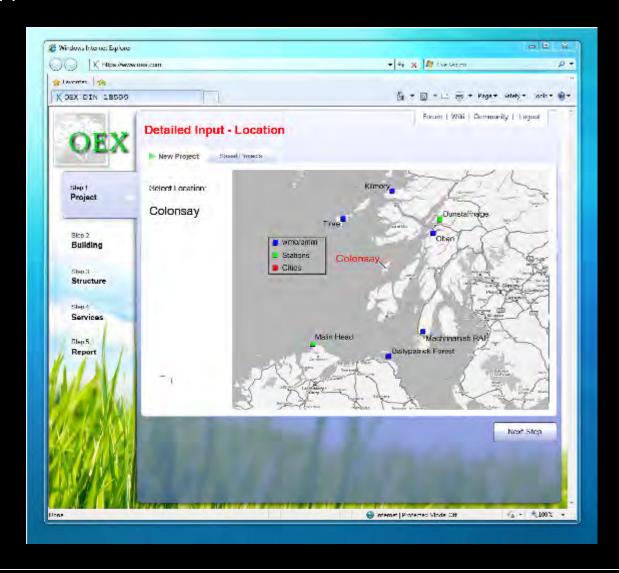


OEx Ltd - specialists in the technology and design of energy efficient and environmentally friendly buildings.

- Designing exclusively low energy and environmentally friendly buildings incorporating renewable energy technology
- National and international projects
- Assessment of energy consumption and greenhouse gas emissions
- Advanced energy calculation methodology
- Specialisation began 23 years ago Observer Ethical Award, First UK registered Passivhaus Planner Architects, and other milestones along the way.



