technopolis group

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SHDF Wave 1 Thematic Case Study

PAS 2035

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1 Introduction

This case study presents:

- **An overview of PAS 2035, TrustMark, and SHDF Wave 1 requirements** relating to these. [1]
- Findings on key **enablers and barriers experienced when implementing PAS 2035**, including understanding of requirements and availability of skills in the supply chain.
- Findings on the **impacts of PAS 2035 requirements on Wave 1 projects** including in terms of project timescales, budget and the overall quality of installations.

This case study draws on evidence collected in interviews and focus groups with: social housing landlords (SHLs), scheme delivery representatives (from the Department for Energy Security and Net Zero, DESNZ, and from the Delivery Partner), and supply chain stakeholders.

1.1 PAS 2035

All Wave 1 projects are required to be compliant with PAS 2035:2019, the British standard for retrofitting dwellings that details how retrofit projects should be managed and delivered.[2] PAS 2035:

- Outlines a number of roles involved in retrofit, including the Retrofit Assessor and Retrofit Coordinator, and qualifications that retrofit professionals should have to carry out retrofit works.
- Lays out a logical sequence for retrofit projects to follow (Figure 1).
- Follows a fabric first approach, which consists in prioritising the reduction of heat demand through improving the building fabric before introducing new energy systems.

[1] The Wave 1 competition guidance stated that: "*All installers are required to be TrustMark registered or equivalent, and compliant with TrustMark requirements. All projects must be compliant with "PAS 2035:2019 Retrofitting dwellings for improved energy efficiency.*"

[2] Note that PAS 2035:2019 was superseded in September 2023 by PAS 2035:2023, but Wave 1 was aligned with the requirements of PAS 2035:2019.

