Combining climate change adaptation and social housing refurbishment

in the London Borough of Barking and Dagenham

Colne and Mersea tower blocks after retrofitting in 2012 © London Climate Change Partnership

1. SUMMARY

The London Borough of Barking and Dagenham (LBBD) received £7 million through the Government's Decent Homes Programme to improve its social housing assets. The Council was successful in seeking an additional £3.6 million from the London Development Agency's Innovation and Opportunity Fund to include climate change adaptation features alongside the Decent Homes maintenance work. The case study highlights how carrying out maintenance work was an opportunity for LBBD improve property-level resilience to climate change. The case study is a summary of *Your social housing in a changing climate*, written by Sustainable Homes for the London Climate Change Partnership.

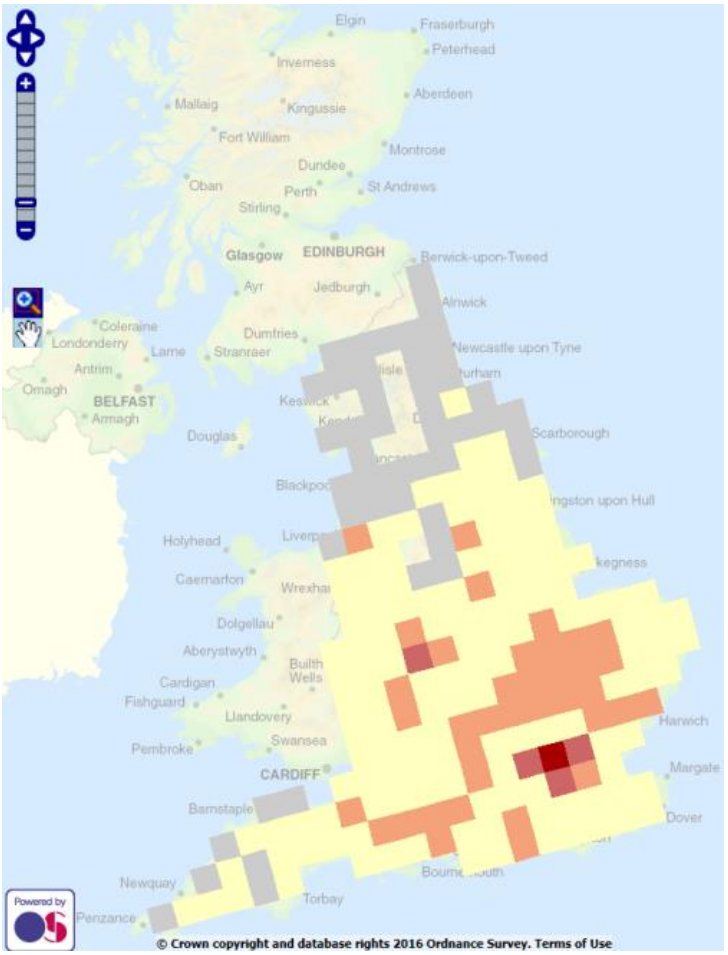
2. ACTIVITIES

Research suggests social housing tenants, particularly those in ill-health, over seventy-five years old and in receipt of low incomes, are particularly vulnerable to the effects of climate change, as they may lack the resources or permission to independently carry out adaptation works (Lindley, et al, 2011). Compounding social vulnerabilities, London is one of the driest capital cities in the world and residents are disproportionately likely to experience overheating.

In response to such risks, efforts were made in 2010 by the London Borough of Barking and Dagenham to increase the resilience of the Colne and Mersea tower blocks to climate change, informed by recommendations in *Your home in a changing climate* (Three Regions Climate Change Group, 2008).

Informing residents of the nature of the maintenance work and its ongoing development was a key element of the project. Resident consultation on the works began at the same time as the project brief began and three Resident Liaison Officers (RLOs) were appointed to mediate between residents and the contactor. The prospect of energy efficiency upgrades, and therefore lower energy bills, and new domestic facilities were welcomed by residents. Due to the engineering underpinning the project – combining two strands of maintenance work – the compatibility of different installations required thorough consideration. Appointing a contactor with an understanding of climate change adaptation was important, due to the limited recognition within the sector of the needs of such projects.

