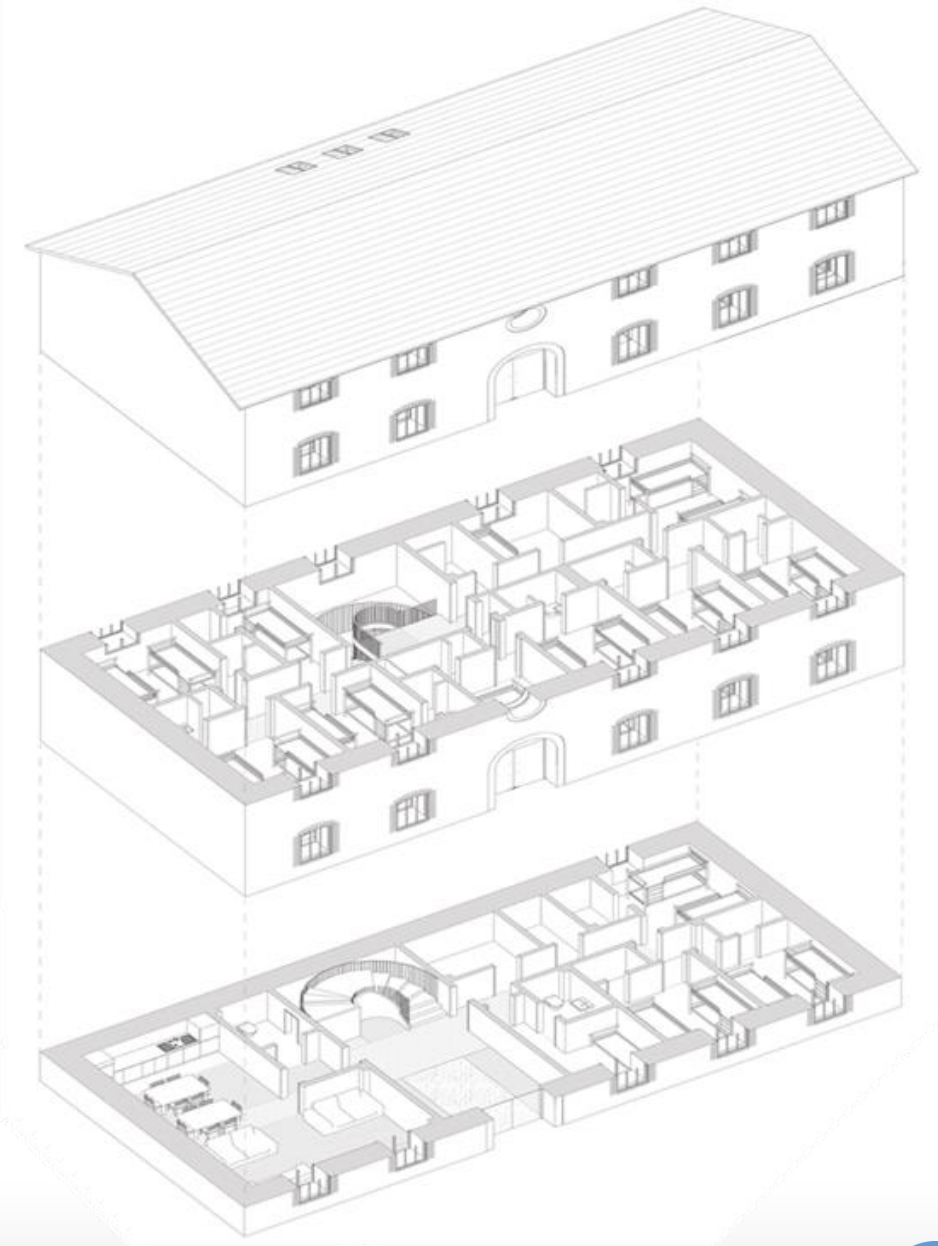
Walls:  
0.20 W/m<sup>2</sup>.K

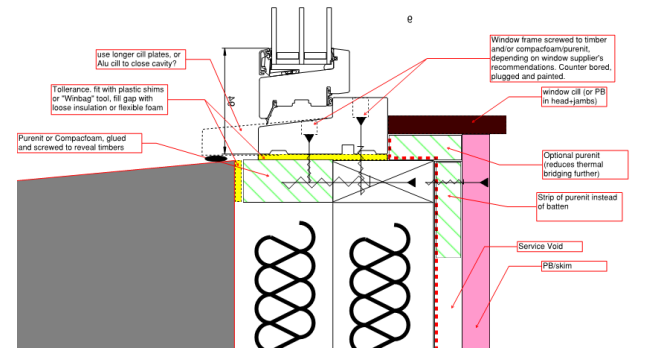
