





# DO WE HAVE THERMAL CAPACITY?



Decarbonising the nation's homes requires an immense and multifaceted retrofit effort – but is the construction sector sufficiently skilled to deliver it? **Keith Cooper** investigates

**T**urning tens of millions of homes green is a huge task for construction, and its workforce will play a pivotal role. But it's a job that requires a small army of new recruits. About half a million more builders, tradespeople, administrative staff and some entirely new construction roles are needed by 2035 if the government's ambition of decarbonising residential stock to EPC band C is to be achieved.

So says the *Cheaper Bills, Warmer Homes* report released last September by a coalition of thinktanks and academic bodies. Based on a study of recent actual retrofit projects, it's a more credible assessment than many, however otherworldly its estimations might feel to a sector already in the grip of a chronic recruitment crisis.

So how far has construction come in gaining the requisite skills for decarbonising UK homes, four years on from 2019, when Parliament officially declared a "climate emergency"? Is the challenge as enormous as it appears? What's being done to hit recruitment and decarbonisation targets?

It's no secret that construction has a very long way to skill up for decarbonisation. Last year, progress towards retrofit skills targets was condemned as "pitiful" by the Federation of Master Builders (FMB), after a Construction Leadership Council report found that the industry has less than 2 per cent of the workforce it needs.



### Massive issue

Local authorities have made even starker assessments after examining their own job markets. The West of England Combined Authority, which covers Bristol, South Gloucestershire, Bath and north Somerset, found in 2021 that it would need a 48-fold increase in solid wall insulation jobs to hit a 2030 net-zero target. The combined authority's Retrofit Skills Market Analysis described its challenge as "vast" and requiring a "radical overhaul" of its retrofit market.

Many in the industry agree. Willmott Dixon head of decarbonisation Kelly Crews says the skills shortage is a "massive issue" for contractors. "There's this big transition driven by the green agenda but what's not coming alongside it at the same pace is the development of the skills," she says. "If we haven't got that skillset readily available, we're not going to be able to do this at scale."

To complicate matters, the skillsets, funding and market forces are different for each type of tenure. *Building on Our Strengths*, a 2021 report produced by the FMB and the Centre for Research into Energy Demand Solutions, stated that 64 per cent of the 29 million homes in need of upgrades were in the owner-occupied market, largely served by small and micro building businesses – the so-called 'white-van man'. It's the 17 per cent in the social sector, served by major contractors, that have the most ready access to finance, and so under the greatest immediate pressure to source skilled workers. Privately rented homes account for the other 19 per cent of stock in need of retrofit.

Some £3.8bn was pledged to green social housing in the 2019 Conservative Party's election manifesto. After the party won an 80-seat majority, this took the form of the Social Housing Decarbonisation Fund (SHDF). An initial tranche of £61m was released to 18 demonstration projects in 2020. A second wave of funding made £778m available to council and housing association landlords from April this year, but the government expects them to stump up £1.1bn of match funding and complete all their projects by 30 September 2025.

In his 2022 Autumn Statement, chancellor Jeremy Hunt pledged a further £6bn from 2025 to 2028 for energy-efficiency improvements in households, businesses and the public sector, in addition to the £6.6bn provided in the current parliament. However, no further details have since been announced about what the funding is for and how it will be split between sectors.



An energy-efficiency taskforce, which is charged with overseeing the spend, focuses on four main areas: private-owned residential buildings; social housing and public buildings; commercial buildings; and industrial processes.

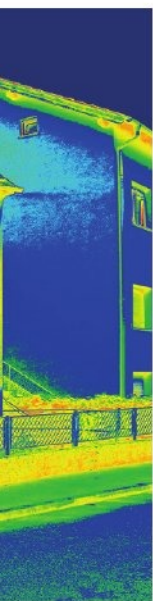
The SHDF's September 2025 deadline will be tough to meet, given the state of the industry's skills capacity, raising questions over how much of the funding that has already been allotted will be spent. Vinci Facilities bid director Tyron Stalberg believes that less than half of the SHDF in previous rounds was "spent on time or effectively". Such government-funded projects are being hampered, he adds, by "massive shortages" in two main areas of industry workforce.

