



To meet stringent performance target of 35% reduction on Part L 2013 Carbon Emissions, HLM used IESVE as part of an Integrated BIM enabled process.

# 350 Units Residential Development London

**350 UNITS RESIDENTIAL DEVELOPMENT**  
LONDON, UK

**SECTOR:** IESVE and BIM

**DATE:** February 2015

**COUNTRY:** UK

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350 UNITS  
RESIDENTIAL  
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LONDON

HLM were tasked with using BIM Archicad software and IESVE to assess the ability of its design to meet performance targets set out in The London Plan for a large residential development.

These included achieving a 35% reduction on Part L Carbon Emissions, without having to rely on renewable energy sources or carbon offset payments. To achieve this target the firm had to develop a robust integrated design strategy.

Using the IESVE IFC export function HLM were able to export their design model seamlessly from Graphisoft Archicad into the IESVE to perform the required calculations. Using the Tabular Room Edit function they were able to set up a robust link between different design packages, ensuring they wouldn't have to double up on effort by re inputting geometry data etc.

HLM focussed on Passive Building Fabric Efficiency and Low/Zero Carbon Systems. To do this it compared the use of the Standard Assessment Procedure (SAP) versus the use of Dynamic Simulation Modelling. The DSM method proved to be the most efficient and the most effective way to drive and verify integrated solutions and meet compliance with the London Plan targets. Also, in a direct comparison, DSM calculation showed an averaged space heating requirement of 6.5 kWh/m<sup>2</sup>.yr, corresponding to 80% less than that calculated with SAP. Having this more detailed understanding of the energy patterns allowed HLM to work with its Building Services Design Consultants MTT to design significantly more efficient and appropriate environmental control systems.

HLM's integrated design strategies included the following elements:

1. Passive Design
2. Whole house MechVent w/ Heat Recovery
3. Integrated Winter Gardens
4. Indoor Environmental Quality/Controls
5. Community System – CHP

Using IESVE to perform DSM gave HLM a much more comprehensive picture of the integration of different design solutions. It also provided an exact understanding of the local conditions and performance allowing for responsive design and efficient allocation of resources e.g. adding insulation or solar control only where necessary and effective. The key consideration is that this methodology demonstrates that the performance of the whole system is considerably higher than the cumulative performances of the single parts.

## KEY FACTS

- 35% reduction on Part L 2013 Carbon Emissions required under the London Plan
- Using a DSM enhanced analysis process, the results demonstrate an 80% reduction in Carbon Emissions relative to Space Heating (circa 12% reduction on the total CE)

IN PARTNERSHIP WITH



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