

Phase I of the Green Heritage Homes is a partnership project, managed by Bath & West Community Energy and funded by the South West Net Zero Hub, which is hosted by the West of England Mayoral Combined Authority through the Local Energy Advice Demonstrator Programme.

Local Energy Advice Demonstrator (LEAD) Project: Green Heritage Homes

Level 0 Pre-App Phase I Case Studies: 2024- 2025

Case Study One: Vacuum glazing, internal wall insulation, loft insulation, and air source heat pump (ASHP)

**All Level 0 pre-app case studies have been anonymised in accordance with GDPR requirements*

History and building type

Building age: 1763-1767

Building type: Terraced dwelling

Grade listing: Grade II* (group listed)

Wall construction type: Bath stone ashlar

Existing retrofit measures: Loose-fill loft insulation

Previous Applications for Listed Building Consent (LBC): None

Proposals & Matters Discussed:

- Replacement of sash windows with vacuum glazed sash windows across front and rear elevations.
- Loft insulation upgrades, including maintenance of adequate ventilation
- Aerogel internal wall insulation in the top floor bedrooms.
- ASHP in rear garden and associated internal heating upgrades where required.

Heritage Assessment:

- Existing windows are modern post-2019 additions and are of a poor performance. Installation was originally considered acceptable due to replacement of Victorian-style 1-over-1 sashes and reinstatement of a traditional multi-pane fenestration pattern.
- History of 20th century internal works at third floor – modern polystyrene-backed plasterboard is already present across walls and historic plaster/finishes do not appear to be present underneath. Aerogel offers benefits as a slimmer, permeable insulation type. Opportunity for reinstatement of a traditional lime plaster finish over the top.
- An ASHP would be screened by the ground floor terrace and adjacent garden boundary walls – would only be visible in immediate garden views. Consideration of further screening measures advised.

Possible Retrofit Options:

- Permeable, loose-fill loft insulation (e.g. sheep's wool) and draughtproofing of loft hatch.
- Replacement of all existing single glazed windows with new vacuum glazed sashes, in a matching multi-pane fenestration style – no change in the appearance of the windows.
- Removal of polystyrene-backed plasterboard at top floor and replacement with a thin layer of aerogel insulation throughout the top floor. To ensure appropriate detailing around window and door surrounds.
- Installation of an ASHP could be accommodated in the rear garden where this would be screened in external views of the listed building.

Listed Building Consent:

- No consent is required for upgrades to loft insulation where there would be no material alterations to the historic roof structure.
- Works for replacement vacuum glazed windows and internal wall insulation would require listed building consent.
- An ASHP would require listed building consent and planning permission – not Permitted Development (PD) in the curtilage of a listed building.

Measures Discounted:

None.

What Next?

The applicant was recommended to apply for listed building consent for works. Further assessment would be required of potential visual impact of installing vacuum glazing in significant building elevations. Further details would need to be submitted of the proposed ASHP and how this would connect up to the existing heating system – any associated internal works to pipework/radiators would need to be detailed in an application.