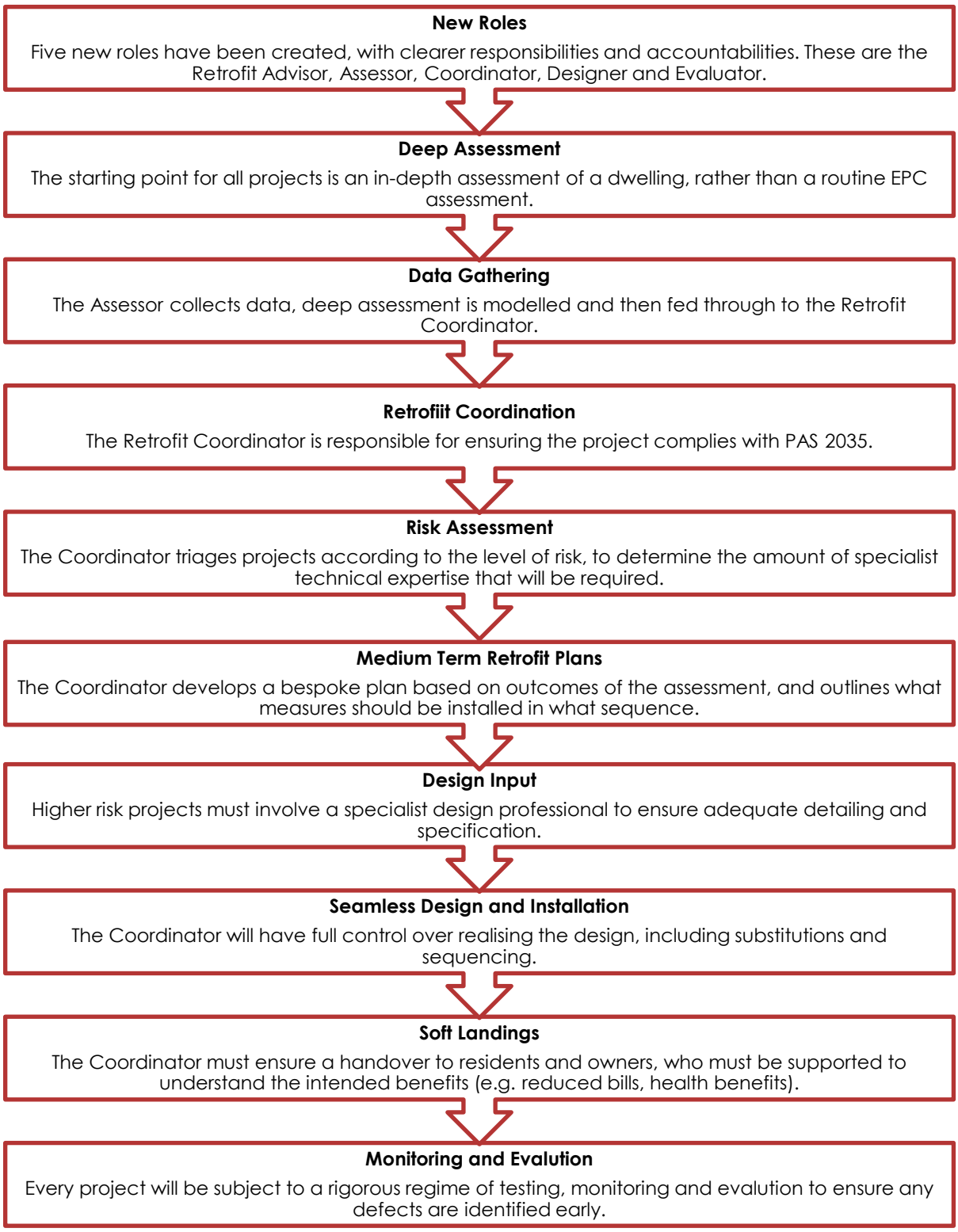

Figure 1: Key requirements and processes in PAS 2035. This figure was adapted from the Retrofit Academy's guidance on PAS 2035. Available at: https://retrofitacademy.org/wp-content/uploads/2024/02/PAS2035-Explained.pdf

1.2 TrustMark

TrustMark certifies registered businesses who conduct their activities in line with the principles of PAS 2035. This provides clarity to grant recipients (GRs) on which businesses conduct their work in line with the requirements of PAS 2035. Projects are required to lodge all measures installed in Wave 1 with TrustMark. TrustMark also supply monthly data on project lodgements to DESNZ, to confirm the properties and measures installed by Local Authorities are compliant.

2 Enablers and Barriers in Implementing PAS 2035

2.1 Understanding of PAS 2035 requirements and processes

SHLs highlighted the following as **enabling factors** for understanding PAS 2035 requirements:

- **Prior retrofit experience and existing knowledge of PAS 2035** were mentioned by multiple SHLs in interviews, given implementing PAS 2035 standards is a complex process with several requirements. Thanks to their prior experience and knowledge with PAS 2035, one SHL mentioned progressing through the installation process quickly and without major issues.
- **Pre-existing relationships with contractors who have a track record with PAS 2035** was also mentioned by one SHL interviewee, as this allowed them to identify emerging issues and take appropriate action as soon as possible.
- **The support provided by the Social Housing Retrofit Accelerator (SHRA)**. One SHL mentioned that the eight-week bootcamp and the separate individual sessions provided by the SHRA were particularly useful for understanding PAS 2035 requirements. However, another SHL noted that onsite support would have been useful to help residents understand the requirements of PAS 2035, for example the number of visits required to their properties.

During interviews, several SHLs reported **barriers** they experienced in relation to understanding the requirements for PAS 2035. Scheme delivery representatives also reported that it was challenging for SHLs to understand PAS 2035, particularly for those that were not familiar with it. Challenges included:

- **Knowing exactly when the retrofit process should move between various actors, for example from retrofit assessor, to coordinator, to designer.** One SHL added that more in-depth training to help them understand the process would have been useful.
- **Knowing whether carrying out PAS 2035 pre-retrofit assessments for a sample number of properties was sufficient**. For example, when they were installing measures in a block of flats, it was unclear whether the process had to be followed for each individual property. It often took SHLs a while to determine what they were required to do, potentially causing delay.
- **Uncertainty about specific requirements,** for example insulation below the damp proof course, causing delays and uncertainty over the final cost of installations.
- **A lack of technical expertise among certain Monitoring and Delivery Officers (MDOs) from the Delivery Partner (DP).** Although several MDOs were described as excellent by scheme delivery representatives, one scheme delivery representative reported that the DP had insufficient understanding of resident engagement and PAS 2035. This meant the MDOs had to refer to DESNZ to answer questions. This was perceived by SHLs as an additional layer

of bureaucracy, as they had to communicate through the DP instead of approaching DESNZ directly, often leading to delays.

- **A lack of understanding of PAS 2035 before selecting properties for retrofit.** Supply chain stakeholders reported that SHLs selected properties for retrofit works without the necessary PAS 2035 expertise. This meant that plans had to be revisited once installations started and additional works were required, such as ventilation, leading to subsequent rescoping and rebudgeting.

Resident Engagement

In many cases, links were noted between the requirements of PAS 2035 and the need for additional resident engagement. In interviews, one SHL noted that additional resident engagement was the largest burden they experienced as a result of PAS 2035. It was particularly challenging to explain to residents the number of visits required to their homes to comply with the standard. SHLs would have liked to receive more support on this.

"Even if we'd done the measure already, we had some cases where tenants then refused access. So we'd be really struggling to get the property lodged because the tenants did not understand why we still needed to come in. They hadn't been engaged properly. So yeah, it's challenging for us at the end of the project to get those last bits wrapped up." - Successful SHL interviewee

As a result of residents refusing access, projects experienced additional delays, particularly toward the end of projects.

