

CLIENT

Affinity Sutton Housing Association

PROJECT

Queen Adelaide Estate, Penge, London SE20

ARCHITECT

ECD Architects

VALUE

£6 million

WORK SCOPE

The provision of multiple retrofitted heating & hot water systems addressing the joint challenges of energy efficiency and affordability across the Queen Adelaide Estate



Built in 1951 Queen Adelaide Estate comprises of 132 dwellings divided over seven, four story blocks located in Penge London SE20.

The Brief

Appointed following a competition held by Affinity Sutton Housing Association, a co-operative consisting of NLG Associates, ECD Architects and Keegans Quantity Surveyors were appointed to engineer a selection of innovative retrofitting, heating and hot water solutions for the Queen Adelaide Estate with energy efficiency and affordability the primary objectives.

Challenges and outcomes

Queen Adelaide Estate was originally heated by a communal system located in the basement of one of the blocks. The gas boilers providing a primary heating source that flowed throughout the estate, fed all 132 units with hot water and heating via a heat exchange. This was replaced by Individual electrical hot water cylinders in 1976 and radiators were replaced with electric storage heaters which were too expensive for tenants to run.



To tackle fuel poverty whilst future-proofing the Queen Adelaide Estate, Affinity Sutton tasked NLG Associates to produce a selection of conceptual retro-fitting designs that would both be cost effective to implement whilst also benefiting the tenants with lower running costs.

As drawings of the original service runs had been lost, the full extent of the site's mechanical and electrical services was unknown. NLG Associates carried out a comprehensive feasibility study of all existing services across the seven blocks.

NLG Associates one-to-one sessions with tenants highlighted defects in the blocks that if addressed would make significant energy savings.



The lack of insulation to all seven blocks roof spaces was having a direct impact to the buildings energy efficiency and if addressed would make an instant reduction to the tenants heating costs. NLG Associates produced SAP results enabling ECD Architects to obtain a greater understanding as to the best way of enhancing the building fabric.

As part of the evaluation process, NLG Associates created a 3D thermal model of a typical Queen Adelaide block which highlighted the block's areas of heat loss and Co2 emissions over a typical year provided an accurate energy performance benchmark. Various heating and hot water technologies were taken into consideration including the potential of integrating renewable energy sources. Each scenario was then run through the 3D thermal imaging program to evaluate its potential energy performance.

NLG Associates investigated and advised on the various financial grants options for the incorporation of renewable energies. All of the options projected payback periods were calculated, allowing Affinity Sutton to have a clear understanding as to each of the options true benefits.



It was concluded that there was four individual schemes that met Affinity Sutton requirements. All four schemes were split into two options, with option 1 including the addition of insulation to the blocks and option two showing the performance without insulation. The selections allowed Affinity Sutton to make an informed decision as to which heating and hot water scheme would be most beneficial to implement.