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SHDF Wave 1 Case Study

Norwich City Council

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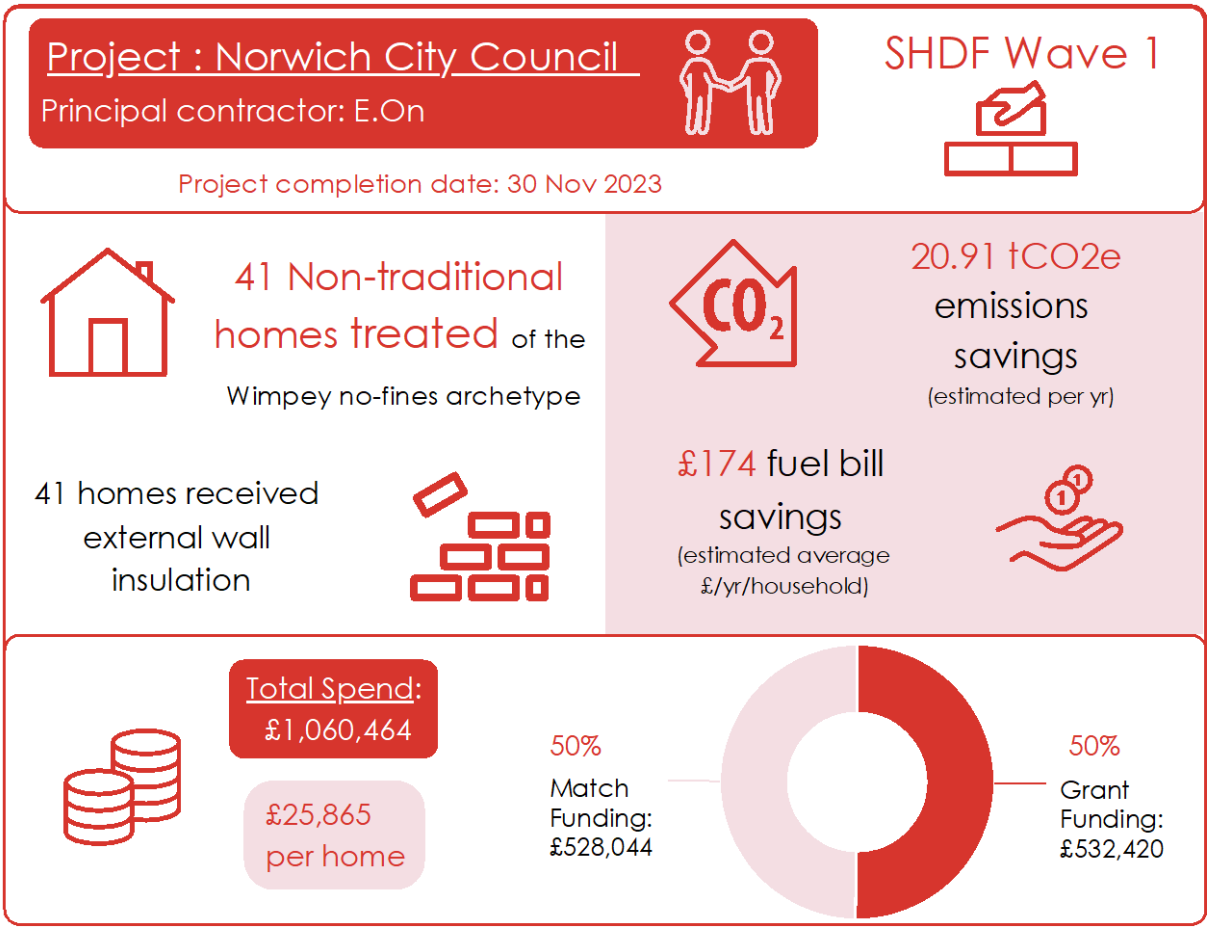
1. Project Summary[1]



Rationale for case study selection

The Norwich City Council project was originally selected as a case study to explore retrofit of mixed tenure housing, although owner occupied homes were subsequently de-scoped from the project. However, all retrofitted homes were Wimpey No-Fines, which are known to be poorly insulated, with residents reporting worse living standards. By installing External Wall Insulation (EWI), the project team raised 36 properties' EPCs from E to C.

This case study is based on interviews with key stakeholders including the project team and the supply chain, and analysis of monitoring data.

[1] Carbon emission and fuel bill figures are taken from the SHDF Wave 1 change control log and are based on the National Household Model. Figures are accurate as of 30th July 2024.

2. Preparatory Phase and Project Management

2.1 Motivations for retrofit

Norwich County Council has a large social housing stock of around 15,000 homes, which they aim to get to EPC C by 2030 and net zero by 2050. The Council decided to retrofit their worst performing and most poorly insulated homes first using funding from SHDF Wave 1.