"Another PAS 2035 specification was around … putting in appropriate mechanical ventilations. This required liaising with tenants and they perceive it as taking more energy and costing money for them in the long run." – Successful SHL interviewee

2.2 Availability and skills of supply chain

Enablers to accessing the relevant skills in the supply chain for delivering retrofit in line with PAS 2035 requirements included:

- Some **supply chain stakeholders decided to upskill and gain new qualifications** to work on Wave 1 projects. One SHL described the process of getting their preferred contractor to achieve PAS 2035 standards as "a journey", suggesting that this was a difficult process for them to go through.
- One **SHL reported that they upskilled internally** and increased the number of their employees that have PAS 2035 retrofit qualifications.
- **Support from DESNZ and the DP to identify qualified supply chain stakeholders**. A scheme delivery representative noted that in some instances DESNZ and the DP helped projects find PAS 2035 certified retrofit coordinators.
- **Using one contractor for all or most installations.** One SHL reported that this avoided conflict between contractors and retrofit coordinators and helped them have greater control over the process. Another SHL said that having a large contract tendered with one contractor meant that most of their installations had an agreed schedule of rates. This helped them with their long-term planning.

However, some SHLs struggled to find qualified contractors to deliver their projects which led to delays or increased costs. This was also reinforced by scheme delivery representatives:

> *"[PAS 2035] has been a barrier to an extent. Most of the feedback from the local authorities has been that it's made it harder for them to find appropriate contractors. It's made it longer because we've had to find someone who's appropriate."* – Scheme delivery representative interviewee

Barriers raised in relation to supply chain skills included:

- A scheme delivery representative reported that **only 5% of the supply chain for windows and doors are PAS 2035 certified**. This caused delays, and where a certified contractor for windows could not be secured, alternative measures to windows had to be installed for the property to reach EPC C.
- **The degree to which SHLs were able to rely on in-house contractors**. One SHL went through the accreditation process to certify an in-house contractor, but this created delays and added costs. Another SHL reported thinking they could have at least halved costs per property if they used in-house staff, who were not PAS 2035 qualified retrofit coordinators. They attributed this cost difference to the short supply of external PAS 2035 qualified retrofit coordinators.

> *"I think we pay an average of £1000 per property for loft insulation, [of which] we could claim two thirds back, but you could probably do it £300 for your own internal staff. So, although we did go through the PAS process, there were certainly some concerns there from my side that we could do it cheaper ourselves without going through that process."* – Successful SHL interviewee

- **Competition for particular roles, including retrofit coordinators and designers**. One SHL perceived that their retrofit designer was dealing with many other clients, and they would have been further along with their project if there had been less demand on their retrofit designer's time. One SHL reported that this competition escalated the costs of their project. Another SHL raised the issues they faced when trying to procure a qualified retrofit coordinator:

> *"The challenge was obtaining a retrofit coordinator when a lot of other Local Authorities wanted a retrofit coordinator, but there were not many in the UK. So there was a shortage of availability there, especially since we would not have one in house […]. So that was a challenge, then also the PAS 2035 compliance to make sure our contractor had those and were able to meet those guidelines."* – Successful SHL interviewee

- **High existing workloads without PAS 2035 requirements for some contractors** meant that in many cases they did not want to upskill to deliver to PAS 2035, and therefore chose not to get involved in SHDF.

- **Difficulties for smaller businesses.** A SHL noted that the process of getting PAS 2035 qualified was particularly difficult for smaller businesses:

> *"When contractors are looking to get their accreditations, it's incredibly hard for them to do that as well as run a business. It almost pushes out a lot of the smaller sub-contractors and only the larger ones with the office staff in the background […] can really undertake the work."* – Successful SHL interviewee

- One SHL reported that they thought **their contractor did not fully understand PAS 2035 requirements prior to starting Wave 1 work**. This meant that they had issues getting all the necessary evidence and documentation together, which the SHL attributed to the contractor 'learning as they went along'.

2.3 Additional administrative burden

Many supply chain stakeholders reported an increased administrative burden resulting from PAS 2035 requirements, which led to delays and increased project costs. One supply chain stakeholder said they had to complete 18 documents per property, which was difficult to do for the number of properties they were working on. One SHL reported that this was particularly difficult for consortia as they had to duplicate paperwork and sign offs many times. Another SHL added that lodgement with TrustMark was a particular administrative burden for them. The quote below also highlights the barrier faced by small businesses without specific administrator roles, as reported in the previous section:

> *"The PAS requirements only became challenging when it came to the paperwork. The paperwork side is very admin heavy. We had to employ a full-time administrator just to control paperwork."* – Supply chain interviewee

Possible impact of PAS 2035 on project drop out from Wave 1

One scheme delivery representative noted that project drop out was mostly attributed to costs around PAS 2035. They reported that despite some projects committing to deliver under PAS 2035, they ultimately failed to find the right people within the required timescales. One scheme delivery representative acknowledged the burden that PAS 2035 put on projects, but also believed that PAS 2035 was potentially used as a scapegoat for projects that were underperforming.