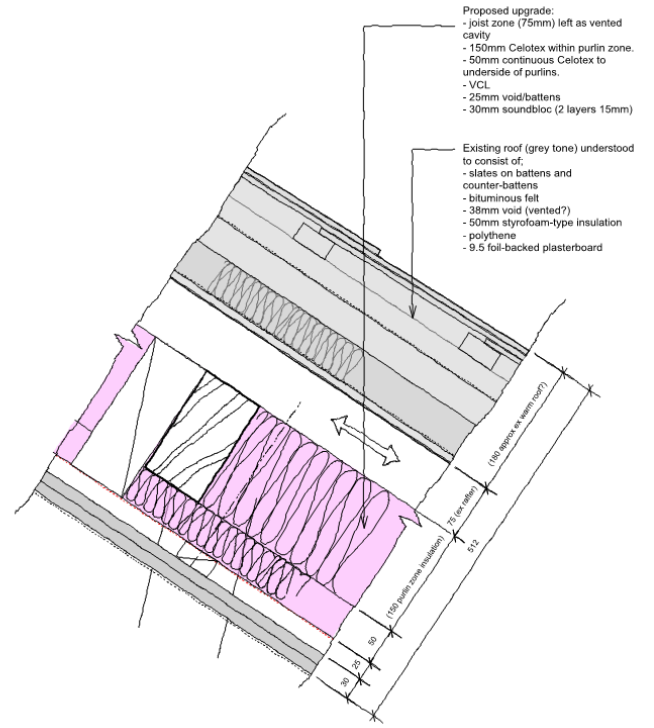
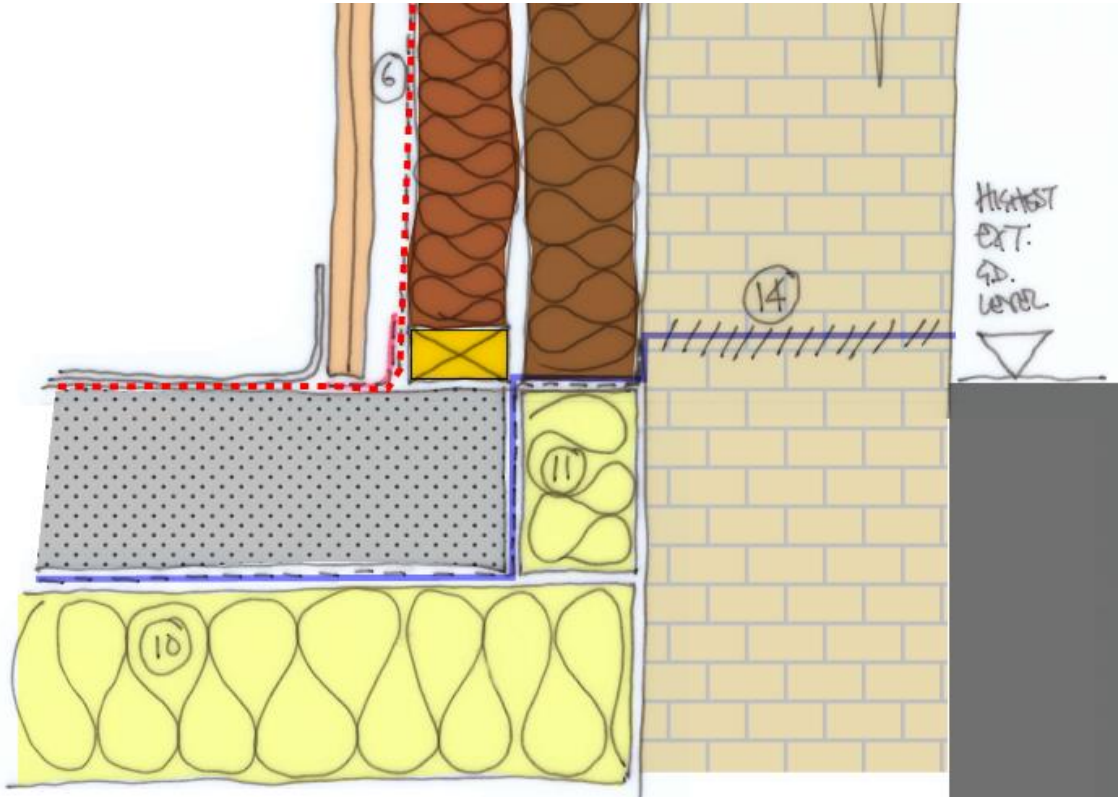
Floor:  
0.10 W/m<sup>2</sup>.K

