



d+b facades
OVERCLADDING SPECIALISTS

Alpha House
Coventry

CASE STUDY

Introduction

Residential Case Study – Alpha House, Coventry

The Building

Alpha House, Barras Green, Coventry is a square-on-plan, high-rise residential building of 17 storeys built in 1962 comprising 97 residential flats with a common entrance-way. It was constructed using a Jack-Block system around a central concrete structural core with cantilevered floor plates supporting a non-structural cladding system.

Planning consent was granted for a new cladding system to meet insulation values required to achieve “Decent Homes Standards 2010”.

The Client

Whitefriars Housing Group, part of West Mercia Housing Group, is Coventry's largest social landlord and one of the country's most successful post-transfer social housing organisations. It is a not-for-profit organisation, owning and managing approximately 16,500 homes across Coventry and is dedicated to improving people's lives, neighbourhoods and homes.

Enquiry Document Scope

This included:

- Complete removal of the existing steel and glazed non-load-bearing curtain walling system including windows
- Interlocked existing curtain wall required removal 3 floors at a time
- Installation of a curtain walling system made from a composite of uPVC, steel and aluminium and a suitable glazing and insulation solution to compliant with building regulations
- Enclosure of the existing open entrance in keeping with the new cladding system
- Safe removal of asbestos.

Before



After



Residential Case Study

d+b facades' Solution

d+b facades has a successful track record of refurbishing more than 50 occupied, high-rise residential buildings. This accumulated experience and expertise enabled d+b facades to develop and propose an alternative, enhanced solution to Whitefriars Housing Group to better meet the near- and long-term project goals.

By proposing high quality overcladding of the entire building, thereby negating the need to remove the existing curtain walling, critical areas of concern and risk were designed-out from the original enquiry document (Table 2).

Table 2. Comparison Between The Requirements of the Enquiry Design and d+b facades' Enhanced Solution

Impact of Original Enquiry Design	d+b facades' Solution
<p>Complete removal of existing curtain wall means temporary wall required:</p> <ul style="list-style-type: none"> • prevents occupants from risk of fall • constructed from within dwelling in existing living space causing excessive disruption to occupants • needs to be weather-tight and able to satisfy high-rise building regulations • internal wall and floor coverings require protection 	<p>Retain existing curtain wall and overclad. New envelope fully constructed from outside prior to removal of existing windows with minimal disruption to occupants and minimising works inside flats, the building remains weather-tight at all times and retains structural integrity</p>
<p>Programme schedule is partly dependent upon internal access and co-operation of residents</p>	<p>The new building envelope is constructed forward of the existing building so the programme can proceed without constraints of occupation</p>
<p>No water management system, the facade will thus require regular cleaning and sealing gaskets will require periodic replacement</p>	<p>Innovative water management system means surfaces are self-cleaning, minimising maintenance and retaining as-new appearance</p>
<p>Removal of asbestos - health and safety risks to occupants and operatives</p>	<p>Asbestos is undisturbed and encapsulated under new cladding system</p>
<p>Proposed replacement composite uPVC/steel/aluminium curtain wall system has no track record of use in high-rise projects of this nature and uPVC windows inevitably require an ongoing maintenance programme throughout their useful life</p>	<p>The aluminium rainscreen system has been used successfully in more than 50 projects and established a proven track record on projects identical to Alpha House. Timber/aluminium windows are much stronger than uPVC and require no maintenance, making them more appropriate for high-rise dwellings</p>
<p>Security - removal of curtain walling and use of scaffolding and security netting permits unauthorised access to any part of the building's elevation</p>	<p>Use of mast climbers which can be isolated at off-site times and securely parked at ground level preventing unauthorised access</p>



Alpha House before overcladding

Tired, unattractive appearance in need of refurbishment

- High energy costs
- High maintenance costs
- High carbon emissions
- Health and safety risks for maintenance and window cleaning

Programme

46 Weeks

Contract value

£1.97 Million

Architect

Burnett Pollock Associates



Alpha House after high quality overcladding

- Desirable, contemporary appearance
- Increased asset value
- Extended life expectancy of 60 years
- Highest standards of thermal performance
- Substantially reduced energy consumption
- Appearance will remain pristine, with no maintenance
- Designed to match the original facades' appearance

Internal Benefits of Overcladding

Before



After



Benefits:

- Warmer in winter
- Reduced heating costs
- Reduced solar gain in summer
- Less noise intrusion
- Improved natural ventilation
- Tilt mechanism permits windows to be safely cleaned without leaning-out
- Residents offered an individual choice of internal window finishes

Sustainability Improvements

The d+b facades' perspective

"Whitefriars Housing Group were forward thinking exhibiting a strong desire to provide the best solution for their tenants. Full consideration was given to potential energy savings, cleanability issues were addressed and they demonstrated a strong environmental conscience through their desire to use predominantly recycled materials in construction which were themselves entirely recyclable at the end of their useful lives."

Pete Hillyard
Managing Director
d+b facades

By redesigning the whole approach, d+b facades delivered an enhanced solution (Table 3).

Table 3. Enhanced Solution - Sustainability Improvements

ENQUIRY DESIGN	d+b facades' REDESIGN
Estimated energy saving of £278 per flat per annum	Estimated energy saving of £321 per flat per annum
Estimated carbon emission saving of 1.98 tonnes per flat per annum	Estimated carbon emission saving of 2.29 tonnes per flat per annum
Components made from uPVC have a significant environmental footprint, particularly in the manufacturing process	The aluminium rainscreen is composed of 65% recycled material which is 100% recyclable at the end of its useful life. The timber element of the windows is 100% sustainable
Will require regular cleaning and ongoing maintenance	Surfaces are self-cleaning and will remain as-new with no maintenance
Refurbishment life expectancy of 40 years	Refurbishment life expectancy of 60 years. Annualised spend substantially lower when based on whole-life cost

"We chose d+b facades' to externally refurbish Alpha House because their proposed solution was a superior product to all other tenders. We were also strongly influenced by their track record of similar projects and experience as developers in their own right. The project progressed extremely well and we are delighted with the outcome which provides high quality accommodation for our tenants."

Keith Rounds
Head of Planning & Procurement, Whitefriars Housing Group



d+b facades
OVERCLADDING SPECIALISTS

T 01980 654230 F 01980 653611 E mail@dbfacades.com
www.dbfacades.com

d+b facades The Packway Larkhill Salisbury Wiltshire SP4 8PY