

## Headlines from Energy Plus Academy Think Tank

# Skills for Retrofit: Learning from the Experts

28<sup>th</sup> February-1<sup>st</sup> March, 2022, Trafford Hall

The Energy Plus Academy gathered 35 experts and practitioners together at Trafford Hall over two days, to glean their expertise and know-how on how to take on the challenge of halving energy use in the built environment over the next decade, to help us achieve the goal of net-zero carbon emissions by 2050. Below we present headline findings from the 24-hour workshop. Participants were drawn from architecture, surveying, building industries, training organisations, major landlords, energy saving specialists, government representatives, social housing residents and frontline staff. The aim of this work is to advance the commitment to retrofit further and faster and help us to avert climate disaster.

1. **The starting point for retrofitting homes is to look at the whole house.** Every major part of a home: roof, walls, windows, doors, floors, heating equipment and lighting, all need to be integrated into a comprehensive energy saving plan. This needs to be coupled with prioritising “fabric first”, which means that insulation is the first priority, making sure that all external elements that let in the cold are as insulated as possible, reducing overall energy demand – in effect, it is the equivalent of putting a tea cosy over a teapot to keep the tea warm. Fabric First takes precedence over technology. The Fabric First approach should also ensure a home is well ventilated, as well as airtight. It means that without high levels of insulation, air-source heat pumps will not work effectively.
2. **Buildings are complex with many interlocking elements.** Buildings need to be airtight to stop warm air leaking out and cold air from penetrating, but each room needs to be adequately ventilated to prevent dampness, condensation and mould. Getting this balance right requires expertise which is in short supply. Retrofit projects must eliminate all “cold bridges”, a technical term to describe the problem of air gaps, or conduits for cold or hot air to pass in or out of buildings. Thermal imaging can help identify cold bridges, often around windows and doors, but sometimes present at wall joins, exposed or concrete joists. Other technologies such as “Switchee”, monitoring devices placed in residents’ homes, can help landlords understand how a home is performing.
3. **If retrofit is to succeed, we have to get the basics right first.** For example, keeping on top of day to day repairs and maintenance affects the condition of the building and can ease the

delivery of a successful retrofit. While retrofit programmes can take up outstanding repairs, the follow-on maintenance of retrofit is vitally important to ensure its durability. The work will have to be revisited, costing more, if any repairs or modifications, following the retrofit; do not work within the boundaries of work already done.

4. **A well designed, well-planned, high standard retrofit will stand the test of time.** This is critical if we are to avoid having to re-retrofit a few years down the line. Therefore, landlords and building owners should aim for the highest possible retrofit standards now, aiming to save up to 75% of energy use. The Enerphit standard accepted across Europe as the “gold standard” for retrofit can reduce residents’ energy bills by as much as £750 a year. With steep rises in energy prices underway, the savings may be much greater and even more important. In fact, they offer a golden opportunity for landlords to aim for the highest level of energy saving to help with energy bills, fuel poverty, and rent payments.
  
5. **The skills shortage poses a major challenge for all levels of retrofit work, professional and delivery.** Construction companies and supply chains are reluctant to invest in the necessary training and upskilling until there is more certainty about the scale of demand, and clear information on programmes and funding. Right now, most retrofit projects are somewhat ad-hoc, and the success of these programmes is mixed. There is a lot of “learning by doing” in the retrofit sector. However, the core techniques are known, tried, and tested. Information sharing on who, what, where, when and how, is vital, so others can learn from existing and ongoing projects, and so that mistakes are not made twice. All stakeholders need to have access to this information.
  
