RISE | Retrofit information, support & expertise

Procuring for Retrofit: Design Responsibilities

Supply Chain Advice Pack

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Overview

With a developed procurement strategy that incorporates effective delivery of a programme of works, and with a clear cost framework, what are the options available for managing the design process and managing change? This advice pack explores this topic using a series of questions and answers.

What needs to be designed?

Before the design commences there needs to be a gathering of property data so that the performance of the existing property can be fully understood. This is typically undertaken through stock condition survey programmes and EPC assessments. Historically, these surveys have focused on the quantity and condition of building elements to assist in informing basic asset management and future planned work. However, with pressures to improve energy performance, manage building defects, and improve the condition of building elements, it is important that surveys are a holistic assessment and not focused on an isolated part of each property.

In addition to the collation of data, and clearly defining the brief, the dwelling assessment under PAS 2035 (the 'Retrofit Assessment') can be progressed. In many projects, the dwelling assessment is the first key milestone. The dwelling assessment covers a significant quantity of information: the property's condition, a reduced data standard assessment procedure (RdSAP) assessment, identification of property constraints, an occupation assessment and an assessment of existing ventilation measures. All of this is very important to understand, particularly when energy efficiency measures are being modelled and designed.

Who undertakes the design?

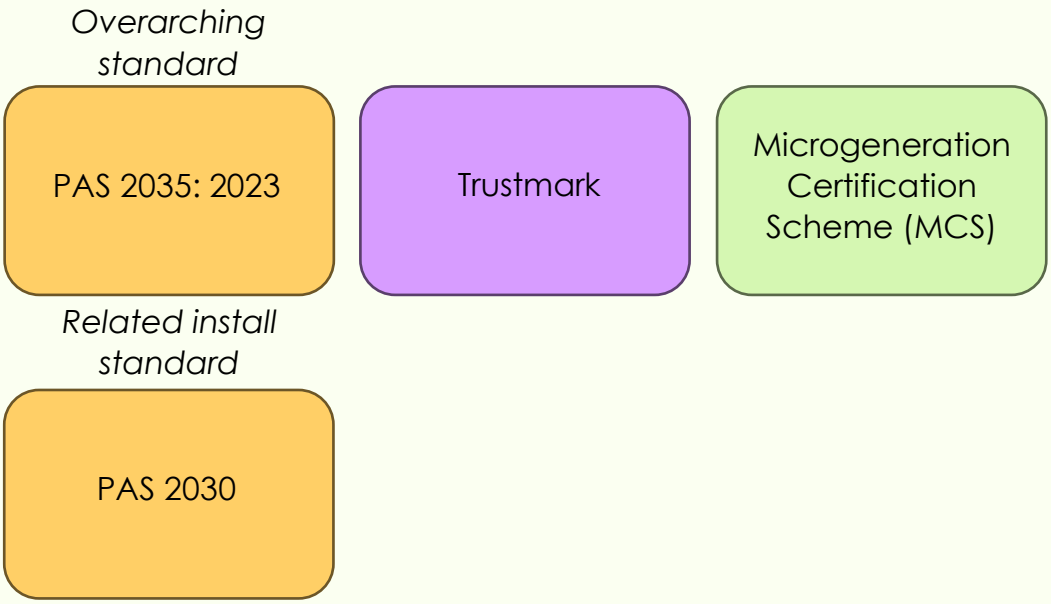
Retrofit design is typically undertaken by qualified professionals like surveyors, or architects, who are often trained as retrofit coordinators or designers.

A retrofit designer is described by RICS, in their 'Residential retrofit standard: RICS Professional Standard UK' (March 2024), as 'The appropriately qualified and competent professional'.

What are the design standards required?

Retrofit design standards are guidelines and specifications that ensure energy efficiency and comfort in existing buildings, focusing on a holistic approach to building performance and resident welfare and well-being.

What are some Warm Homes requirements?



- **PAS 2035: 2023:** A Publicly Available Specification (PAS) focused on whole-house retrofit, outlining best practices for energy efficiency improvements. "All projects must be compliant with "*PAS 2035:2023 Retrofitting dwellings for improved energy efficiency specification and guidance*" (PAS 2035:2023)(Warm Homes Guidance, DESNZ).
- **PAS 2030:** Sets out requirements for energy efficiency measures (EEM) installation, commissioning, and handover. "*PAS 2035 requires energy efficiency measures to be installed by an installer who is certified to PAS 2030 for the relevant measure*" *(Warm Homes Guidance, DESNZ)*.
- **TrustMark:** A scheme that provides assurance of the quality and competence of installers and designers working to PAS 2035 standards. "*All installers are required to be TrustMark registered (or equivalent*[1]*) and compliant with corresponding requirements set out on TrustMark's website. All measures must be lodged on the TrustMark Retrofit Portal" (Warm Homes Guidance, DESNZ)*.
- **Microgeneration Certification Scheme (MCS):** "*PAS 2035 also requires low carbon heat measures to be installed by MCS certified*[1] *installers, with the exception of high heat retention storage heaters that are covered by PAS 2030" (Warm Homes Guidance, DESNZ)*.
- Please see the DESNZ Warm Homes Guidance for any further information on the above.

