

Second Project Newsletter – January 2011

# Low Impact Buildings Project

[www.lowimpactbuildings.org](http://www.lowimpactbuildings.org)

*Funded by:*

**Technology Strategy Board**  
Driving Innovation

**EPSRC**  
Pioneering research  
and skills

*Project Team:*

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# Welcome

- This is the second newsletter of the Low Impact Buildings project.
- This [TSB](#) and [EPSRC](#) funded project is focused on developing an integrated waste, carbon and cost model to help deliver future low carbon buildings.
- The project is being managed by sustainability experts [Best Foot Forward](#) with support from [Oxford Brookes University](#). Other consortium partners include leading architects [Zedfactory](#) and developers of the energy modelling software [DesignBuilder](#). Support is being provided by [ItSoWorks](#).

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## Multidisciplinary project team

- We realise that delivering environmentally friendly buildings in a cost efficient way is a challenge that requires a multidisciplinary approach.
- The Low Impact Buildings (LIB) project team comprises academics, environmental experts, software developers, architects and quantity surveyors. We will also be engaging construction companies.
- Project Managers: [Craig Simmons](#) (Best Foot Forward) and [Joe Tah](#) (Oxford Brookes University).

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## Project context

- The construction industry is under pressure to respond to increasingly tight environmental standards whilst cutting costs and delivering quality infrastructure and buildings.
- Informed decisions require the management of vast amounts of knowledge about alternatives and their performance. It is not cost-effective to manually assess options so, increasingly, software-based estimation methods are being used.
- The low impact buildings project is aimed at providing one solution by developing integrated tools for carbon, cost and

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# Project timetable

- The project is being delivered over 24 months (starting February 2010) through the following work packages:
  - WP1: Project Management
  - WP2: End-User Requirements
  - WP3: Embodied Carbon Emissions Measurement
  - WP4: Integrated Carbon, Waste, Time, & Cost Models
  - WP5: Development of Decision Support Tools
  - WP6: Testing, Validation, Implementation and Exploitation

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# Good progress against project deliverables

- Several internal and external technical foundation documents produced
- Productive meetings within consortium to devise and progress carbon, waste and cost models
- Good progress on Low Impact Buildings tool development
  - The tool will allow designers to systematically assess alternative low impact building design options for single buildings and entire developments. Practitioners will be able to assess designs against multiple sustainability performance measures such as embodied and operational carbon emissions, wastes and costs simultaneously.

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# The Low Impact Building Design Tool/1

A process map that depicts the activities involved in the design of buildings and developments that incorporate innovations in low impact and sustainable building technologies and methods at the early stages of the design process has been developed.

Models for measuring embodied carbon emissions from construction materials, components, and activities have been established. Models for costing designs at various levels of detail have also been established. End-user requirements for the decision support tool being developed to support the process have also been elicited. This has been used to develop an early prototype which will be continuously refined over the coming year.

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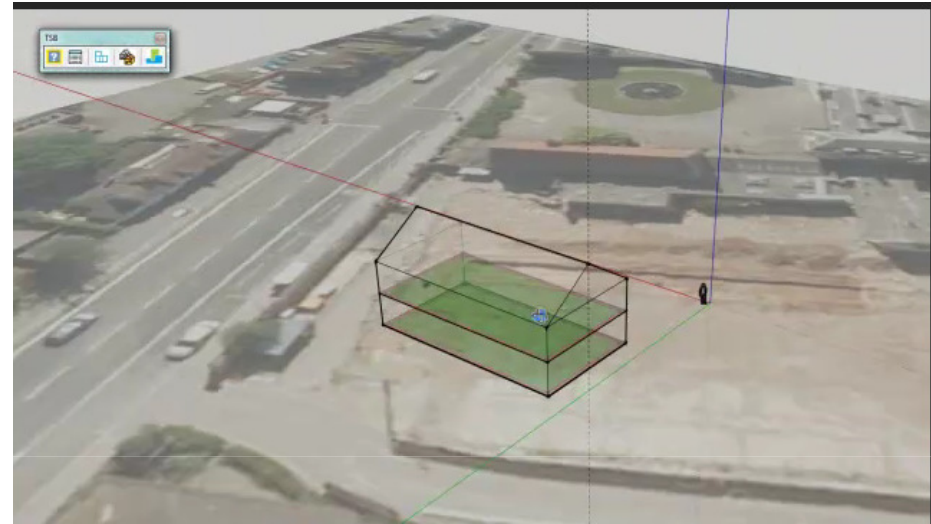
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# The Low Impact Building Design Tool/2

The decision tool extends the free issue Google SketchUp modelling tool. With the tool you can:

- Define site location using the Google Maps tool within Google SketchUp
- Use the shape modelling tools to quickly define the building mass
- Building estimates are updated as the massing shape is defined
- The tool automatically determines floor footprints to create a BIM building component - floors are automatically zoned to create rooms



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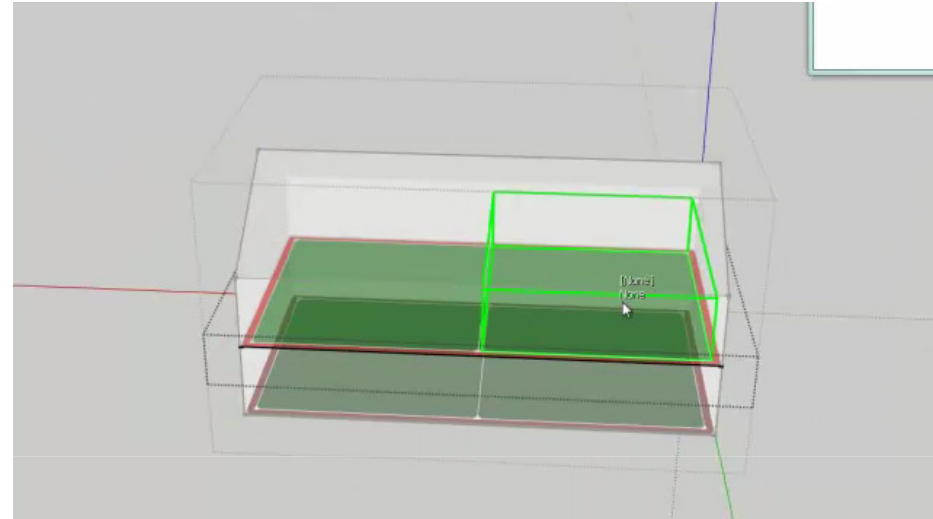
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# The Low Impact Building Design Tool/3

- Material types, properties and carbon values can be associated to building elements
- These data bindings are used to dynamically create 3D geometry
- BIM measurements can be taken directly from model for more accurate cost estimates or data exported to gbXML
- Buildings can easily be instanced multiple times across a development site and buildings may also be stored/downloaded from Google 3D Warehouse



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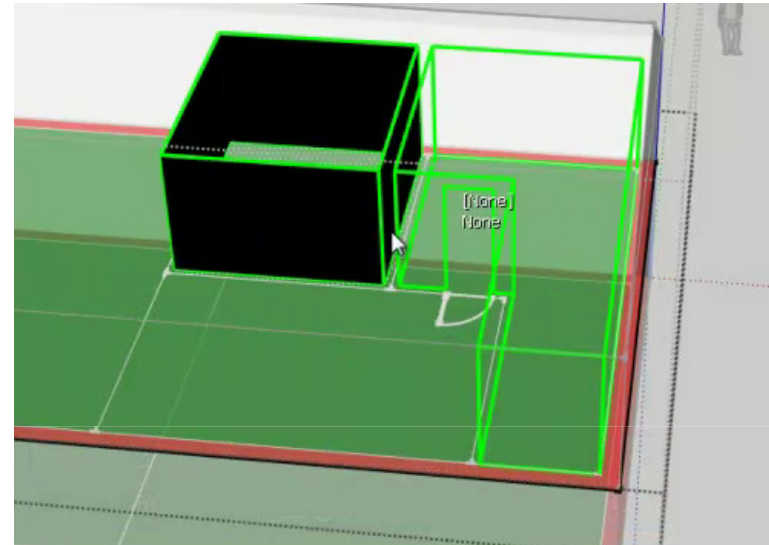
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# The Low Impact Building Design Tool/4

- Ultimately, the tool should allow users to easily develop 3D models of low impact buildings and entire developments and immediately see the implications of their decisions on multiple performance measures such as embodied and operational carbon, wastes, and costs simultaneously on an on-screen sustainability dashboard.
- The development of the tool as a plug-in to the free issue Google SketchUp 3D modelling software is expected to be an attractive proposition for many design practices which cannot afford expensive BIM systems.



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# Want to know more?

Go to our website:

[www.lowimpactbuildings.org](http://www.lowimpactbuildings.org) where you can:

- Learn more about the project
- Find contact details for the project team
- Join our Discussion Group
- Download project documents
- In February 2011 we will also be posting our first video which will demonstrate our modelling extensions to Google Sketchup

Key Milestones	Milestone	Due Date	Complete
EFF	Masterplan	July 5, 2010	
EFF	Masterplan	January 17, 2011	
EFF	Masterplan	July 4, 2011	

## Thank You

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