6. **Training for retrofit is needed at every level, from those starting apprenticeships to in-house retraining for skilled staff.** For example, gas fitters need to expand their work so they can carry out electrical work such as fitting and maintaining air source heat pumps. Several useful training initiatives are already underway, such as the Carbon Literacy Programmes, backed by government, which some housing associations are offering to staff at all levels. The Learning Foundry in Liverpool is offering training in retrofit at Levels 1-3. The Green Works Hub in Bolton is supporting upskilling for retrofit alongside the Manchester-based Retrofit Academy. Recognised and accepted accreditation must be part of this process. The PAS2035 standard for retrofit assessors, accredited at the highest level, is a key to raising standards and improving delivery; this qualification is being taken up by architects, surveyors

and project managers.

7. **The role of technology is growing, although it cannot replace the need for “Fabric First”**. In fact, only with very high levels of insulation will technology perform in the most effective way. Smart meters and thermostat controls are important starting points as they allow residents to measure control their use of energy. The successful use of this technology does depend on residents understanding of how “gadgets” work and knowing how to use them. Support and training for residents on the use and control new technologies has to go alongside their installation.

The installation of air source heat pumps is growing fast, and government is pushing this technology. However, only if used with high levels of insulation do air source heat pumps pay their way as they use electricity to drive the heat pumps, and produce a low level of background heat over time, rather than instant heat at the flick of a switch. It is a patient, slow burning form of heat that is very effective with maximum insulation. They therefore need careful use and clear understanding of how they works to maximise their value. This underlines the need for resident training and clear information, as the technology is relatively new and very different to standard forms of heating.

8. **Resident involvement and buy-in are fundamental to any retrofit project**. In most cases residents remain in-situ during retrofit works, and in all cases, the works take place in their **homes**. If the project is well planned and explained clearly, then residents will see the benefits: lower energy bills, a more comfortable home, general upgrading, and improved attractiveness. Recruiting and training Tenant Champions helps spreads the word and increases credibility. Effectively, a resident is receiving several thousand pounds worth of external investment, from which they directly benefit. In addition, they are helping the fight to combat climate change. Both of these concepts are attractive to residents if fully explained. Having a Resident Liaison Officer dedicated to keeping residents informed throughout the process will help pick up on any problems, transforming the process and making it workable for both the landlord and the residents.

Landlords need to use every form of communication possible to maximise the chances of gaining support from residents, including newsletters, show homes, live pilots, advice sessions, on-site management, phone contact, etc. It is also important to follow up with

residents after the works to make sure people know how to maximise the value of their retrofit. Resident liaison in retrofit projects is one of the most rewarding aspects of involvement, since the outcome, if well delivered, will give residents something they value.

9. **Government is a key actor in retrofit and their leadership will determine the success of a major national programme of retrofit, which will eventually require action in every home.**

Standards need regulation and enforcement, as is now happening with fire safety and, to some extent, with energy saving. A national training programme also needs government backing, validation and accreditation, as with other crucial standards.

There are major cost implications for retrofit, and much needed incentives are needed for landlords, builders, suppliers and homeowners. A clear programme of delivery, with targets and end dates that are within sight but long enough to be realistic, are important in encouraging performance. The aim of Net Zero by 2050 is ambitious and out of reach in many people's eyes, where as 75% energy reduction target by 2035 is more immediate and tangible. Even better, 50% by 2030 focusses minds.

The government is relying on social landlords to pave the way in retrofit, and has announced an ambitious Social Housing Decarbonisation Fund to support this work. 20 pilots are already under way across the country. But with rushed timetables and highly complex funding there is little wonder that up to 40% of residents are saying no to the offer. The government is hoping that the pilots will promote partnership-working between government, housing associations, councils and professional bodies, in order to show organisation how they can tackle some of the barriers to retrofit. The government has also backed a major training programme, which should lead to greater levels of "retrofit literacy".

10. Overall, retrofit combines the need for a high level of skills; detailed attention to the minutia of projects on the ground; strong community involvement; frontline staff engagement; government leadership; enforcement of standards; training; and clear timetables. It is only by getting these things right that we can adhere to the goal of halving energy use in buildings by 2035 – an essential aim if we want to limit the impact of the climate crisis.