Figure 1 - Wimpey No-Fines homes[2]

The houses treated as part of their Wave 1 project are post-war Wimpey No-Fines, an archetype intended for mass production of temporary housing. More than 300,000 of these homes have been built in the UK since the 1940s.[2] They are built using concrete with no sand or fine aggregates, but instead use larger ¾ or ½ inch stones or gravel which results in large air pockets in the solid walls.[3] The Building Research Establishment (BRE) has identified a number of problems with this archetype, including excessive heat loss and a higher propensity for condensation and mould.[4] In their Wave 1 application, the Council reported that these were the coldest, dampest homes of their stock.

The Council and their principal contractor (PC) both recognised that residents in these homes were uncomfortable in winter. They wanted to ensure residents were warm and healthy, and to reduce levels of fuel poverty. The PC stated that External Wall Insulation (EWI) was suitable for this archetype given that Wimpey No-Fines do not usually have cavity walls, so external cladding is necessary for effective insulation.[3]

The Council previously used their own Thermal Comfort Budget to insulate their social housing stock, as well as a Solar PV budget. They have also received funding from the Local Authority Delivery (LAD) 1b scheme, but used this money to improve their owner-occupied housing stock. Without SHDF Wave 1 funding, they would not have been able to insulate the non-traditional homes at the same scale, due to high retrofit costs.

2.2 Enabling factors and preparedness for successful project delivery

Overall, the Council reported they felt prepared to undertake Wave 1, in terms of having sufficient resources and existing networks with the supply chain. However, they reported a lack of knowledge regarding how to navigate the PAS 2035 requirements. At the time of interview, they were mid-way through a PAS 2035 retrofit coordinator course and felt the resources on the topic from the SHRA website were helpful.

The Council had an existing relationship with their PC, E.On. Both the Council and the PC reported that the collaboration has worked effectively within the Wave 1 project. The PC reported that regular communication was useful for maintaining a good relationship.

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[2] https://www.homesellingexpert.co.uk/guides/wimpey-no-fines-complete-guide#:~:text=Wimpey%20No%2DFines%20is%20a,the%20post%2DWWII%20housing%20shortage.

[3] https://nonstandardhouse.com/wimpey-no-fines-in-situ-concrete-house/

[4] https://buildingdefectanalysis.co.uk/damp/mould-in-a-wimpey-no-fines-house/

"They were a really nice client to work for. Perfectly aligned, good collaboration between their project lead ... talked regularly ... any queries or anything that crops up. It's important to get on to make things seamless." – Principal contractor Interviewee

2.3 Challenges encountered during project preparation and management

While overall the Council felt prepared to undertake Wave 1, they encountered some challenges with project setup and ongoing project management, including:

- The Council reported experiencing contracting challenges when onboarding the PC, which resulted in delayed planning and delivery. As a result, the project was granted a time extension of 6 months and a grant extension of 3 months. At the time of interview, the Council reported that these issues had been resolved, and that they felt more confident in securing contractors for retrofit projects more efficiently in the future.
- The PC stated that works were expected to start within a month of contract award, but they needed longer to organise project delivery, despite starting delivery before the contract was finalised.
- There were some delays during project set up as a result of the Wave 1 PAS 2035 requirements. The Council reported that this initially slowed things down as they needed to undertake some ventilation surveys in the homes to meet the standards.

Key learnings:

- The Council's legal team feel they have developed a better understanding of how to navigate contracts within large government funded schemes.
- The Council has undertaken training on the PAS 2035 requirements.
- A strong communication schedule enables effective working between partners.

3. Resident Engagement and Interaction

Given the Council planned to deliver retrofit of just one housing archetype, the pool of eligible homes was fairly small. They employed different strategies to engage as many of the residents in that group as possible, via:

- Sending initial letters to the residents to make them aware of the scheme.
- Home visits by representatives from the Council to discuss the project with residents in more detail and address any concerns, before and during project delivery. They also had an on-site office that residents could visit.
- Further guidance and information sent via post, during and after project delivery.

"We've got an on-site office that they can visit and E.On make regular visits. I myself make regular visits to residents. We're talking forty houses, so it's not a huge amount. So if they've got any problems, they can always ring myself. They've had letters, leaflets, guidance on what they might expect from the measure." – SHL Interviewee

3.1 Challenges and barriers encountered during resident engagement

Despite the engagement efforts above, the Council reported that convincing residents to take part in the scheme was one of the biggest challenges in the project. Some of the key barriers included:

- After the Grenfell Tower fire, residents can be apprehensive of retrofit, especially with measures like EWI which somewhat resembles cladding.
- Installation can be disruptive for residents. Scaffolding is erected around people's homes, and supply chain stakeholders also need to enter people's homes to carry out internal work.
- Supply chain stakeholders needed access to neighbours' gardens at times, and sometimes needed to temporarily remove parts of their fences. This caused issues if neighbours were in dispute, or where Wave 1 properties were situated next to owner occupied homes (as these were not included in the project). They reported resolving this efficiently by offering to replace rotten fences when they worked around them.

> "*One of the biggest challenges is convincing the residents to actually have the measure. We've got things like Grenfell. So any sort of insulation you put on the outside of a house, alarm bells start ringing, it's like, oh, is it cladding? As well as that it's quite disruptive, you've got scaffolding going up around people's houses and you've got to do some internal work as well.*" – SHL Interviewee

Key learnings:

- Regular engagement with the residents allows any issues to be resolved quickly.
- Early engagement with all stakeholders, including private residents who may be impacted by the works, helps to make installations more efficient.

