

Heating system procurement

Hints & tips for homebuilders – advice for procuring heat pumps for new-build low density homes

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Introduction

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Feedback from homebuilders who have moved early to deploy heat pumps has identified well planned procurement as a major contributor to delivering great outcomes, both commercially and for customers.

Conventional gas boiler systems are inherently more tolerant. Should there be instances of poor installation, weak commissioning or underperforming building fabric, a gas boiler's higher flow temperature may make these shortcomings less obvious to householders. They would, however, still pay more to heat their homes, whether they realise it or not.

By contrast, heat pump schemes operate with lower flow temperatures and tighter design margins. As a result, where there are higher-than-expected heat loads or an underperforming heating system this becomes more immediately

apparent to the householder – typically through cold homes or noticeably increased running costs. This is not because of a decline in construction quality; rather, it reflects that any issues, should they occur, are no longer concealed.

In short, low-temperature heating from lower-capacity heat sources demands well-coordinated heating and fabric design, backed up by accurate installation, construction and commissioning.

This guide draws on real procurement lessons learned and is developed to address the root causes of commonly observed failures. Evolving the procurement process is a critical step in ensuring the successful delivery of heat pump schemes at scale – not only delighting customers with warm, low-energy-cost homes, but also minimising build costs, rework, and warranty claims.

Hints & tips: quick procurement pointers for heat pumps

If you just read one thing...

- Do not treat heat pump schemes in the same way as those with gas boilers.
- Procure a single, 'responsible heating designer' to own the design through to handover.
- Establish a technically sound, coordinated design early on in partnership with the procurement team.
- Do not allow deviation from the agreed design without authorisation from the responsible heating designer.
- Invest in developing close supply chain and manufacturer relationships.
- Require that installers demonstrate robust plans for cross-skilling their workforce in the run up to the Future Homes Standard and support this process.
- Confirm with manufacturers that the heat pump, cylinder, emitters and controls integrate fully as designed.
- Do not accept equipment / component substitutions without responsible heating designer approval.
- Do not ignore the risks of installer cashflow constraints.
- Only use competent, properly supervised heating engineers.
- Only use competent, experienced commissioning engineers trained on the products to be commissioned.
- Ensure complete handover information is produced.

1 Heat pump systems are different to gas boilers

'Shoehorning' heat pumps into schemes designed for gas boilers must be avoided. Successful delivery of homes with heat pumps requires an adapted approach to design, procurement, build and handover. The Hub has created a suite of guidance to assist.

DO:

- ✓ establish a multidisciplinary design team early in the project.
- ✓ ensure heating design is fully coordinated with architecture, fabric and energy modelling.

DON'T:

- ✗ develop the heating design in isolation from the wider building design.
- ✗ rely on late-stage coordination to resolve system integration issues.

2 Invest in supply chain relationships

Most successful delivery models adopt a single lead manufacturer on a site. This approach limits variables across house types, simplifies training and commissioning, and delivers a more consistent customer experience. Invested relationships make resolving problems much more straightforward should things go wrong.

DO:

- ✓ limit the number of heat pump manufacturers used.
- ✓ develop strong relationships with the selected manufacturers and installers.

DON'T:

- ✗ mix multiple manufacturers of the same equipment across a development if at all possible.
- ✗ be afraid of leaning on relationships to resolve issues where they occur.

3 Use a single heating designer

Use a single responsible heating designer to undertake, develop, and finalise the project heating design, and take ownership of it through to handover. The responsible designer must be engaged early in the design, driving coordination and making sure any proposed changes or equipment substitutions are approved.

The responsible heating designer must be competent and experienced with the heating system types proposed. The role may be carried out by a design consultant, heating system installer or heat pump manufacturer. They should also make sure that any site and customer feedback is built into future design updates.

DO:

- ✓ appoint a single, competent, 'responsible heating designer' for the project, to take ownership from early design through to handover.
- ✓ require all design and installation changes to be formally approved by the responsible heating designer.

DON'T:

- ✗ develop the heating design in isolation from the wider building design.
- ✗ rely on late-stage coordination to resolve system integration issues.

4 Set up a collaborative design team

A collaborative design team should be established early in the project to make sure the heating, plumbing, controls and building fabric designs work together as a complete system to satisfy performance, warranty provider and building control requirements. The responsible heating designer must ensure full coordination with the architect, energy assessor and other relevant designers. Early input from manufacturers is recommended to inform accurate design calculations.

DO:

- ✓ establish a multidisciplinary design team early in the project.
- ✓ ensure heating design is fully coordinated with architecture, fabric and energy modelling.

DON'T:

- ✗ develop the heating design in isolation from the wider building design.
- ✗ rely on late-stage coordination to resolve system integration issues.

5 Design and cost concurrently

Commercial and design teams should work together throughout the design process, rather than sequentially; designing, costing and iterating to ensure both technical performance and commercial requirements are met. Chosen manufacturers must confirm that their components are compatible with all other equipment and controls specified within the final design.

DO:

- ✓ develop and cost designs iteratively in parallel, not sequentially.
- ✓ engage chosen manufacturers to confirm component compatibility during design.