One of the purposes of the project was to address the risk of water scarcity. The Environment Agency estimates a sustainable level of daily water consumption is 130 litres per person per day, however current average water consumption in the UK is 30 litres above this target. In the Colne and Mersea tower blocks, residents were given a financial incentive to reduce water consumption as a result of changes to their payment arrangements: bills would be charged on the basis of water usage rather than based on a flat rate fee.



To support the required behaviour change, water saving features were installed:

- residents received showers with a water flow of 8 litres per minute and low volume baths;
- dual flush toilets, using 4 or 6 litres of water depending on usage;
- low flow bathroom and kitchen taps with constrained water usage were provided;
- flats were fitted with water meters, due to the recognition of the correlation between water meter usage and reduced water consumption.

As the map (above) shows, London is exposed to the greatest risk of overheating in England, a risk the maintenance works aimed to address. Where flats were due to receive new windows as part of the maintenance work, the contractor installed a model that included reflective blinds as part of the glazing structure, providing residents with a means to reduce their exposure to sunlight.

The use of triple glazed windows and cavity wall insulation also improved property level energy efficiency - insulated homes are easier to heat - and reduced tenants' exposure to noise pollution. Mechanical extractor fans were installed to allow for cooling during warm periods. External walls were coated with reflective material and roof insulation was improved to reduce heat transmission into flats. Behaviour changes, supported by the installation of new technologies, were also encouraged.

The Mersea tower block, primarily but not exclusively the first floor of it, is exposed to flood risk (one incident every 100 years). Although the area around the River Roding is protected by a 6.5m flood defence, providing a buffer against flooding, flood resilience measures were included in the maintenance work. Water meters, boilers and plug sockets were raised above the level water is likely to rise to in the event of a one in 100 year flood. Furthermore, one way valves were fitted on drains to prevent flood water from rising up from drains and toilets. Carpets and wooden floors were replaced by vinyl or ceramic tiles, as the former are often badly damaged in the event of a flood. The contractor installed waterproofing on external walls and flood pathways to enable surface water runoff.

3. OUTCOMES

Upon completion, 89% of residents surveyed said they felt positive about the maintenance work, particularly because of the installation of new facilities and household-level energy efficiency improvements; although less enthusiasm was expressed about climate change adaptations. Progress towards reducing residents' water consumption is underway: it was expected to fall by 61 litres as a result of the measures based on projections by an environmental consultant.

Half of residents surveyed after the maintenance works noticed internal temperatures were cooler, with only one resident reporting a subsequent incidence of overheating (though this resident had turned the background mechanical extraction off). Opportunities arose for residents of the wider area as a result of the project: eight apprenticeships were made available, 50 days' work experience were offered, 90 students visited the site for educational purposes and football coaching and street dancing courses were offered to local residents during the school holidays.

4. TIMESCALE

The detailed specification outlining the project was produced between August 2009 and June 2010. Planning permission was received by July 2010. A contractor had been sought and appointed by August 2010. Building works commenced in the same month and were finalised in February 2012.

5. CONTRACTORS

The London Borough of Barking and Dagenham initiated the project. WYG Consulting assembled the project team, with United House as the main contractor and Sprunt the architect.

CSA carried out mechanical and electrical works, Paul Owen Associates assessed the flood risk, Steve Piltz worked on the project as an environmental consultant and Tweeds was the quantity surveyor and employer's agent.

6. CHALLENGES

The expected temperature increases across England are contested as a result of the unpredictability of future carbon emissions. The project team noted it would have been helpful to have greater certainty on this measure, as it the extent of adaptation that is required in such project is partly determined by the severity of the climate threat. In addition, challenges arose when managing residents' expectations of the project due to the disruption it caused, the frequent access needed by contractors to flats and the noise caused by construction equipment.

7. LINKS

The written content of this document is taken from an initial case study written by Sustainable Homes, *Your social housing in a changing climate* (2013) published by the London Climate Change Partnership. The adaptation features set out below are based on the findings of *Your home in a changing climate* (Three Regions Climate Change Group, 2008), which suggests steps social housing providers can take to build resilience to climate change. The report Climate Change, Justice and Vulnerability was written by Sarah Lindley et al (2011).

8. CONTACTS

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