Zero Carbon Affordable Housing System Demonstrator

Submitted By: Housing Festival



Organization Profile

Organization Name: Bristol City Council

Organization Type: Subnational government

Website: https://www.bristol.gov.uk/

Practice Details

Country(ies): United Kingdom

City(ies): Bristol

Start Year: 2021 **Ongoing:** Yes **End Year:** N/A

Main Adequate Housing Components:



Housing Thematic Areas:

- Housing Affordability & Financing
- Social Housing
- Housing & Climate Mitigation
- Technology & Digital Solutions in Housing

Relevant SDGs:



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Problem & Context

This practice was developed in 2021 in Bristol, UK during the UN-Habitat Climate Smart Cities Challenge (CSCC). Housing Festival (HF) and Bristol City Council (BCC) co-designed a challenge faced by many cities: an acute deficit of social rent housing amid a climate emergency. Then, there were 18,000 people on Bristol's social housing waiting list, and 1000+ families in Temporary Accommodation leading to a £10m annual subsidy loss. Research showed that poor housing cost the National Health Service (NHS) £1.4bn a year, and broader societal costs were estimated at £18.5bn per year.

It was clear that the barrier to increased zero carbon social rent housing was not technology, but viability (cost) shaped by a lack of outcome-focused systems thinking. This included the collaboration to explore a city programme approach and a financial model that does not only value and process transactions based on capital repayment but also on wider social infrastructure investment principles.

Solution Developed

The winning team of CSCC in Bristol was led by AtkinsRealis and EDAROTH, MMC housing developer. The objective was two-fold 1) Develop a digital decision tool to identify small brownfield sites for aggregation for housing or alternative uses 2) Create a system demonstrator to test how aggregation enhances the viability of climate smart, social rent housing on six small sites through economies of scale. 25 social rent net zero homes are now being built on five of these sites.

Lessons learnt included the need to:

- Aggregate de-risked land
- Form a planning strategy via a multidisciplinary team
- Plan the whole delivery model required for success
- Focus on standardisation to optimise the benefits of MMC and enable a surety of pipeline and sufficient scale to enable the supply chain and cheaper cost of capital.

These ideas were further developed as a methodology in HF's Social Housing at Pace Playbook, which presents a replicable ecosystem solution with three components:

1) Support a new supply chain of housing through MMC to provide quality, net zero homes at pace.
2) Unlock new land supply of small, council owned brownfield sites
3) Rethink the concept of value and viability

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Implementation

The partnership between BCC, HF, AtkinsRealis, EDAROTH under the CSCC was critical to test the new approach. BCC invested over £10m in the delivery of EDAROTH's housing and AtkinsRealis developed a digital decision tool to help identify and assess small sites for housing.

However, we discovered the model couldn't drive scale due to planning challenges (more below). As a result, the benefits of MMC could not be optimised, undermining some of its potential value. It also didn't address the lack of capital borrowing headroom in local or national government to unlock further investment.

The Playbook outlines the ecosystem needed to resolve this and the model has now been developed through Lloyds Bank's Social Housing Initiative in partnership with West of England Combined Authority (WECA), HF and other partners, which resulted in a National Government announcement of the Small Sites Aggregator program which will further iterate and test the delivery model in Bristol, London Borough of Lewisham and Sheffield with the stated ambition to scale to deliver 10,000 homes a year.

- HF, convener
- BCC, client
- AtkinsRealis, programme lead
- EDAROTH, developer
- WECA, regional project coordinator
- Lloyds Banking Group, Social Housing Initiative

Timeline:

- Apr 2021 CSCC Winning cities announced
- 2022 Bristol implementation team announced
- 2022 CSCC planning phase
- Jul 2023 launch of Lloyds Social Housing Initiative
- May 2025 announcement by MHCLG, Small Sites Aggregator
- Jun 2025 Site work begins

Enablers & Obstacles

A key enabler was the collaboration between multiple stakeholders. EDAROTH's model and climate smart MMC housing technology also aligned the homes to Bristol's climate and ecological targets.

An obstacle was planning. Because of the innovative nature of the scheme, it was hoped that the 6 sites were considered as a portfolio within planning to assist viability. This proved legally impossible, and each was assessed separately. Only 5 were granted planning. This highlighted a need to test higher levels of standardisation and interface with planning to optimise for MMC delivery, enabling pace and scale.

Partners soon aligned around the key systems learning: to address viability, by looking at 'best value' by addressing the revenue cost of Temporary Accommodation, discounting that against the higher capital investment required and how to secure it from the private sector to fund critical social infrastructure.

Results & Impact

The homes are still being built, but this practice was designed with system change in mind, and the systemic impacts are as follows:

1. The methodology was developed by HF in the Social Rent Housing Playbook, a strategic document for local authorities to build social rent housing at pace and scale, with case studies, insights and ideas from more than 60 organisations.
2. Regionally, the methodology is being explored by the WECA project "Unlocking Affordable Housing through MMC" (with AtkinsRealis and HF) which further develops the approach through aggregation of small sites across the region and tests the digital decision tool developed in the CSCC.
3. Nationally, the methodology is being tested in a new program to unlock small sites for SMEs: the Small Sites Aggregator which will bring together small brownfield sites that would otherwise not have been developed. It will attract private investment to build new social rent homes and address temporary accommodation challenges. The pathfinder phase is underway in Bristol, Sheffield and the London Borough of Lewisham with the support of their regional authorities. This will help tackle the housing shortage, address unviable small plots of land, create local jobs supporting the government's Plan for Change.

The UK Government's ambition is for the Small Sites Aggregator program to deliver 10000 homes a year by the end of the current parliament. The initial pathfinder will look to deliver 500 - 1000 homes.

Replication & Scale Up

Successful replication/implementation of the Small Sites Aggregator has required leadership through HF's systems convening role to enable effective collaboration. It has also required local and national government support in the form of BCC investment for the CSCC. Guidance was also given to local authorities in two areas 1) planning and 2) finance. Local Government, National Government and the private sector are co-designing a financing model to attract private/institutional investment.

This housing practice began the process of learning, which has led to continued development of the model and methodology as referenced above. To scale and replicate will require developing scalable financial models that meet the needs of institutional investors whilst building on the covenant strength of local/national government to address viability challenges.

Policy Uptake

This housing practice has informed or been partially integrated into policy discussions, strategies, or pilot-level policy instruments.

Nationally, the methodology is being tested in a new program to unlock small sites for SMEs: the Small Sites Aggregator which will bring together small brownfield sites that would otherwise not have been developed. The pathfinder phase is underway in Bristol, Sheffield and the London Borough of Lewisham.

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Lessons & Takeaways

We continue to work through complexity to build scale (requiring an increasing number of partners to lead and collaborate) including:

1. Exploring the potential to achieve significant national scale by aggregating small sites into place-based land portfolios.
2. Derisking planning using Local Development Orders (LDOs) for the portfolio of pre-selected small sites in each locality to enable permitted development based on standardised criteria.
3. Tapping into the emerging MMC supply chain by creating aggregated and predictable pipelines for delivery.