1) Or able to demonstrate registration with a scheme which has been deemed equivalent by the Secretary of State.

How long should design take?

The time to develop design solutions for a single property will vary depending on the existing property data available, and the extent and scale of the assessment, modelling and measures to be implement.

Typically, for a modest size project of around 30 homes, excluding EWI, and including inspections, surveys, design and modelling design will take three months to produce a RIBA(Royal Institute of British Architects) Stage 4 output. RIBA is the technical design stage, when detailed designs and specifications are produced.

These timescales will be significantly longer if scope is more complex, the scale greater, planning is required together with external wall insulation.

Who appoints the designer?

In most cases the client will outsource the design, rather than undertake the design in-house. Depending on the procurement route being adopted, designers may be commissioned direct by the client, to progress design to a stage suitable for tender purposes.

Alternative approaches will entail the client working in partnership with a project team, possibly from a framework, to collaboratively develop proposals, with the design coming under the control and responsibility of the main contractor.

What skills does a competent designer need?

A competent retrofit designer requires a blend of technical skills, industry knowledge, and practical experience to design and specify energy-efficient improvements to existing buildings, adhering to standards like PAS 2035. The designer should have in place appropriate levels of professional indemnity insurance for the designs that will be produced.

How is flexibility in the design, retained without compromising cost?

An initial design may be performance based rather than a prescriptive detailed specification. The early design work involves the establishment of principles and proposed measures rather than rigid selection of products and components. This approach enables flexibility when the main contractor is appointed to selected key supply chain partners to achieve better value for money.

How is change managed once the contractor is appointed?

There may be the need to introduce a change to the original proposed delivery intent. For example, through stakeholder engagement there may be the need to re-sequence certain properties due to access arrangements or delays may have been experienced whilst seeking statutory approvals from, for example, planning authorities.

Therefore, the ability to manage programmes flexibly, with a degree of agility, knowing what the constraints and priorities are, enables this programme risk to be mitigated.

Change should be inherent in the risk mitigation strategy of the project team. A collaborative approach and pro-actively managed risk register, provides the best opportunity of foresight of potential changes, and the ability to plan and manage this.

How are changes made during the course of the works and what are the consequences of making change?

It is likely that most forms of building contract used to employ main contractors to deliver retrofit works will contain provisions to make change. A robustly implemented change management protocol where change requests are tracked, priced and the implications of the change assessed holistically, will provide the most effective method of implementing change.

The consequences of the change need to be reviewed regarding impact on the regular progress of the works, and the forecasted completion date. Extending the completion date, and/or impacting the regular progress by the contractor, may result in additional costs over and above the cost of the change itself.

An understanding of the implications of a change, before it is formalised, is critical in the ability to manage the outturn cost and programme. Agreeing programme and cost implications in advance of implementation will enable clarity for all parties and enable swift agreement of the final costs.

How can design assumptions be assured as completed works on site?

Regular inspections should be undertaken of the work in progress being undertaken. These records will be in a digital format and will ultimately form the golden thread for the completed property. This oversight of the works, implementing the design proposals, will enable verification of the correct use of materials, products and components, as well as the quality of installation and workmanship.

Post completion monitoring is an integral part of the implementation plan. This monitoring will provide valuable feedback that what has been designed has been effectively implemented, thereby mitigating the risk of there being a performance gap.

Who is responsible for poor design?

Where it is evident that a design solution has not produced the outcome desired, an alternative solution should be progressed that responds to the deficiency in the previous design. It should be established why the design has not worked, and if there were contributory factors associated with incorrect materials, the performance of products or components, or poor workmanship and installation.

Under PAS 2035, there are three levels of monitoring and evaluation: Basic, intermediate and advanced. Basic evaluation is undertaken to every property under a PAS 2035 compliant project. This will typically be in the form of a questionnaire that gathers information from the client and resident. Where problems have arisen or the outcome does not align with the initial intention of the project, intermediate and advanced evaluation will be undertaken. This will be a bespoke and more detailed review of the project carried out to provide recommendations.

Continuous improvement is particularly important when undertaking a new concept. The way in which retrofit has been delivered and scaled over recent years has allowed for smaller projects with fewer properties to be delivered with the intention of creating shared learning. However, new challenges will always be faced as scale increases, along with new lessons that reflect the increased complexity.