

This Local Authority did it, when will you?



Target group:
Local Authorities,
Project Managers

Seaton North Multis, refurbishment and repair of building exterior

Aberdeen, Scotland

Year of construction:
1972

Number of units:
198

Current retrofit status:
completed



Overview

This project involved work to three 17 storey multi-storey blocks of flats situated in the Seaton area of Aberdeen. The flats are mixed tenure, 39 privately owned and 159 council owned. The aim of the project was to improve the energy efficiency of the housing blocks and improve the fabric of the building envelope. Due to the age of the buildings and their exposed location next to the beach, penetrating damp was becoming an issue. The project encompassed structural repairs, the installation of overcladding and replacement windows to provide a completely new weather envelope for each of the buildings. In addition, district heating, supplied from a Combined Heat & Power (CHP) plant was connected to the buildings. The existing electric heating systems were inefficient and expensive to run. District heating provided a more efficient, lower carbon and cheaper source of heat to the flats, improving comfort levels and reducing the risk of fuel poverty.



Most important results

- Better habitat for residents
- Improved appearance to buildings
- Reduce water ingress
- Windows that do not leak
- More comfort and reduced running costs for residents
- Protect the building from further degradation
- Reduced maintenance for the Council and Private Owners



advice to others

- Make adequate allowances at the outset of the project for the time and resources required to liaise with residents. In particular, to agree actions to be taken (including costs) for the removal and replacement of fixtures and fittings e.g. window coverings, carpets, allowing contractors access to their flat.
- Ensure that adequate protective measures are taken when work is carried out inside the flats and ensure that dilapidation records are kept for reference in any dispute that may arise.
- Essential to liaise with the residents to ensure that the contractor's work operations and timing of these is understood and accepted through resident consultations, mail drops, public notices and regular contact through the Residents Liaison Officer (RLO). It is vital that the RLO is heavily involved as a degree of flexibility will be necessary in the work planning due to changes in dates that inevitably occur, whether these are due to the contractor or the resident.
- Ensure that the supply of design information for the Contractor Design Portion (CDP) elements of the project is provided sufficiently in advance of the required milestones to allow time for ordering the required materials.
- Essential to have accurate survey information so as the rainscreen grid will fit around existing windows with adequate tolerances to allow new window pods and windows to be fitted.



Retrofitting focus

The focus of the project was to improve the energy efficiency of the properties as well as address water ingress issues. A whole building approach was taken with a number of measures being included, below is an overview of each

- Heating. Installing district heating to provide affordable heat to residents. This is part of a city wide program to expand Aberdeen Heat & Powers (AHP) network within Aberdeen and connect up all multi-story properties to the network. The buildings were connected to a local CHP plant.
- Insulation – to increase the insulation properties of the buildings rainscreen non-combustible rock wall slab insulation has been installed. This meets the highest fire and environmental standards, classified as CFC free, zero Ozone Depletion potential (ODP) and zero Global Warming Potential (GWP). The insulation has a water repellent for use in a drained cavity of rainscreen overcladding.
- Rainscreen panels – to protect the building envelopes from water ingress composite fibre reinforced polymer panels with a limestone core were installed. They have a good long-term performance, weathering properties and environmental performance in terms of GWP and ODP.
- Windows – due to the age and condition of the existing windows, replacements were required. Given the height of the buildings and their exposed location it was essential that the new windows were fully air-tight and that the trickle vents effectively controlled air infiltration and water ingress. The latest severe duty vents were sourced, trialed and fitted under strict workmanship controls to ensure the required quality was achieved. The new windows have a u-value of 1.4W/m²/K.
- Visual identity – to give each block a unique visual identity different colours of overcladding were used. The same colour palette was used on all three blocks with different accent colours being used on each block. A double goal post arrangement at the main entrances has improved the visibility of each entrance whilst also providing more shelter with seating allowing more opportunities for social interaction. New

ighting was also installed at each entrance.

