

University of Hertfordshire Life Cycle Analysis in design

Case Record

Location	Hatfield, Hertfordshire, UK
Client	University of Hertfordshire
Bidders	Carillion Private Finance
Main Contractor	Carillion Building Special Projects
Funding Requirement	£70 million

Design, construction and 25 year operation of 1600 student residences and a large multi-purpose sports facility.



Environmental Initiatives

Sustainable development	Benchmark for design
Energy reduction	Energy efficiency from design stage

Carillion has recently been awarded the PFI University of Hertfordshire campus development project. From the outset of the design concept, the principles of sustainable development have been applied particularly in the field of energy efficiency.

Over the life cycle of buildings there are many environmental impacts, through component production, their construction, use and eventual demolition. 'Of all these impacts, it is usually the energy consumed during the buildings operative life which has the most profound environmental burden' (see footnote).

As part of the design process of this contract Carillion has developed a design management procedure that monitors energy performance from the earliest phases of building inception. Systems to improve energy efficiency are considered as a function of additional or avoided life cycle costs.

The purpose of the design procedure is to optimise energy performance, and as a minimum provide a procedure for ensuring energy considerations are included in the design process. The design phase is the key to decision making of the construction process that is pivotal for the delivery of energy efficient buildings.

In terms of energy efficiency, it is estimated that the residences will be up to 60% more efficient than current industry good practice standards.

The application of Carillions design procedure is likely to result in substantial savings in whole life costs of this PFI project. This is likely to be in the order of £3 million, and reduce operational carbon dioxide emissions by over 44,000 tonnes. This would be the equivalent of each of the occupants of the residential buildings driving approximately 9000miles every year for 25 years.

Key features of the design procedure look to maximise the wider benefits of energy efficient applications, which are often overlooked when undertaking direct appliance for appliance comparisons.

Further details of the design procedure can be found in the paper: 'UK BUILDING ENERGY AND ENVIRONMENTAL PERFORMANCE: BREAKING THE VICIOUS CIRCLE' which can be found on the Carillion Sustainability report at www.carillionplc.com/sustainability