

## RETROFIT: PAS, PRESENT AND FUTURE

“My method is to go back in history – it’s a maverick approach”, so said one Professor of Architecture of “retrofitting”.

The concept of retrofitting became an urgent necessity during World War II, when weapons technology was advancing at an intense pace and planes and ships were becoming outdated even before their construction was complete. The only solution was to retrofit the completed craft with the brand-new technology.

But retrofit is more than just new technology. And it was probably the done thing well before WWII. In housing, it is the need to reframe how we think about our built assets, 80% of which will still be standing in 2050. It is the opportunity to embrace technological innovation, as well as to seize on inspiration from history, in fabric first low carbon building and more efficient energy use.

The UK Government’s mandated 2050 Net Zero target and directive to Build Back Greener means the challenge to retrofit 1.5 homes per minute for the next 30 years is upon us. Housing accounts for around 26% of national carbon emissions, a significant portion of that from operational space heating. By the time you’ve finished reading this article, that’s a further three.

For this, what may be termed a war effort is required, akin to the response to Covid-19. This may augur the provision of Nightingale Centres to assist construction site setup and mobility as well as vaccine levels of determination and collaboration to bring about a changed attitude to the importance of the built environment in its role in the preservation and restoration of our natural world. Lynne Sullivan OBE RIBA has recently argued for the creation of Retrofit Hub.

The scale is enormous and while we currently have numerous projects on site, tackling up to 100 properties at a time, much still remains to do.

Definitions of what Net Zero is in of respect retrofit abound. ‘The Government’s Retrofit for

the Future Guide’, ‘LETI Climate Emergency Retrofit Guide’, ‘RICS Sustainability Report’, and now in the offing RICS residential retrofitting Professional Statement all offer valuable insight. PAS 2035 has led to an increased rigour in the application of retrofit in terms of standards. Written off the back of the Each Home Counts review, and supported by TrustMark, it is now generally mandated across public sector projects. PAS 2035 is an evolving beast and even if some of the challenges are still being ironed out, with other standards such as that on whole life carbon from the RICS not yet receiving its deserved uptake, such initiatives are certainly taking the industry in a better direction, with increasing awareness and understanding among Clients.

There is increasingly a plethora of funding streams available, such as the Social Housing Decarbonisation Fund (SHDF) and Local Authority Development (LAD) funds for the public sector, which has helped stimulate commissions in this sector.

This is now complemented by other low EPC, low-income support schemes including for those off the gas grid, as well as ECO+ for private householders, which is a welcome development.

The industry is moving more and more towards green EPCs and mortgages, and the notion of stranded assets and those left behind looms large. However, despite calls from the Construction Leadership Council (CLC) for a National Retrofit Strategy (version 2 now launched), the message from government continues to be mixed and inconsistent.

The retrofit agenda has certainly risen up the news. This is not only because public activism has picked up, but also because consumers are increasingly feeling the effect on their wallets. Numbers of live projects are gaining pace, with the retrofit package becoming steadily refined. Those practising retrofit are feeding back insight to industry professionals, sharing knowledge, partnerships and collaboration.

Monitoring data on retrofits completed over a year ago is showing good performance, better internal air quality and thermal comfort, and savings as high as 50% on fuel bills (relative to current energy unit cost trends), promising to close both the performance and health gaps. Though there are numerous challenges in delivery including lack of preparedness, and the retrofit agenda is surely about more than just Net Zero. Housing Providers and Asset Managers need to fine tune their data and know the baseline they're working from.

Too many times with retrofit, projects are rushed into, data is incomplete, existing defects are unaddressed, leaving time and cost overrun for remedial works that quite often relate to other budget streams. Strategic asset management, condition-led component replacement, valuing carbon (and embodied carbon), and resident disruption – these can all be drawn together – carefully, but not without challenge – in successful retrofit. In embracing retrofit, there is the opportunity to enhance and widen the skills base, deepen our understanding of embodied and whole life carbon, and to explore biodiversity and ecology too, such as now reflected in the Planning mandate for Biodiversity Net Gain.

There are the site challenges of retrofit. Every building is different, and “turning over” someone’s house is never easy with residents in situ. When things do go wrong, bad news can travel fast. Cost remains a significant stumbling block in the febrile construction market. Whole house deep retrofit, once the watchword, is shifting. Slowly the perspective has moved to spreading the jam a bit thinner, more bang for your pump.

Yet pace still remains too slow with demand for more sustainable buildings sluggish.

So far this article has led from a technical, industry view on retrofit. But what does the word “retrofit” mean to those to whom it is being done? Some say the word sounds backward, regressive, techy. Do we need a review of language - Sustainable Homes or similar? Because if residents or owners won't let us in to their property, we are not going to get “retrofit” done.

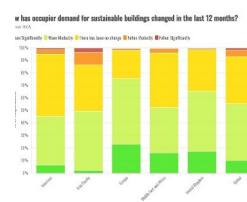
Building surveyors are perfectly placed to bring together these various moving parts

and the associated technical and project management skills to help run successful retrofit projects. Multi-disciplinary teams can help achieve efficiencies and meet demanding timescales, in a variety of capacities. A wide mix of building types will require retrofitting in the coming years. The challenges to each will vary and no matter how much “scaling up” is achieved, the need for attention to detail and a more particular approach to buildings in situ and people skills cannot be brushed over.

The construction sector has been often called a “conservative industry” showing little sign of a radically new responsive low-carbon architecture 23 years into the new century. Issues over adversarial contracting and the race to the bottom have recently been in the spotlight, but these go back to Latham and Egan. False starts abound such as the failed Green Deal, Green Homes Grant, most recently challenges faced by the Boiler Upgrade Scheme (BUS). In fact, Britain has the lowest heat pump installation rate in Europe. And PAS 2035 and other such developments have been a long time coming, with voices for better sustainability in building going back decades.

Or might that be centuries? Perhaps in retrofitting, we have a brief window of opportunity - and it is brief because we are in a climate and ecological emergency, now - to re-embrace certain historical methods of building environmental performance - self-regulating houses, ventilation and heating around the built form, chocolate derived insulating panels!

These are themes that may be picked up at the Building Centre’s exciting forthcoming Retrofit 23 exhibition and talk . Perhaps we need a new culture better attuned to the fluctuating, adaptive impetus of a changing climate. That alongside a more renewed focus on demand side solutions as to how we use our buildings and energy, facilitated through the use of smarter grid capacity planning and tariffs, may help us on that journey to a better place.



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