International Application – Local Site Weather Data



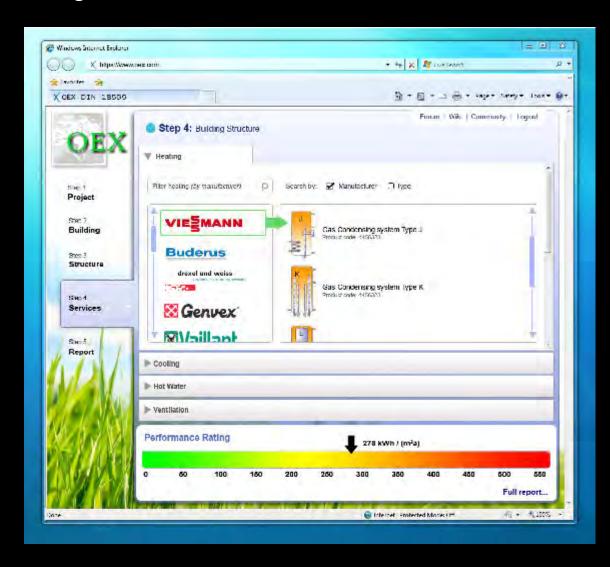


Simple Inputs – Construction Database

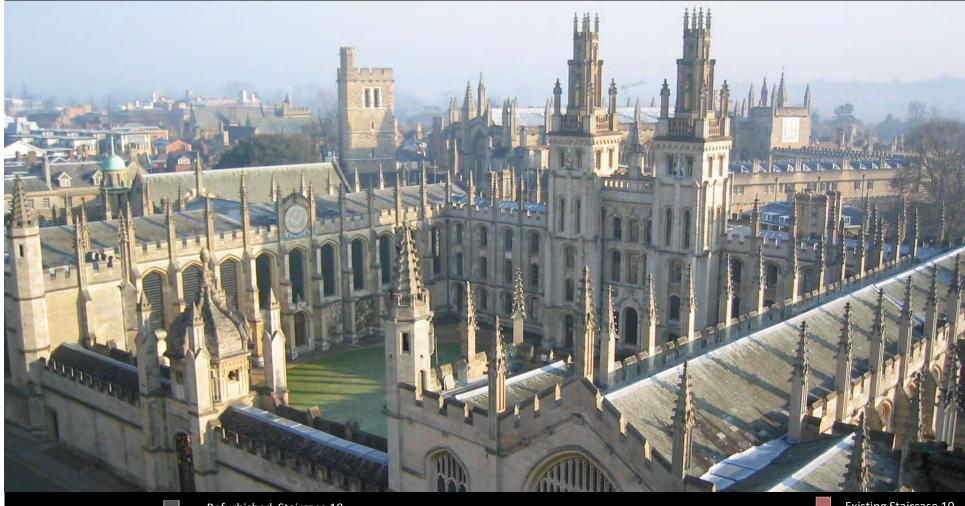


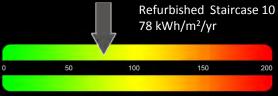


Simple Inputs – Building Services Database





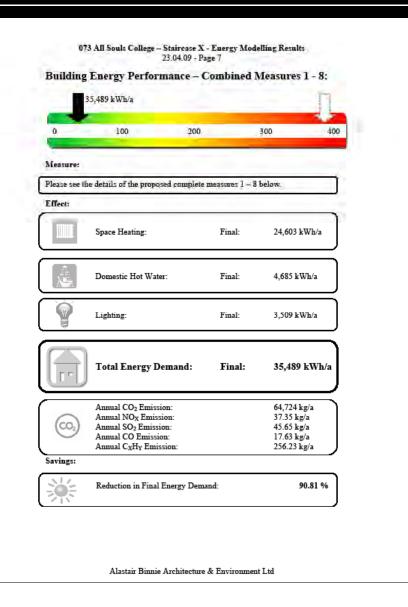




Existing Staircase 10 pre-improvements
Off the Scale!
860 kWh/m²/yr



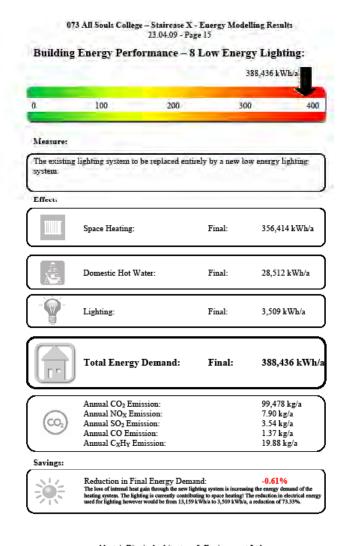
- 8 Optimal measures for cost effective emissions reductions
- 1 Roof Insulation
- 2 External Wall Insulation
- 3 Cellar Ceiling Insulation
- 4 New Windows
- 5 MHRV System
- 6 Heatpump System
- 7 Solar Thermal System
- 8 Low Energy Lighting
- •Output All Greenhouse Gasses
- •Highly accurate, and with the ability to link monitoring data back to the model.
- •HOLISTIC All Building Elements, Services, Users & Climate interact