Key learnings:

- **SHLs with pre-existing retrofit and PAS 2035 experience,** or with pre-existing relationships with experienced contractors, had an advantage in Wave 1.
- **Explaining PAS 2035 requirements to residents is particularly challenging,** as the PAS 2035 process requires access to each property on multiple occasions.
- There were **insufficient qualified installers** to undertake the installations. This increased costs and caused delays as qualified contractors were in high demand, and therefore had an impact on the delivery of Wave 1.
- **There should be further opportunities to develop the supply chain,** for example in supporting smaller businesses to upskill, or encouraging contractors who have existing (non-PAS 2035) workloads who have little incentive to upskill.

3 Quality of Installations Following Implementation of PAS 2035

Despite evidence suggesting that PAS 2035 increased costs and caused some delays to projects, most SHLs agreed with the principles of the standard and believed that it improved the retrofit process. One SHL noted that they are now adopting PAS 2035 for other retrofit projects.

> *In respect to PAS 2035, I'm a real supporter of it. I've undertaken my retrofit coordination assessment, so I'm now qualified. I think it's a really good thing for the industry, especially when it brings contractors on board because there's obviously a varying degree of skill competence and that whole interaction of measures for many, many years has failed, hasn't it? And so […] we're all sort of picking up the pieces of that when you take over a housing stock. So, I think it's really good and I do think it's improving quality in the sector.*" – Successful SHL interviewee

Supply chain stakeholders were more divided in their opinion on PAS 2035. Some reported that they were already working to a high standard and so PAS 2035 did not affect the quality of their work. Instead, they saw PAS 2035 as a financial and administrative barrier. However, other supply chain stakeholders agreed PAS 2035 helped increase the quality of installations across the sector and was likely to prevent bad practice amongst competitors.

Additional impacts of PAS 2035 on installation quality included:

- **Improving the coherence of measures and placing greater focus on the interactions between different measures.** One SHL reported this is contributing to improve the quality of installations across the sector as a whole**.** One supply chain stakeholder reported that often installers focus on their individual work without considering the bigger picture.

> *"When PAS2025 came out I wasn't really afraid because I always thought that we were following the right systems and processes. […] It's better for the industry, it's better for the end user, it's better for the clients, it's just better for everyone.*" – Supply chain stakeholder interviewee

- One SHL reflected that PAS 2035 helps **future-proof their properties and reduce future risk to their portfolio**, outweighing the time and complexity PAS requirements add to retrofit works. They felt that PAS 2035 helps to prevent unintended consequences from installations

that could damage properties, for example by asking to meet ventilation requirements after installing insulation measures to prevent damp problems in the future.

- Some SHLs reported that using PAS 2035 **formalised their retrofit process and offered a logical framework to follow when carrying out retrofit installations**, despite it increasing costs.

Key learnings:

- Nearly all SHLs agreed that **PAS 2035 improved the quality of installations despite the challenges** they faced. However, some SHLs and supply chain stakeholders thought PAS 2035 requirements did not add much value to their work as they were used to carrying out installations to a high standard.

4 Data sources

Data sources used to produce this case study	
Social housing landlord focus group and interviews	1 focus group (Q 2, 2023) • 5 Wave 1 representatives from 3 projects Qualitative interviews with participating SHLs (Q 2 & 3 2023) • 15 Wave 1 representatives • 14 Wave 1 representatives (from 6 projects selected to be case studies)
DESNZ Integrated Delivery Team (IDT) focus group and interviews	1 focus group with DESNZ IDT representatives (Q 3 2023) 4 interviews with DESNZ Senior Officials (Q 3 2023)
Delivery Partner focus group	2 focus groups with Delivery Partner representatives (Q 2 & 3 2023)
Supply chain stakeholder interviews	38 interviews with supply chain stakeholders including installers, installation managers, senior managers at principal contractors and retrofit coordinators. Questions covered: E5. Compared to a typical retrofit installation you might oversee, what differences if any, were there in this project? F5. How did the PAS 2035 and TrustMark quality requirements impact the quality of the work?
Project closure reports	Reports for case study projects (only one available), focusing on the following questions: 3.7: How did your project plan for PAS 2035 associated costs? And please provide details on if there were any impacts on the project as a result of these additional costs or requirements to ensure the project was PAS 2035 compliant. 4.1 Please provide details of lessons learnt throughout the SHDF Wave 1 process (including reflections on previous learnings shared with DESNZ), addressing each of the following points: PAS 2035 and TrustMark, including ensuring works adhered to PAS 2035 standards and any additional or unforeseen costs associated.