The first is in the supply of retrofit designers to ensure projects meet the PAS 2035 quality standard (see box, right). "Without retrofit design you can't programme, cost and deliver the work, so there's a massive blockage here in the market at the front end," says Stalberg.

The demands of the PAS 2035 procurement process highlight another skills gap, he adds. While social landlords are good at securing funding, some are unaccustomed to the two-stage contracting required for retrofits. Under such contracts, the full cost of projects can take months to work out. "There is an immaturity in the market and a need to upskill the sector," says Stalberg.

Crews, a former local authority employee, says council staff skilled in decarbonisation were among "the first to go" in the austerity years. "Now





there's this massive boom and they're trying to bring those skills back," she adds.

There is also a shortage in the supply of workers with the PAS 2030 accreditation required for working on retrofit projects. "The accreditation process itself is quite onerous and bureaucratic and not enough supply chain partners have made this transition," Stalberg says. "Vinci, and other main contractors, are taking practical steps to help our supply chains to achieve the PAS 2030 standard." These steps include promoting the importance of PAS 2030 through regular communication with Vinci's supply chain.

David Pierpoint, chief executive of the Retrofit Academy, agrees there is a "big gap" in the supply of blue-collar workers for retrofit. "We've just created a market for tens of thousands of wall insulation projects without developing a supply chain of people to deliver it," he says.

The *Cheaper Bills, Warmer Homes* report says that more than 250,000 new construction-related roles are required for retrofit by 2035 and more than 230,000 of the existing workforce needs to be retrained. A further 230,000 jobs will be needed in retrofit-related supply chains, it adds. The report's authors describe three main trades that make up

*“There's this big transition driven by the green agenda but what's not coming alongside it at the same pace is the development of the skills”*

KELLY CREWS, WILLMOTT DIXON

72 per cent of this retrofit workforce: insulation specialists, general builders and gas engineers.

So how will they be found and trained?

Derek Horrocks, chair and owner of retrofit contractor Sustainable Building Services and chair of the National Homes Decarbonisation Group, says the construction industry needs to be recast as a "solutions provider" for modern problems such as the cost-of-living, energy and climate crises. "That kind of messaging is a lot more attractive to youngsters," he says, adding that it has helped bring 11 apprentices into his business.

Finding the right training courses for these raw recruits is challenging, however. "The roles on site are quite different from your traditional carpenter, joiner or plasterer and we're looking to schools and colleges to put on a whole new raft of courses," says Horrocks. "But it's a chicken-and-

## Five retrofit roles to help shape residential decarbonisation

SOURCE: RETROFIT ACADEMY

**Retrofit designers** specify materials and systems, how they should perform and offer instructions on how everything is installed together. The role aims to ensure that retrofit installations match intended outcomes and provides a reference to check installations comply with designs. Professions undertaking this role are likely to also be architectural technologists or architects.

**Retrofit assessors** examine all homes undergoing retrofits which must comply with PAS 2035 standards. Their assessment is passed to the retrofit coordinator to carry out "improvement option evaluation" and also to retrofit designers for incorporation into their specifications. Assessors collect

data on the functionality, energy efficiency and environmental impact of the building.

**Retrofit coordinators** are like project managers – they keep track of retrofit projects from start to finish. They agree on the initial evaluation of a project and help plan, design and specify the project before testing and handing it over and carrying out post-project evaluation. Coordinators can be employed by clients or any other member of a project team, including the contractor or installer.

**Retrofit advisors** fulfil the PAS 2035 requirement of providing independent effective energy advice at all stages of a project.

They must ensure advice is offered in an understandable format, taking account of clients' needs, such as language, hearing and sight impairment. Advice should be offered at the beginning of the project, on completion of the improvement option evaluation and the agreed design, and shortly after handover.