DON'T:

- ✗ finalise technical designs without commercial validation.
- ✗ value-engineer system components after design freeze.

6 Procure qualified, competent installers

Installer competence should be confirmed as part of the procurement process. This should include both the installer's relevant accreditation and evidence of individuals' competence covering the skills necessary for proficiently installing the system as designed.

While it may be impractical for all heating engineers to be fully heat pump trained, individuals must be qualified and competent for their allocated tasks and for working with the systems or components they are installing.

Where apprentices or inexperienced heating engineers are used then the installer must ensure appropriate supervision by a competent individual who also takes accountability for the quality of the work. Those performing heat pump install tasks should be heat pump manufacturer trained. Also see 'Determining heating system designer and installer competence' and 'Installer procurement checklist' below.

DO:

- ✓ require installers to demonstrate their accreditations and the competency of individual heating engineers to install heat pump systems.
- ✓ require installers to demonstrate adequate supervision of less experienced personnel.
- ✓ ensure installers have a thorough ongoing internal training programme in place.

DON'T:

- ✗ rely solely on company-level accreditation to demonstrate competence.
- ✗ assume that all heating and plumbing engineers have the required qualifications and experience to install heat pumps successfully.

Determining heating system designer and installer competence

When adopting a new technology, particularly when planning for rapid scale-up, confidence in workforce competence is critical. The challenge for homebuilders is knowing how to judge whether an installer is truly capable.

Industry competence schemes are a logical starting point. The Microgeneration Certification Scheme (MCS) sets standards for heat pump design and installation and certifies companies undertaking this work. Although Building Regulations do not mandate MCS certification, most warranty providers recognise MCS certification as a suitable means of demonstrating competence.

Under the redeveloped MCS Installer Scheme, the installer's Technical Supervisor will be required to carry out a risk assessment to determine the minimum level of oversight needed for the heating system installer team. This is a step in the right direction and will come into force as the redeveloped Scheme is rolled out throughout 2026 and into 2027.

As the MCS Installer Scheme does not assess the competency of individual engineers within install and design companies, it is important that homebuilders also assess and understand an installer's track record and the competency of the heating designer and heating engineers carrying out the work.

During procurement, homebuilders should obtain evidence of the level of experience of the individual engineers being used and require method statements describing the installers' escalating approach to supervision, dependent on installation team experience.

Where heat pump design and installation experience is still developing, many manufacturers provide technical support and site oversight. Even when a good track record is demonstrated, manufacturer visits, to each development, should occur at regular intervals to verify that installation and commissioning standards are being maintained. Clear commitments should be secured from the manufacturer defining the scope and frequency of their oversight. Where the manufacturer is involved in heating system design, they should also provide appropriate design indemnities.

7 Avoid substitution

Availability, cashflow constraints and cost savings often drive product or component substitution. Even apparently trivial heating system substitutions break the coordinated design, risking underperformance, householder complaints, claims and rework.

In addition to controlling substitution through contract wording, some of the motivations to substitute components need to be tackled. For example, installer cashflow constraints can drive substitution to achieve better credit terms.

Where substitution is unavoidable, approval by the responsible heating designer is essential. Any agreed changes to components or system design must be recorded in the As-Built information.

DO:

- ✓ require all substitutions to be agreed by the responsible heating designer.
- ✓ require confirmation that installed equipment matches the approved specification.
- ✓ consider contractor payment terms to reflect the higher equipment purchase costs.

DON'T:

- ✗ accept so called "equal" components or availability-driven substitutions without agreement by the responsible heating designer.
- ✗ ignore the risks of installer cashflow constraints as these can create incentives for substitution.

8 Require experienced commissioning engineers

Commissioning is a critical step in the successful delivery of heat pumps. If not carried out diligently, the risk of issues in operation, leading to costly return visits and customer dissatisfaction, increase markedly.

Commissioning must be carried out by competent, experienced and manufacturer-trained individuals or be supervised in person by someone who is, until that experience is gained.

The commissioning engineer must be named on the commissioning sheet. They must: explicitly take overall responsibility for confirming that the installation is as per the design, that the system has been correctly commissioned and for leaving the controls ready for a householder to move in.

It is good practice to require the heat pump manufacturer to attend site visits to verify install and commissioning standards during plot commissioning at the start of a phase and regularly throughout.

DO:

- ✓ ensure commissioning is only undertaken by competent and experienced individuals with relevant qualifications and trained on the product to be commissioned.
- ✓ ensure that the responsible designer witnesses an appropriate proportion of commissioning sessions, especially at the beginning of each phase of build and new heating design.
- ✓ require the manufacturer to continue site visits on a regular basis to verify the ongoing installation and commissioning standards.
- ✓ require the commissioning engineer to sign the commissioning sheet.

DON'T:

- ✗ rely on company-level accreditation to demonstrate individual commissioning engineer competence.
- ✗ skip the steps laid out in the commissioning checklists.

9 Ensure installers have transition plans for the shift from gas to heat pumps

Forming relationships with a roster of trusted heat pump system installers, and actively requiring and supporting their cross-skilling from gas heating systems, is essential. Alternatively, engage a specialist heat pump contractor.

