CASE STUDY
IES CONSULTING
September 2007 | UK

INTEGRATED ENVIRONMENTAL SOLUTIONS

GLASGOW CITY COUNCIL

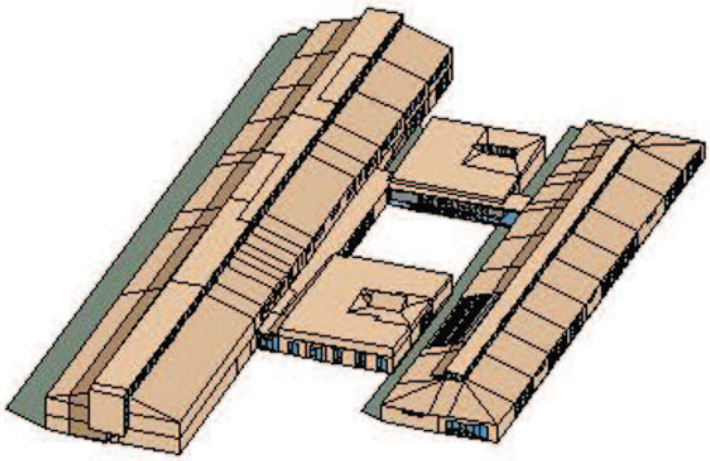
SCHOOL TENDERS EVALUATED FOR ENVIRONMENTAL PERFORMANCE AND OCCUPANT COMFORT

Glasgow City Council's Development and Regenerations Services (DRS) department recognised the potential of the company's expertise and software to help the Council deliver its vision of 21st Century classrooms – learning environments which are orientated to sustain natural daylight, provide excellent air quality and are energy efficient.

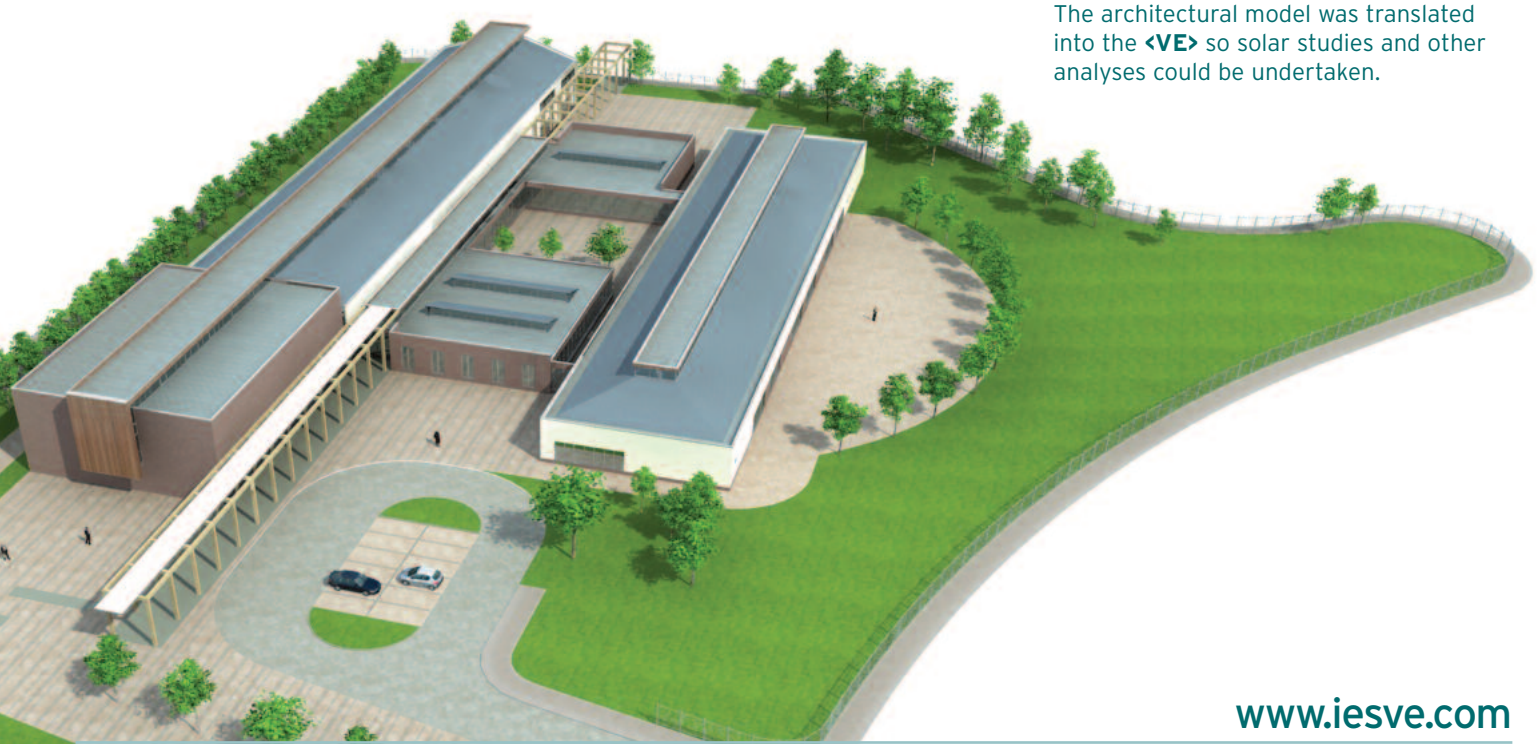
Looking at natural ventilation, daylight levels, artificial lighting control, carbon dioxide levels and occupant thermal and visual comfort, IES Consulting scored each tender submitted during bid appraisals to an agreed matrix set by the Council. Compliance with Building Bulletin 87, which has now been superseded for ventilation by Building Bulletin 101, was also tested and taken into consideration.