**Retrofit evaluators** check that the outcomes agreed at the beginning of the project are achieved. Retrofit coordinators may carry out the first "basic evaluation". Any concerns from this are then investigated by the evaluator in a second "immediate" stage can proceed to an "advanced" evaluation if any concerns that have been identified are not resolved.



egg situation. They're saying: until you bring us the people we don't want to put on courses. The infrastructure is not quite there yet."

Another drag on retrofit is a massive shortage of people who can install heat pumps, a low-carbon and government-endorsed alternative to gas-powered heating systems. Not-for-profit consultancy the Carbon Trust estimates that 30,000 new installers will be needed by 2028. This would be a big jump from the 1,600 or so certified installers listed on the Microgeneration Certification Scheme database.

Carbon Trust senior manager Will Rivers believes an increase on this scale is plausible, as the numbers required represent just a fraction of the 130,000 registered gas boiler installers. "There is a nascent heat pump market, which is growing," Rivers says. "But it's small at the moment and there is no really obvious route for retraining. "There's probably not enough policy certainty to see heat pumps as the definite horse to back."

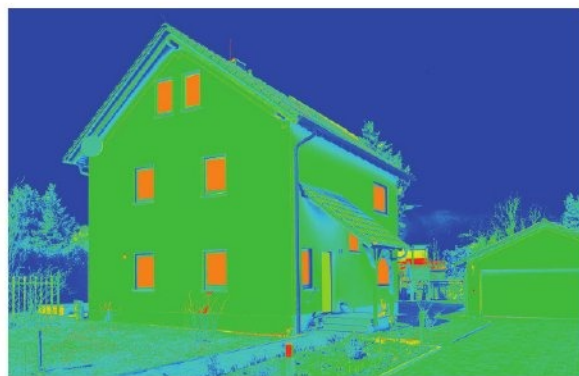
### Political indecision

This uncertainty – the risk of ministers changing their minds – deters other parts of the building industry, says Nottingham Trent University professor of buildings & energy policy Gavin Killip. He points to the failure of the Green Deal, which was axed in 2015, and the scrapping in March last year of the Green Homes Grant just six months after it was launched. "The Green Deal was an expensive answer to the wrong question," Killip adds. "Several actors in the industry invested in their own processing skills and supply chains and lost a load of money."

FMB chief executive Brian Berry says its membership of small businesses is wary of investing in retrofit skills. "They have been bitten a couple of times by measures that have been introduced and taken away and are looking for certainty before they invest," he remarks.

Unlike the government billions swelling the social sector, the enticement for homeowners to fund retrofit consists of vouchers for gas boiler replacements, which is only a small contribution towards the £30,000 cost of a full retrofit. "Our members are interested in the retrofit market," Berry says. "There's a potential market of £6.5bn. But they are not going to upskill unless there is demand."

So how to encourage small builders and trades to upskill in the absence of market demand?



*“It’s a chicken-and-egg situation. They’re saying: until you bring us the people we don’t want to put on courses. The infrastructure is not quite there yet”*

DEREK HORROCKS, SUSTAINABLE BUILDING SERVICES

Construction Industry Council climate change committee chair Stephen Hodder believes regulation could cajole all parts of the industry into action. "The larger contractors that we work with really are making big inroads. But how do you then extend it to the man in the white van? It's a real challenge. Regulatory reform is essential."

Despite the risks, Horrocks is confident of ministers' commitment to decarbonisation and sees the SDHF as the "game changer". "There's more than enough for this to be seen as only in the infancy of a fast-growing, exciting sector," he adds.

Berry believes the decarbonisation agenda could be a "huge opportunity to upskill and raise standards", and Killip agrees. "We could be trying to transform the market," he says, pointing to the army of workers that is already there. "But the workforce isn't ready to do it. The customer doesn't know that they need to do it. There is a huge effort required to coordinate, train, accredit and bring in the finance. The incentives and the other structures are not in place."

The challenge of decarbonising UK homes might look "fantastically expensive and difficult", adds Killip. "But when you think of the alternatives, they're also full of risk. If we don't do this we'll be looking at eye-wateringly expensive upgrades to the national grid to account for all of the over-sized heat pumps that are going to be needed to heat the old and leaky inefficient homes we've got." **CN**