This is needed in advance of the mass-scale switch over to heat pumps due to the introduction of the Future Homes Standard and the even larger deployment into existing homes via grant schemes.

DO:

- ✓ require that installers demonstrate robust plans for cross-skilling their workforce in the run up to the Future Homes Standard as part of the procurement process.
- ✓ facilitate this cross-skilling and monitor progress as one of the installer's contractual KPIs.

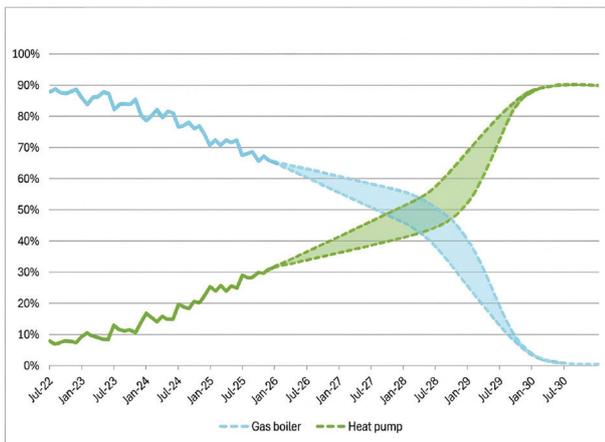
DON'T:

- ✗ assume the supply chain will automatically cross-skill their staff.

Transitioning the industry from gas to low carbon heating

During 2025, 27% of new houses had heat pumps installed. Whilst heat pumps are not the only low carbon heating technology, it is expected that the number of installations will continue to rise slowly through to the end of the Future Homes Standard transition period and then rise quite rapidly over a 12-to-18-month period. Gas boiler installations will reflect a corresponding reduction.

Gas boiler and heat pump historic trend and future projection – new houses



During the transition from gas to heat pumps, industry capacity is unlikely to be sufficient to both accelerate installation rates and re-train gas heating engineers at the same time. Heat pump installations typically take longer than boiler installations, meaning the shift requires not just different skills, but a larger workforce overall.



For this reason, cross-skilling and obtaining extensive practical experience must happen ahead of the main ramp-up. If this transition is not managed at an industry level, the risks include delayed home completions, quality issues caused by insufficiently experienced heating engineers working without adequate supervision, and increased costs.

To reduce these risks, homebuilders will need to take a proactive approach – forming partnerships with their group of trusted heat pump installers, supporting their transition from gas systems, and helping them build experience.

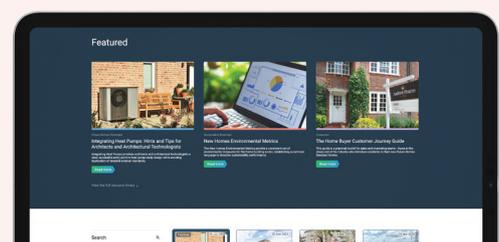
With over a quarter of new homes already using heat pumps and approximately two years before the expected rapid scale-up, there is time to deliver the necessary skills transition – provided appropriate actions are taken now.

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Or visit: <https://knowledge.futurehomes.org.uk/>



Installer procurement checklist

Design conformity – the installer must commit contractually to:



- Installing the approved design, with no substitutions unless formally approved through a defined change control process and authorised by the responsible heating designer.
- Escalate design conflicts rather than attempt to resolve through site-level workarounds.

Commissioning and quality assurance – the contract should require:



- A robust commissioning process, including complete pre-and post-commissioning checks, system performance test, completion of the commissioning checklist and required manufacturer's registration information.
- That commissioning is carried out by competent and experienced individuals who have personally attended manufacturer training, hold heat pump qualifications and are able to evidence low temperature heating principles and system integration skills.
- That the commissioning engineer be named on commissioning sheets (as well as the Technical Supervisor if installed under MCS).
- That the installer provide complete, accurate as-built documentation and make clear that any deviation from the heating design and specification not explicitly agreed by the responsible heating designer would be a breach of contract.

Training and competency – the installer must demonstrate that:



- Individual heating engineers are competent and have completed manufacturer-specific training for the systems they are installing.
- Core plumbing competency, low temperature heating principles and system integration skills are evidenced
- Less experienced individuals will be properly supervised. Where individuals are undertaking site-based training a competent heating engineer must take responsibility for the quality of the work.
- They have a plan for scaling-up their heat pump installation workforce consistent with the homebuilders heating system transition plans.
- Cross-skilling progress has been made, and how they plan to maintain competency over time as systems, controls and standards evolve.

Aftercare and defects liability – the contract should:



- Clearly define defects liability responsibilities, response times and escalation routes.
- Mandate that installers should work alongside customer care teams to support queries from occupants and resolve defects where required.
- Request the inclusion of a householder maintenance service offer within the installer's tender return.

Cashflow – as part of the due diligence process, procurement team should:



- Check that installers can demonstrate adequate cashflow to purchase equipment to suit the build programme, and consider changing payment terms to assist.
- In the case of an installer requiring credit lines to be set up with the selected manufacturers or merchants, test the credit rating of the installer before appointment.

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