Per technique

Main Challenges included:

- Working on an existing building which was occupied
- Working at height
- Working in severe exposure
- Satisfying the needs of residents
- Accommodating the requirements of private owners

✦ **Consideration of alternative approaches:** An option appraisal exercise was carried out to establish the most appropriate form of repairs to address failures in the building envelope. Consideration was also given to demolition of the current buildings and rebuild. However, this was dismissed due to the large financial costs, increased environmental impact and huge disruption that would be caused to residents who would need to be rehomed during demolition and construction. The option selected provided the most comprehensive set of measures with the aim of increasing the quality of life for residents of the buildings, providing a robust means of alleviating potential water penetration through the windows and concrete panel joints, reduce structural degradation and thus increase the life span of the buildings.

Various overcladding systems were evaluating. The Steni Aggregate faced panel system was selected as it is a cost effective option with a long life expectancy. The smooth faced Steni panel was more expensive than the Steni aggregate faced panel due to the manufacturing process required to produce a coloured coating. A mix of the two types of panel was incorporated into the final design to lower cost but still provide an aesthetically attractive look.

✦ **Methodology:** The refurbishment of existing high-rise blocks within Aberdeen city is in accordance with current planning policies of retaining population within the confines of the city. These tower blocks have good, reliable public transport links, are close to the beachfront with excellent views and have proved popular with residents. The council's approach has been to rollout overcladding of multi-storey blocks throughout the city. Running in parallel with this has been the continuing expansion of the district heating network to major housing blocks as well as other key buildings. Together with continued improvements to the roof weather proofing, lifts, fire alarms and door entry installations the investment made in these buildings will mean that will offer good quality housing now and in the future.

✦ **Result:** The project has delivered on its aims with residents noting increased comfort, increased energy efficiency and lower fuel costs.

✦ **Benefit to private owners:** whilst the primary objective of the project was to improve the council's stock of social housing, the further investment also provided a benefit to the private owners who are jointly involved with the council in the future of the buildings.



Planning scheme

- The overcladding contract programme was specified as being 52 weeks. It over ran by 5 months. However, this is still a lot less time than a demolition and rebuild approach would have taken.



Supply chain cooperation

- Whole building approach and competitiveness – there is a balance to be struck between being overly prescriptive and being open to allow competition between suppliers of products in the market.
- Co-operation and co-ordination – as the overcladding supplier and the overcladding sub-contractors have major roles in the works it is vital that regular meetings are held both on design and construction.
- Liability – The design responsibilities were shared between the design team and the specialists employed by the main contractor covered by the contractor's design portion. These were backed up by collateral warranties signed by the council, the main contractor, the overcladding supplier and the overcladding designer acting under the contractor's design portion.



Financing

- The main source of funding was Aberdeen City Council's Housing Capital Programme. Some external grant funding was awarded through the Community Energy Saving Programme (CESP). Owners were required to make a contribution, these were capped at £5,000 per flat although a realistic apportionment would be £20,000.

any question?



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Information



Interreg ACE Retrofitting project:

<https://www.nweurope.eu/projects/project-search/accelerating-condominium-energy-retrofitting-ace-retrofitting/>

Saving Energy Aberdeen web platform

<https://www.savingenergyaberdeen.co.uk/>

Aberdeen City Council energy efficiency web pages:

<https://www.aberdeencity.gov.uk/services/housing/home-energy-efficiency>

You too are facing the challenge of the energy retrofitting of privately-owned condominiums in your city?

The ACE-Retrofitting project aims to develop a governance model facilitated by cities linking owners and building professionals to accelerate condominium energy retrofitting. The French CoachCopro tool will be upgraded and adapted to other countries.

The consortium is composed of Agence Parisienne du Climat (France), Maastricht University (the Netherlands), Energy House Antwerp (Belgium), the City of Liège (Belgium), Aberdeen City Council (UK), Frankfurt Energy Agency (Germany), the City of Maastricht (the Netherlands), Changeworks (UK) and Energy Cities (coordinator). Study visits are organised in the partner cities of the consortium.

www.nweurope.eu/ace-retrofitting