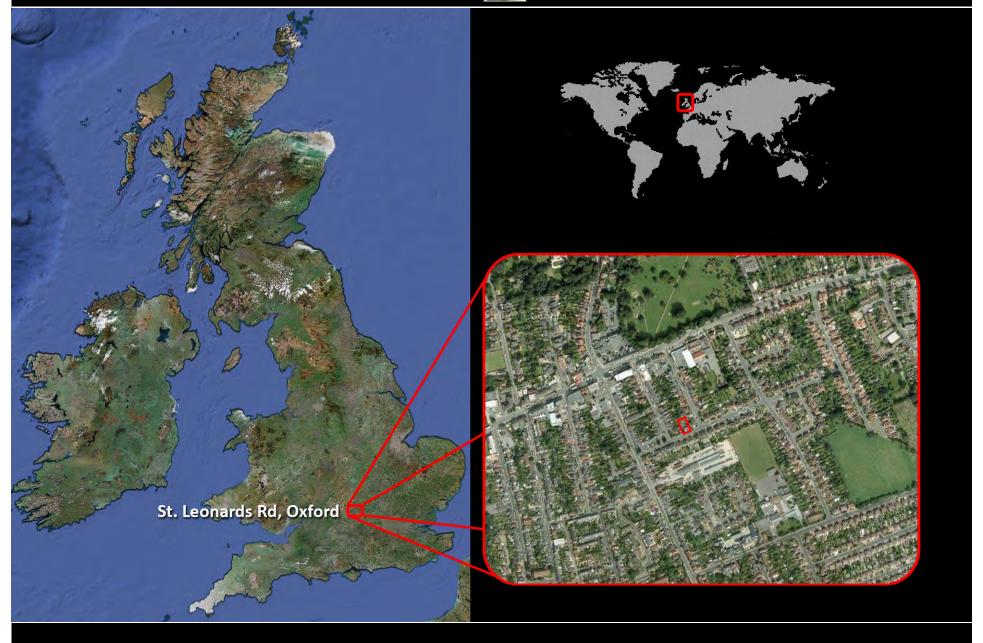
•Crazy But True

Increase in Energy Demand Through The Single Measure of Low Energy Lighting



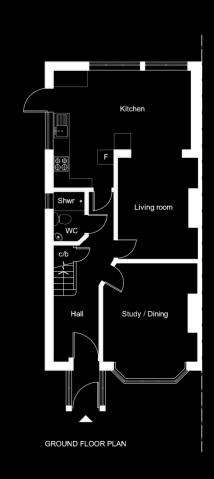
Alastair Binnie Architecture & Environment Ltd

