Exploded axonometric showing façade details

Façade cladding panel detail

Section
Case Study:  
External Refurbishment of Guy’s Tower

The primary driver for re-cladding Guys Tower is to prevent further deterioration of existing concrete cladding. But works on this scale normally undertaken once in a generation also present an opportunity to enhance the thermal performance of the building, with a view to lowering the building’s energy consumption and carbon emissions.

The overcladding solution proposed by Penoyre & Prasad with Arup will deliver not only a refurbished exterior but a highly cost effective transformation of the building’s overall performance.

The design of the new façade incorporates:
- reduced thermal transmittance;
- low G-value glazing to reduce solar gain;
- low e glass where required, to reduce heat loss; u-values on the Communications Tower that exceed current Part L requirements and
- a better sealed façade to reduce gains and losses via infiltration.

As a result, the building energy consumption attributable to the façade (primarily heating and cooling loads) will be reduced by around 18.5%.

Even though the scope of the scheme proposed is limited to the refurbishment of the external façade only, these energy savings will result in a reduction in CO₂ emissions of 9.4%, which equates to over 8,000 tonnes of CO₂ over 30 years.

The scheme has been designed so that changes made to the cladding now will allow for future changes to internal layouts and building services, including the potential for mixed mode ventilation, creating further energy savings and carbon reductions.

The embodied carbon ‘spend’ of the selected materials was carefully considered to ensure that the net carbon impact of carrying out the works was negative well before the end of the intended 30 year design life. The selected materials achieve a carbon payback of 12.5 years.

Project details:
Guy’s & St Thomas’ NHS Foundation Trust  
Southwark, London  
Completion: 2013  
Value: £30m