IES worked with the bidders to transfer their 3D architectural designs for the school into the IES **<Virtual Environment>** ModelBuilder, which can easily be used with existing CAD systems. At the centre of the IES **<Virtual Environment>**, this Integrated Data Model is shared by all the building performance assessment applications in the suite and allows the integrated assessment of the different criteria in relation to each other.

IES Consulting undertook detailed analysis of these models; assessing daylight, artificial lighting control, temperature and ventilation ranges as required by Glasgow City Council, to meet their stipulated criteria.



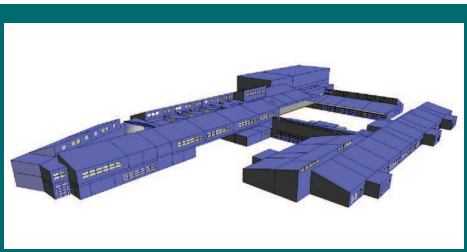
The architectural model was translated into the **<VE>** so solar studies and other analyses could be undertaken.



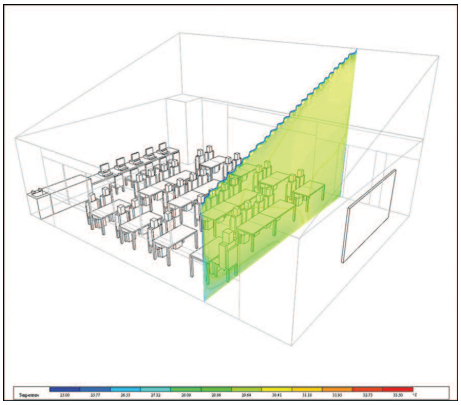
GLASGOW CITY COUNCIL
IES CONSULTING CASE STUDY

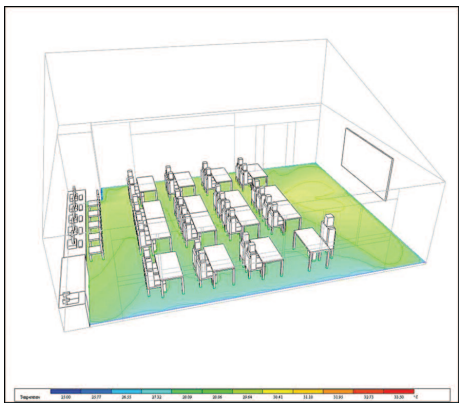
September 2007 | UK

INTEGRATED ENVIRONMENTAL SOLUTIONS



"Since undertaking this project Glasgow City Council has decided to purchase and train its DSR technical staff on the IES <Virtual Environment>"



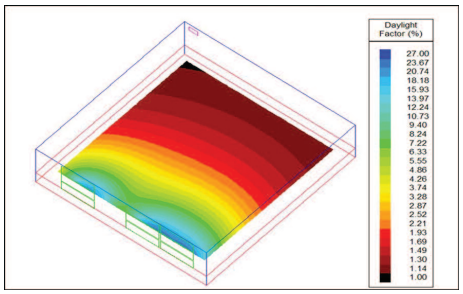


IES Computational Fluid Dynamics (CFD) analysis helped in the development of a cross-flow natural ventilation solution.

Following the appointment of Barr as the preferred bidder, IES Consulting's role developed into one of guidance and mentoring, helping their design team work with IES's software to discuss and enhance the original design. This was because analysis by IES Consulting during stage one of the project had identified that there were areas where the design could easily be tweaked to make it a more comfortable environment for its occupants while at the same time maintaining energy performance.

Primarily this was around the development of a cross-flow natural ventilation solution, intended to reduce overheating therefore improving temperature based comfort and reducing carbon dioxide levels to improve air quality. This was particularly challenging as the needs of classrooms throughout the building had to be taken into consideration regardless of their position in fully utilising the cross-flow solution. In addition, an understanding of how natural daylight levels were affected by any changes made was also required in order to optimise overall environmental conditions.

Since undertaking this project with IES Consulting, Glasgow City Council has decided to purchase and train its DRS technical staff on the IES **<Virtual Environment>** so that it could perform the same types of assessments going forward. The Council purchased modules which would enable them to undertake heat loss and gain, thermal simulation, ventilation, daylighting and solar shading analyses.



Natural daylight levels within the classroom were checked in the **<VE>**.

IES HEADQUARTERS
Helix Building,
West of Scotland Science Park
Glasgow, G20 0SP, UK
T +44 (0)141 945 8500
E enquiries@iesve.com

BOSTON
43 Kingston Street,
Fifth Floor,
Boston,
MA 02111-2241,
USA
T +1 617 426 1890

SAN FRANCISCO
655 Montgomery St,
Suite 540,
San Francisco,
California, CA 94111
USA
T +1 415 508 4519

IRELAND
Fifth Floor,
Castleforbes House,
Castleforbes Road,
Dublin 1,
Ireland
T +353 (1) 875 0104

AUSTRALIA
Level 8,
350 Collins St,
Melbourne,
Vic 3000,
Australia
T +61 (0)3 9808 8431