Windows:  
0.99 W/m<sup>2</sup>.K

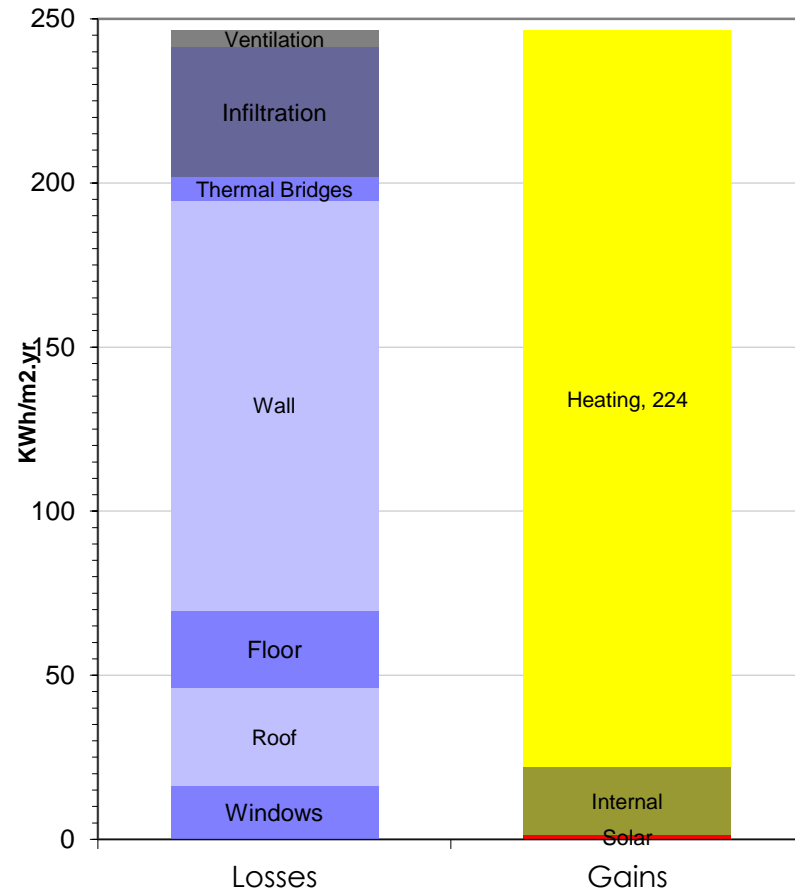
Roof:  
0.11 W/m<sup>2</sup>.K

Airtightness:  
0.57 ACH@50Pa

