

**These co-owners did it, when will you?**



## Wilmcote House, a 'whole building' EnerPHit standard retrofit

### Portsmouth (Somersetown), ENGLAND

- Year of construction: **1968**
- Number of units: **107 in three interlinked blocks**
- Surface: **10,233m<sup>2</sup>**
- Current retrofit status: **Completed**
- Tenureship: **Council Housing**
- Building listed: **No**

## Most important results

Wilmcote House had significant maintenance issues, and many residents were living in fuel poverty. Due to the cost and disturbance to residents, the Council decided against the demolition of Wilmcote House, and instead an ambitious retrofit project was undertaken. It is the largest ever residential EnerPHIT project delivered with residents in-situ and has extended the building's lifespan by 40 years. The flats are now warmer, more comfortable and attractive, and draughts and mould have been excluded. Most residents use their heating less as more heat is retained, which has saved them money on their electricity bills.

## Key figures

- + Project value: £12.9 million (approx. £117,000 per flat)
- + Tenants' energy bills have fallen by an average of £700 a year
- + Flat temperatures are significantly higher
- + Building lifespan extended by 40 years

## Key dates



## Advice to others

- + The Council's Resident Liaison Officer provided a vital line of communication with residents and was strongly praised by residents
- + However, the Council believes it should have played a bigger part in resident liaison and maintained more direct influence over the builders on site
- + The project exceeded the anticipated timescale, partly due to the builders being unreliable and missing appointments with residents
- + The building process was difficult for residents, but most are happy with the retrofit and the Council's approach

## Retrofitting focus

- + The solution was to overclad the entire building in a new thermal envelope
- + Passivhaus technology was used for all building components to achieve high levels of thermal efficiency, air tightness and energy performance
- + External walkways were enclosed within the thermal envelopes of the blocks. This required an external steel frame for the new insulated façade
- + A 'whole building' approach was taken which included:
  - + roof replacement
  - + installation of triple glazed windows
  - + extension of the living areas
  - + more efficient heating and hot water systems
  - + adjustment of the ventilation with heat recovery system

*“It is better because before all this was old. We had draughts, condensation and mould everywhere but now because of the new windows that's gone, it's a lot better”*  
**Resident**

## Main reasons for retrofitting

- + The majority of Wilmcote House residents were suffering from fuel poverty and were struggling to pay their bills
- + Cold, damp and mould were affecting people's quality of life in the blocks
- + The maintenance costs were significant, particularly around water ingress and condensation
- + The Council's financial appraisal supported refurbishment of the blocks rather than demolition
- + The project aimed to future proof Wilmcote House for another 30 years



## Who started the process

The process was initiated by Portsmouth City Council (the landlord) after a building evaluation in 2010

## How were decisions taken

- + The decision to overclad and refurbish Wilmcote House was made by the Portsmouth City Council Cabinet
- + The Council opted to refurbish rather than rebuild based on the high costs of rebuilding and the difficulties of decanting and rehousing residents in the local area
- + Residents were comprehensively consulted on the refurbishment proposals through a combination of:
  - + Newsletters
  - + Community events
  - + Door-knocking
  - + Show flats
  - + Open days
- + Residents' concerns around inadequate and expensive electric heating and the lack of space for drying clothes were incorporated into the retrofit specification
- + Portsmouth City Council's community engagement strategy worked well

## Main challenges

### Before retrofit

Designing the retrofit to meet the demanding EnerPHit standard involved a number of challenges:

- + how to insulate the rear façade which featured integral but exposed walkways without introducing thermal bridges
- + how to provide appropriate and effective ventilation
- + how to provide cost effective heating in a building with limited space for communal services and where the use of gas is prohibited
- + how to overclad balconies and exposed walkways



### During retrofitting

The greatest impact on residents' quality of life was noise due to the building works. Residents reported feeling uncomfortable in their homes and felt their quality of life had been affected. This was exacerbated by delays, missed appointments, miscommunication, and instances of poor workmanship.

The builders did not always show respect for the residents or their homes. Residents often missed work to give builders access into their homes, only to be let down.

For structural reasons the existing reinforced concrete ground floor could not be broken up to allow insulation to be installed beneath a new slab. The ground floors were therefore left uninsulated. This could be a future refurbishment step following any potential reduction in the cost of very thin, high performance insulation.

Residents felt that communication from the builders and the Council was poor, due to last minute changes and a lack of face-to-face communication.

### After retrofitting

Tenants have asked for additional ventilation in kitchens as there is a serious issue of overheating now that the external walkways have been glazed over.

## How was it financed

The scheme did not rely on government funding or private investment, it was fully funded by Portsmouth City Council.

EuroPHit funding was secured to promote the project as a leading exemplar retrofit project, together with funding for training to help the scheme achieve EnerPHit standards.

## Main successes

- ✦ The building works achieved what the Council set out to do
- ✦ Tenants had high expectations that their bills would go down, homes would be warmer, and the building would look nicer. All three expectations were met
- ✦ The project showcases EnerPHit and Passivhaus standards, and the advantages of refurbishment over demolition
- ✦ Provided training to upskill contractors around Passivhaus construction, funded by EuroPHit
- ✦ The energy performance of the properties has greatly increased
- ✦ residents living environment and internal temperatures have improved



## Any questions?



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## Information



**EuroPHit case study:** [europhit.eu/cs14-wilmcote-multifamily-house-portsmouth](http://europhit.eu/cs14-wilmcote-multifamily-house-portsmouth)  
**EuroPHit video:** [youtube.com/watch?v=2E-6lel7zVc](https://youtube.com/watch?v=2E-6lel7zVc)  
**London School of Economics tenant engagement report:** [sticerd.lse.ac.uk/dps/case/cr/casereport120.pdf](http://sticerd.lse.ac.uk/dps/case/cr/casereport120.pdf)  
**ECD Architects:** [ecda.co.uk/projects/wilmcote-house-2](http://ecda.co.uk/projects/wilmcote-house-2)  
All images courtesy of ECD Architects

### 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](http://www.nweurope.eu/ace-retrofitting)



This case study has been drafted by

