

Kirklees Council

Retrofit Pilot Scheme

RIBA Stages of Work 0-7

Duration:

October 2020 – April 2022

Contract Value:

TBC



NATURE OF WORK UNDERTAKEN

Michael Dyson Associates Ltd (MDA) was appointed to design and support delivery of an energy retrofit pilot scheme with the following services included:

- Architect/Lead Designer
- Retrofit Designer
- Retrofit Assessor
- Retrofit Co-ordinator
- Structural Engineering
- Thermographic Surveys

The purpose of this pilot scheme was to develop a new energy retrofit housing standard for Kirklees Council, to allow them to implement across their full portfolio of properties in the future. The pilot scheme consisted of eight properties, currently achieving an EPC rating of E or lower. The initial stages of our appointment consisted of developing the feasibility designs through to planning. Once planning approval was achieved, MDA then developed the designs through to building regulations submission and construction.



PILOT SCHEME SELECTION

Several potential addresses had been earmarked for this retrofit pilot scheme, however, following site visits by MDA, we proposed that Abbey Road would be the most suitable for the following reasons:

- A run of eight dwellings adjacent to one another, allowing meaningful design to a run of properties on the street.
- Eight properties that are south facing, allowing good PV analysis to be carried out.
- The estate is a blank canvas from a design point of view allowing a new design to be implemented which will not conflict with the existing.
- The road is on a bus route so good access maintained and it is a wide road, meaning it is good for construction traffic.
- The whole estate would benefit from regeneration, and if the pilot was successful, a similar design could easily be implemented.



DESIGN STANDARDS

As well as developing our designs in accordance with the latest UK Building Regulations, the Council expressed an interest in adopting principles from Passivhaus design standards.

To achieve Passivhaus standards in a retrofit project, a design standard called EnerPhit was developed. This is based upon applying Passivhaus principles to an existing dwelling via a fabric first approach, ensuring the full envelope of the building is airtight and super insulated, to reduce the demand on the heating and cooling systems from the outset.

DESIGN DEVELOPMENT

In order for us to develop the design proposals for Abbey Road, we first needed to understand the existing properties and the constraints we needed to overcome. Kirklees were very helpful in this regard and provided us with the following information:

- Asbestos Survey Reports (for three properties)
No asbestos containing materials found within the properties.
- Attributes and Repairs Reports (for each property)
General information about the properties, such as age, construction materials, thickness of walls, age of different elements such as boilers etc.
- Cavity Insulation Report (for three properties)
Insulation was missing in large areas of the cavity, and it was recommended that the insulation be removed and replaced with new.

MDA carried out site measures of the existing properties to understand the size of the internal spaces, location of rainwater pipes, above ground drainage runs, location radiators, load bearing walls etc.

MDA also carried out Thermographic surveys to better understand the performance of the existing fabric of the dwellings which highlighted large cold spots within the external walls (in particular to the gable ends), and cold junctions between the external walls and roof.

FINAL PROPOSAL

A number of design options were considered before presenting the agreed design to the residents for their final comment and input. The retrofit measures that were incorporated within the final design proposals included:

- Existing cavity insulation removed and replaced with new blown insulation.
- New External Wall Insulation with render finish.
- Re-roofing works and increase of roof/loft insulation.
- Triple glazed windows.
- New high performance external front and rear doors.
- Introducing Air Source Heat Pumps for all properties.
- Four properties received PV Panels.
- Four properties received solar thermal.
- Feature cladding.

RESIDENT CONSULTATION

MDA provided each resident with a questionnaire designed to allow them to confirm what aspects of the existing properties they felt were most problematic.

During the design stage, we engaged with the residents to allow them to put their own stamp on the design, providing them the opportunity to choose the colour of the feature cladding surround for their house.

CHALLENGES

Due to material shortages and the implications on programme, alternatives were sourced for structural support of the feature canopies and new triple glazed windows. MDA worked closely with the contractor and their procurement team to choose materials that would be in harmony with those already on site, but also control the process of having the materials approved by the planning authority.

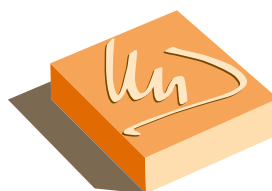
OUTCOME

Feedback from the Council and residents has been extremely positive. Initial results have shown a reduction in carbon emissions by 50%-75%, saving tenants between £190-£350 a year on their energy bills.

The retrofit scheme has been shortlisted in the Best Social Housing Category at the MJ Awards 2022 where the project has been described as:

“A good holistic approach to retrofit based on scalability and skilling up with the collaboration between residents and a ‘Living Lab’ approach to gather data to inform future projects. This approach was innovative, original and at times challenging. A collaboration of experts, officers and the community which has revitalised an estate. It has afforded the opportunity to upskill officers, create green jobs and delivered strategic objectives around carbon reduction and Fuel Poverty.”

Kirklees MBC



Michael Dyson
associates ltd

