



Linden Road,
Cotteridge
Birmingham

Sector: Social Housing
Low Rise
Refurbishment

Dorlonco Property After Refurbishment



Dorlonco Property Before Refurbishment



Dorlonco Property After Refurbishment



Client:
Birmingham City Council

Building Type:
Dorlonco

Project Size:
8 Properties 480m²

Product:
Structural Insulated
Cladding
& Render Finish

Project Background:

Structherm have been working closely with Birmingham City Council on its large scale, five year, housing refurbishment programme. The scheme involves around 68,000 properties of which 12,000 are of non-traditional construction encompassing over 40 different building types.

The council had eight non-traditional Dorlonco steel framed properties built in the 1920's in Cotteridge which urgently required internal and external refurbishment due to problems with damp, condensation, water ingress and poor thermal performance.

Challenges:

These particular properties did not have a solid outer wall, instead heavy duty expanded steel lathing spanned each steel column to which a concrete skin was applied and then a rendered finish. It was this outer skin that was beginning to fail due to movement in the building. Cracks had appeared which then allowed water to ingress and corrode the steel lathing as well as parts of the steel frame.

The rendered finish had some unique aesthetic characteristics including a mixture of flat monochrome render, a rough trowelled render effect, Ashlar type quoins, decorative plinths and window surrounds. To satisfy planning control any external refurbishment work had to replicate these unusual existing render effects.

There were also concerns over the line of the walls and the way in which some of the plinths had originally been laid. In some instances the concrete outer skin walls protruded the plinths.



Shear receiver brackets and structural insulated cladding panels being installed between the steel columns of a stripped Dorlonco property.

Design Solution:

The failing outer render, concrete skin and steel lathing were removed to fully expose the steel frame. Appropriate repairs and replacements were carried out to rectify the corrosion.

Structherm's unique Structural Insulated Cladding system incorporating 80mm thick Enhanced EPS was then used to span between each steel column providing a rigid, continuous envelope around the properties with real structural integrity and excellent thermal performance. The setting out and positioning of the shear receiver brackets on each column was accurately calculated so that a straight line would be achieved on every elevation, overcoming the problem of undulating walls and protrusion of the plinths.

To replicate the original finishes and features, an ingenious combination of products was adopted. For the flat monochrome finish FlessCoat Cortina TH Normale acrylic render was used and for the rough trowelled effect a dash receiver over coated with two coats of FlessCoat Superfine paint was applied. For the quoins, plinths and window head details, profiled polystyrene was rendered into the façade and then painted with FlessCoat Superfine paint. This clever approach to the finish has proved to be highly successful in replicating the original features and satisfying both the planning department and the residents.

Results:

- The Structural Insulated Cladding has provided structural support without the need for new block work which would have required expensive ground works and foundations.
- Thermal performance has improved greatly with the U value dropping from 1.30W/m²K to 0.28W/m²K.
- The aesthetic appearance of the properties has been a great success, replicating the original finishes and complimenting the neighbouring privately owned properties.
- The refurbishment programme also included new roofs, soffits, fascias and downpipes as well as the façade to transform the properties into looking like brand new.

For further information on
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