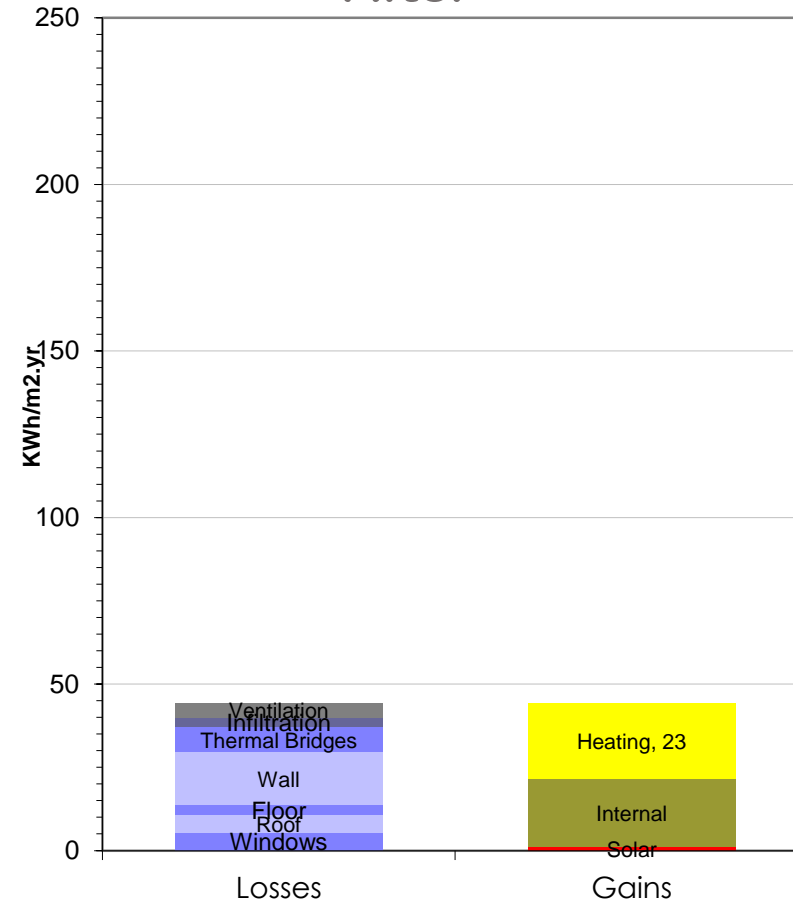




## Before



## After

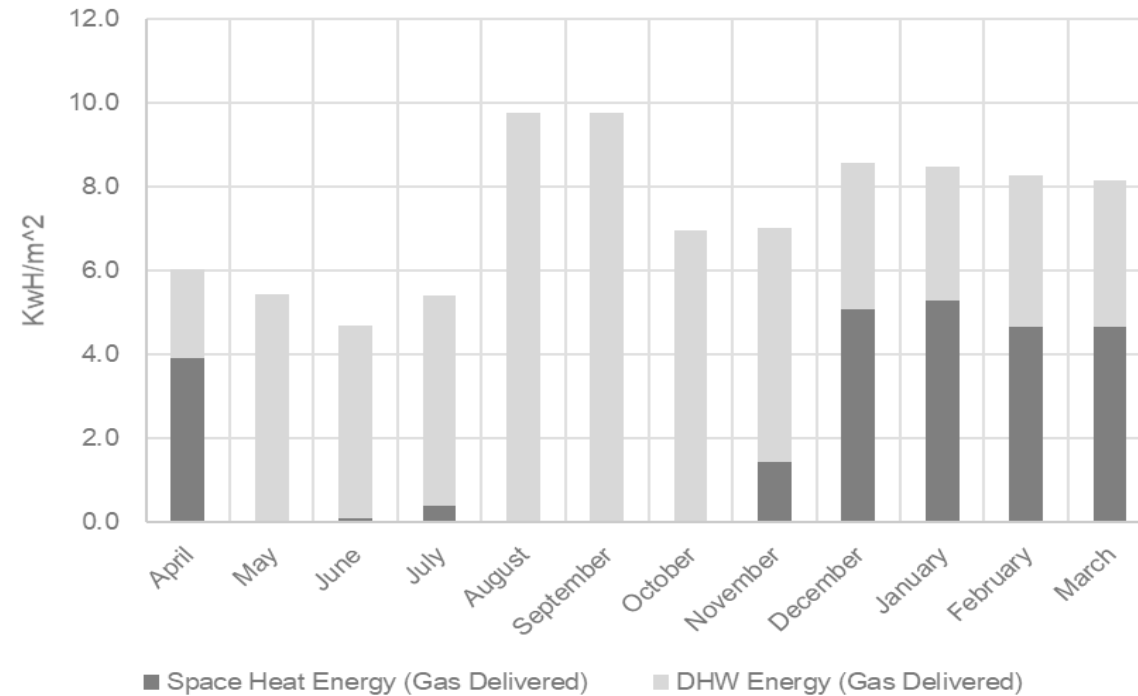


Estimated Heating Demand:  