3.2 Emerging resident outcomes

Both the Council and the PC expected the most significant benefits for residents to emerge during the following winter. At the time of interview, the Council reported some emerging benefits for residents[5]:

- Properties were more visually appealing after installations, as external walls were rendered and painted alongside the new EWI (Figure 2). This was thought to result in residents having more pride in their homes. However, the Council did consider that this could have had the opposite impact on residents who did not agree to receive the works (though all social homes in scope were offered the EWI), given all the homes were in one estate.
- Both the Council and the PC reported enhanced interest in future energy efficiency works from residents who were involved in the scheme, as well as other residents who saw the positive impact of the scheme on their neighbours' homes.
- The PC reported that resident feedback had been generally very positive, especially regarding the finished appearance of their homes.

[5] However, no residents from this project participated in the survey or interviews carried out as part of the Wave 1 evaluation, therefore these outcomes could not be verified with residents themselves.

Figure 2 – One of Norwich City Council's Wimpey no-fines house with finished EWI (in white), next to another home which did not receive EWI retrofit under Wave 1.

> *"The completed houses present a noticeable improvement in appearance; however, due to challenges with private residences, we haven't achieved a cohesive row of houses. Unfortunately, this has resulted in quite a contrast between a beautifully painted house and the next one, which remains in its original pebble-dash concrete state."* – SHL Interviewee

4. Installation and Supply Chain

4.1 Enabling factors and successes about installations and supply chain management

Both the Council and the PC stated that the quality of the installations was very good. An independent retrofit coordinator also assessed the installations and found them to be of high quality. Several factors were reported to contribute to successful project delivery:

- The homes were all the same archetype and had only one measure installed (i.e. EWI). The PC reported that this resulted in fast learning, as once they had done the first one or two homes the process was refined and improved.
- The homes were all located in the same estate, which enabled efficiencies in visiting the homes for installation, as reported by the PC.
- The PC reported that they had many supply chain contacts, which enabled flexibility if there were any issues with sub-contractors.
- The Council had an on-site manager to oversee delivery and help efficiently solve any problems.

> *"Our model is that we have a well-established supply chain from all the previous rounds we've worked on… lots of partners, strong relationships… it gives you the ability to flex if you do have issues."* – Principal contractor Interviewee

4.2 Challenges and barriers encountered during delivery

Despite overall success, the Council and PC reported encountering challenges throughout delivery. Given the homes were terraced, it made sense to deliver EWI to all homes in the block at the same time, which included some owner-occupied homes. The Council intended to work on these owner-occupied homes under Wave 1, but realised they had initially misunderstood the criteria for including them. Either themselves or the residents would have had to contribute toward the cost, so it was difficult to get these residents on board. This resulted in the team removing the 18 owner-occupied homes from their Wave 1 project. Instead, these homes will have EWI installed via separate Sustainable Warmth funding.

Further challenges included:

- Issues with labour and material shortages, which the Council felt could have been a result of the impact of the Covid-19 pandemic on the supply chain.
- EWI installations require dry weather, especially to install specific parts such as the rendering. Poor weather (too cold or raining) resulted in a two-week delay and extension.
- The costs of installations were higher than expected. Compared to terraced homes, end-terrace homes have a much higher external surface area, which made the installation of EWI about a third more expensive. The team had to carefully manage the homes that were offered measures to create a balance between terraced and end-terrace homes that fitted within the budget. In addition to this, the material and labour costs rose sharply between the application and delivery stages, so the team had to reduce the number of homes treated from 43 to 41.

> *"We had a challenge with cost where if you're in a terraced house the surface area that you're going to put the measure on is a lot smaller than if on an end house. So that really affected how many ends we could do because it was literally another third again, cost wise."* – Principal contractor Interviewee

- During delivery, the team noted that some homes would have benefitted from additional works ahead of the EWI, such as new windows and doors. However, it was not possible to carry out these additional works within the timelines of Wave 1. The Council reported they will consider using a whole house approach when undertaking future retrofit projects to maximise effectiveness of installations.

Key learnings:

- Working on homes located close together enhances installation efficiencies.
- The PC feels better equipped to consider inflation when budgeting for future schemes.
- Difference sources of funding can be combined where eligibility criteria may exclude certain properties or tenure types. This ensures properties of all types are offered the same opportunities for retrofit.
- A whole house approach would have been a more effective and efficient way of working for this project, as other opportunities for improvement in energy efficiency were identified (e.g. new windows and doors).

5. Data sources

Data sources used to produce this case study	
Social housing landlord Interviews	Two interviews (Q 4, 2023) with: • Two Wave 1 representatives from Norwich City Council Wave 1 Delivery Team. • One Wave 1 representative from Norwich City Council Procurement Team.
Supply chain stakeholder interviews	One interview (Q 3-4, 2023) with: • Principal contractor.
Scheme management data returned by project	Monitoring and management information data, as reported by the project team and assessed by the Wave 1 Delivery Partner.

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