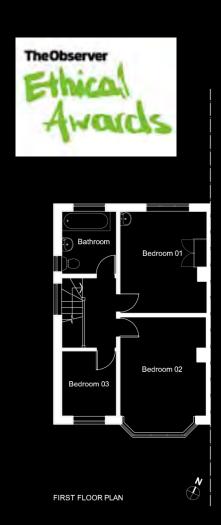




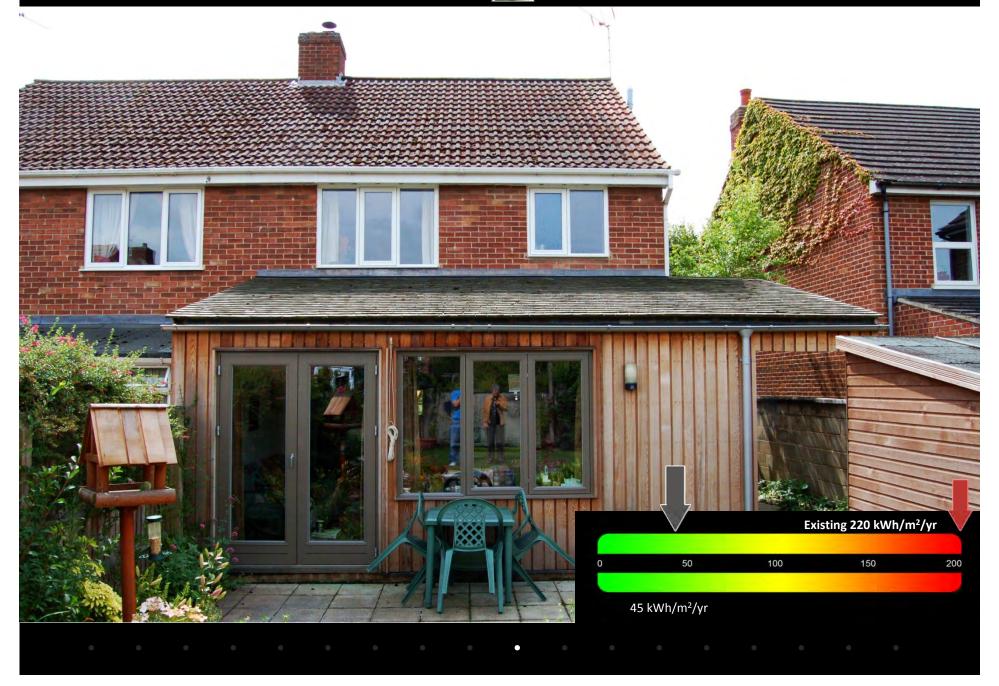




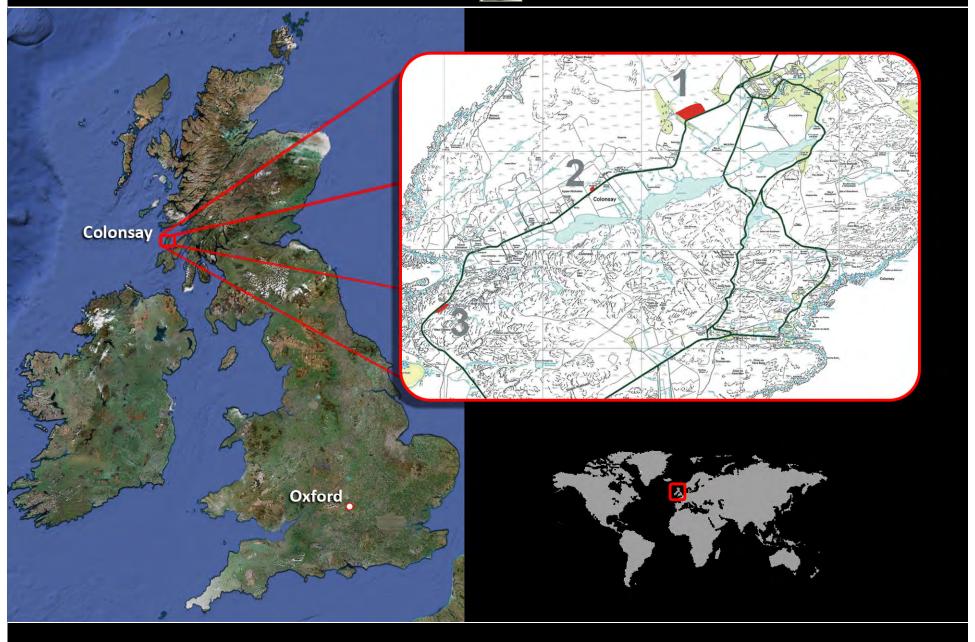








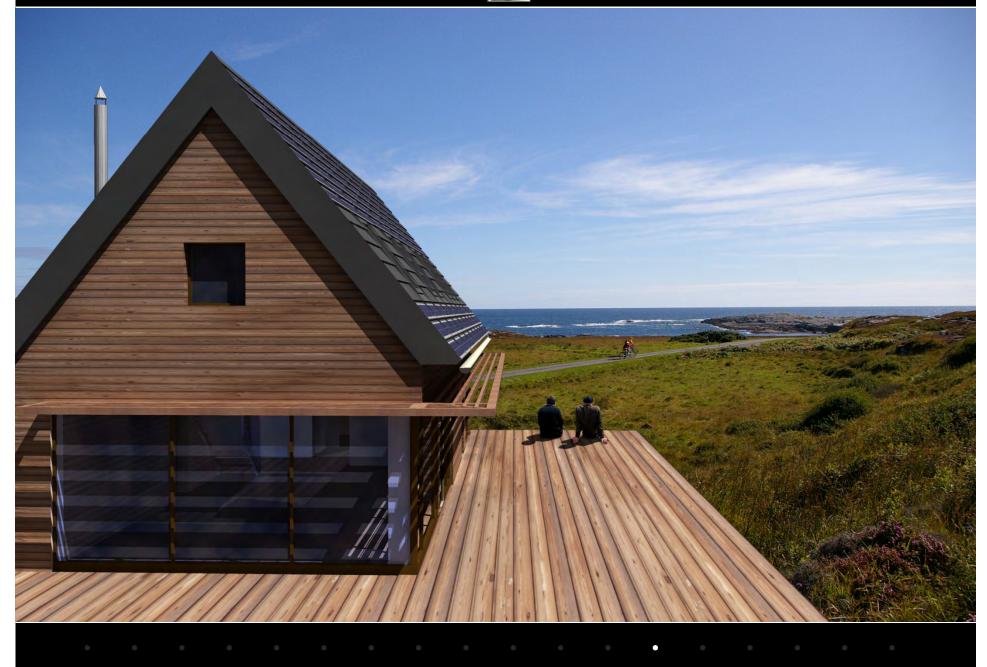




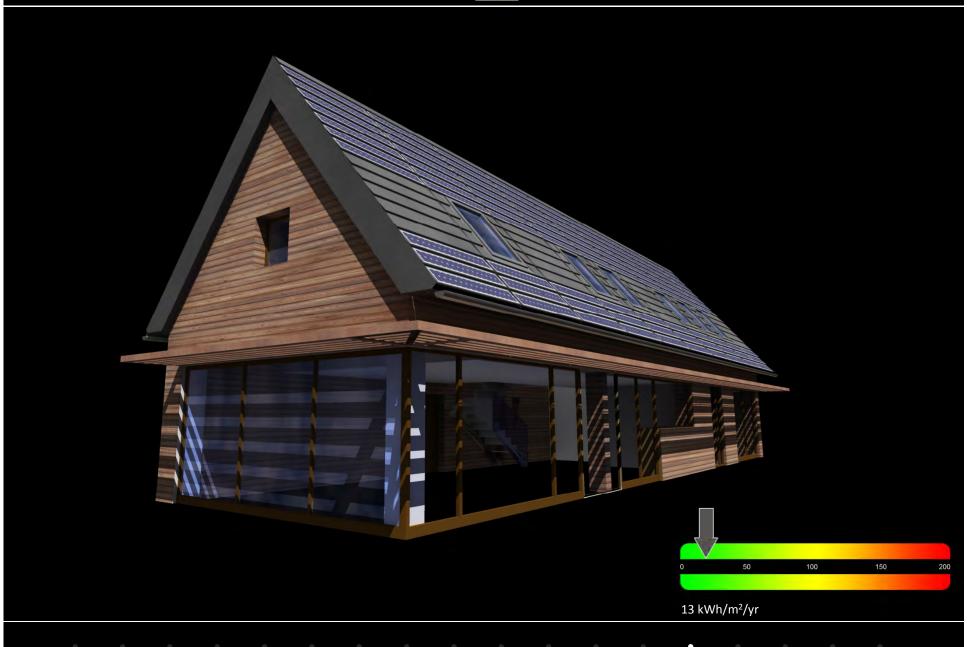




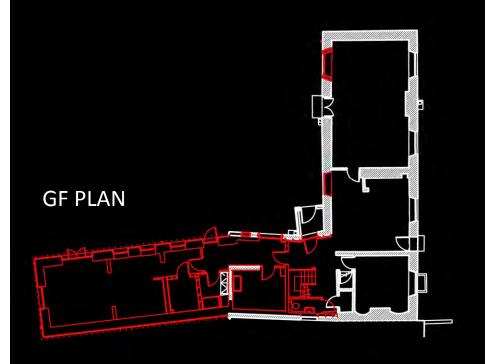


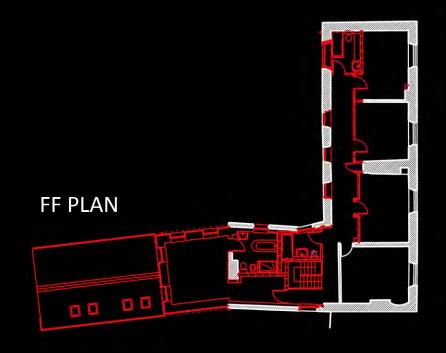










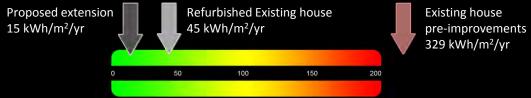


- New Development
- Existing Development









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Biochemistry Building, Oxford University



Hawkins/Brown

- Aiming for BREEAM 'Excellent'
- SBEM, the National Calculation Methodology (NCM), is the calculation tool within BREEAM
- SBEM works on the basis of a standardised building model. And this includes occupancy.
- 'If it were a standardised building how would it perform'?
- Not very helpful!



- •EU Energy Performance of Buildings Directive Recast
- <15% Variance in Cost Effectiveness in CO₂e Reductions
- •EN 15603
- EU Horizon 2020 € 64m in 2015 for Energy Efficient Buildings

<u>EeB-07-2015</u>: New tools and methodologies to reduce the gap between predicted and actual energy performances at the level of buildings and blocks of buildings

Architecture, design and research - new energy futures for the built environment

Alastair Binnie

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