22.9 kWh/m<sup>2</sup>/a

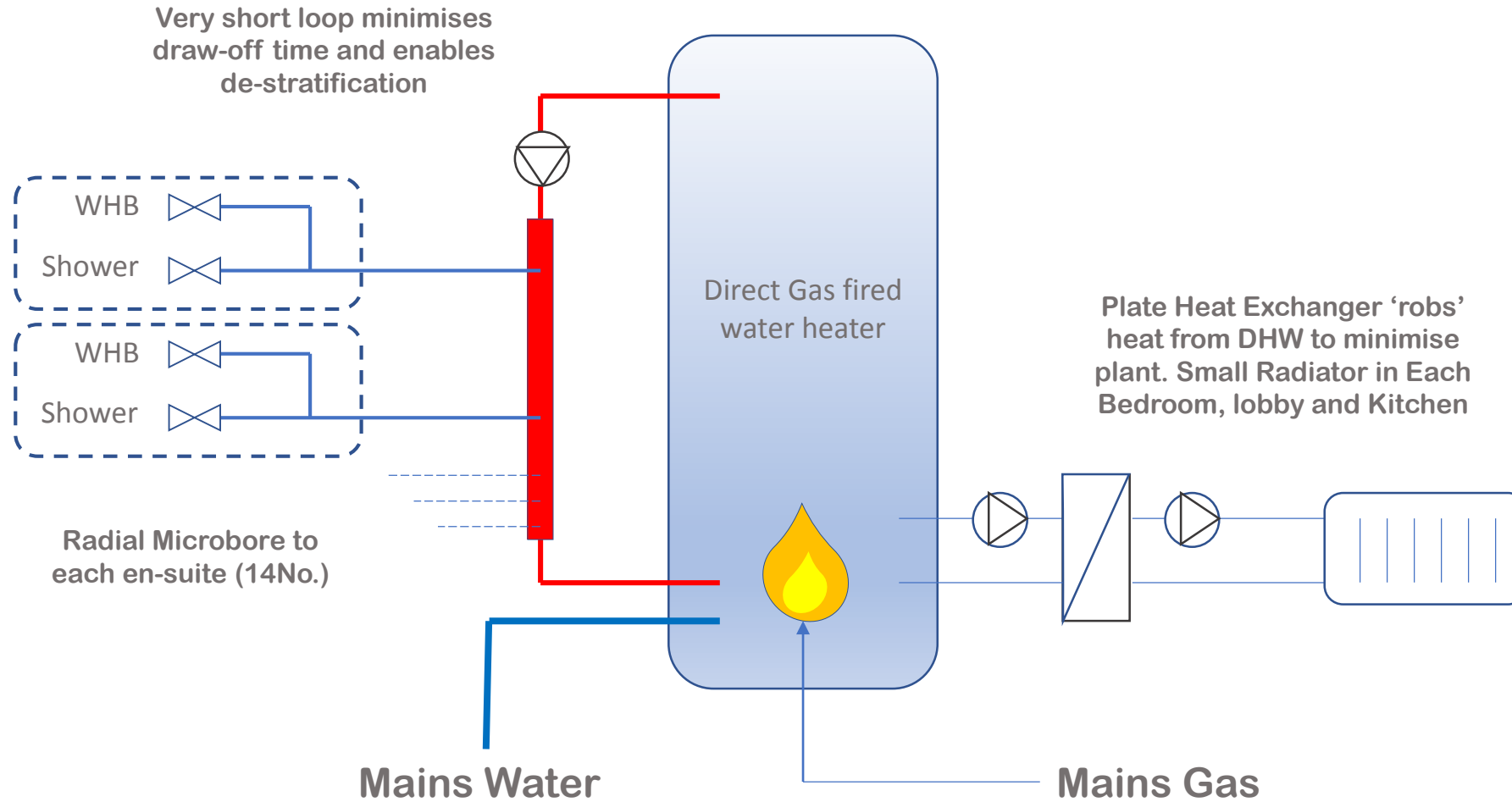
Predicted Heating Demand:  
22.8 kWh/m<sup>2</sup>/a

