

Greener buildings at the touch of a button

Australian expertise in IT and software, environmental science, and design science has combined to produce a world-first tool that looks set lead the burgeoning sustainable construction industry.

Dubbed the 'green calculator', and developed at the Cooperative Research Centre for Construction Innovation, the LCADesign software gives building industry professionals an immediate cost and environmental 'footprint' assessment of any commercial building.

'Working from the 3-dimensional Computer Aided Design (CAD) for a building, the calculator provides an instant display of the volume and cost of all the materials involved in its construction – at the push of a button,' says the leader of the development team, Dr Peter Newton of CSIRO.

'At the same time, it can calculate the environmental impact of all those materials – how many tonnes of clay were used to make them, how much water, how much energy, and how much greenhouse gas and other polluting emissions they made to air, land or water.'

Dr Newton says that the calculator is linked in real-time by an extremely powerful Australian-designed software engine to a constantly-updated index of the prices of more than 800 key building materials – concrete, brick, steel,



Dr Peter Newton directs programs of research on Sustainable Built Environments at CSIRO and the CRC for Construction Innovation.

aluminium, glass, timber, and tiles – and a parallel database of their environmental impact.

For the first time, builders can instantly redesign or respecify materials for a building based on both the economic and environmental cost of the materials involved. They can now see which materials have the least environmental impact over their lifetime.

LCADesign also shows how well a building complies with government, industry or project

standards and benchmarks.

Dr Newton says the green calculator illustrates a growing competitive advantage in Australian R&D – the ability to combine the best research from contrasting fields coupled with industry focussed partners to drive real outcomes.

'It's a genuine world-first – and we're seeing real interest in it from the North American construction industry where there is currently nothing equivalent,' Dr Newton says.

'It is also likely to revolutionise the profession of quantity surveying,' he adds.

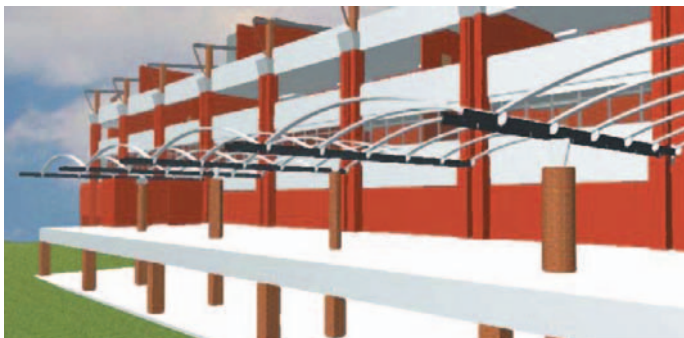
Citing the urgent need for such a program in the commercial building industry, Chief Executive Officer of Construction Innovation, Dr Keith Hampson, said 'Our industry is likely to remain a major source of environmental degradation if major steps aren't taken now'.

'Commercial buildings have a substantial and multi-level

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impact on the environment that is predicted to increase in the next few years. On a global scale, they employ ozone-depleting chemicals, contribute to global warming from fossil fuel combustion, and use massive amounts of non-renewable resources.

Construction Innovation envisages commercially releasing the first version of LCADesign following completion of the prototype development in late-2004. In future, according to Peter Newton, the calculator will do the same for family homes, roads, sewage networks or any major construction project.



CAD plans are the basis of the green calculator's cost and environmental estimations.



Large developments can now instantly choose the most cost-efficient and environmentally friendly materials.

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