Primary Energy:  
112 kWh/m<sup>2</sup>/a

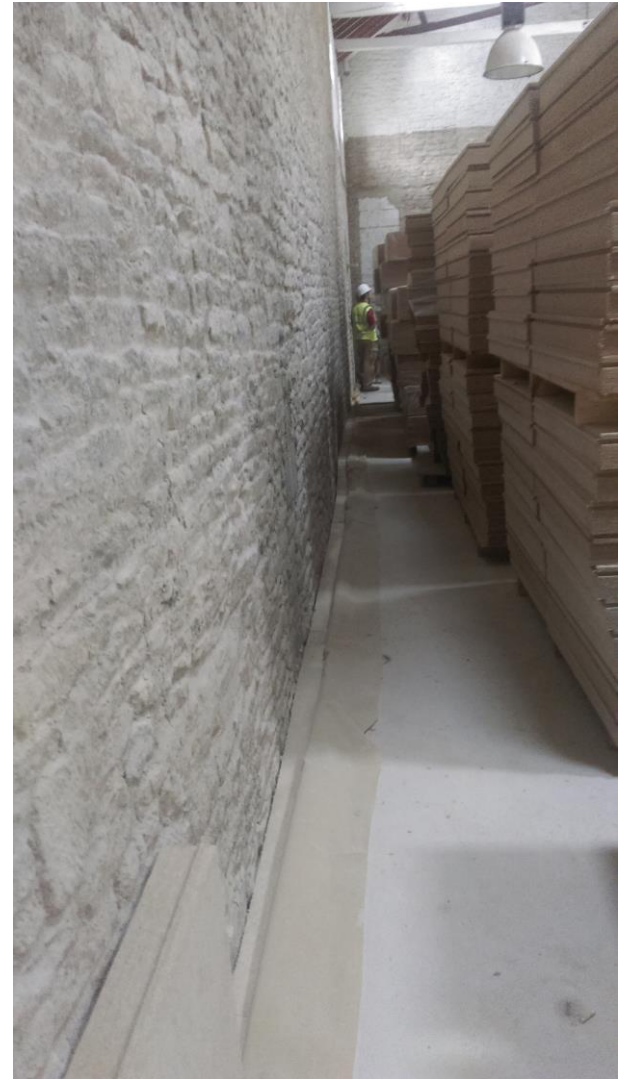
The Barrel Store Gas demand (estimated Space/Water Split) (2017-18)



# Heating and Hot Water



















“We’re really excited to see the project come to fruition and know that it will be a great addition to Cirencester and the County. The Passivhaus status will be a bonus and hopefully the success of our project will be a pilot for more projects like this in the future”

**Ali Russell, Centre Director for New Brewery Arts**





# Lessons Learned

Independent room control of  
mech vent

Better access for MVHR  
commissioning

Difficult to find good commercial  
entrance doors

AVCL and tape compatibility

Open-ability of windows in real  
life - overheating









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Thank you...

