

## Profiling in 3D >>

By Dr Keith Hampson, CEO for the Cooperative Research Centre for Construction Innovation

**A**t the CRC for *Construction Innovation* we're continuing to move ideas into practice for the property and construction industry.

Building industry stakeholders and manufacturers are seeking whole-of-product-life eco-profiling tools, especially as increasingly stringent sustainable building codes and demands for eco-efficiency assessment come into effect over the next few years.

Recognising the lack of objective information about the environmental impact of building products, two user-friendly tools are being readied for market entry- *LCADetail* and *LCADesign*.

*LCADetail* provides user-friendly and rapid eco-profiling of common building products used in residential, commercial and industrial property and construction market segments.

For the first time, stakeholders will have tools that calculate the environmental and economic costs of real products. Both tools are based on software using the latest global industry foundation class (IFC) data transfer protocols for drafting intelligent three-dimensional (3D) computer models.

Users will work from product specifications already in the software where previously they used MS Office-type spreadsheet software. Two-dimensional work-ups just do not show how things interact the way 3D does. For example, a line drawing cannot be tagged with specifications automatically so most have to be done manually. But with these 3D tools, users can visualise all drawn components and drill down to find and interrogate eco-hotspots and compare alternatives.

And there is more when it comes to whole-of-building design. The second tool, *LCADesign* is being tested now, in readiness for market release this year. It assesses environmental and economic costs of building models drawn in intelligent 3D CAD.

Both tools contain results from a national environmental inventory database, derived in part from the one originally compiled for the Sydney Olympic (Green) Games in 2000. *Construction Innovation* was given access to this master database which, unlike previous inventories, was based on



Australian rather than European information. A data-trading scheme with other sectors such as manufacturing will help to ensure it remains up-to-date and national in coverage.

This 3D building software and database combination will certainly enable the Australian building industry to become smarter as well as more eco-friendly. For example, in future building product manufacturers with their own *LCADetail* extranet will be able to submit data directly to the national database for accreditation and automated creation of their own eco-profiles.

Also, a builder who runs short of materials on a job may check options that meet the contract by logging onto the project-building model through their palm pilot. They then select and log the best option and access the supplier chain *LCADetail* extranet to order more stock.

For the first time, manufacturing, construction and facility management stakeholders will have tools that directly calculate the environmental costs of products, buildings, and entire facilities based on three real-world dimensions and visualisation technology. In future, they will be able to add their own information to their models for security or occupancy, for example.

Given the steady uptake rate of 3D-intelligent CAD software and the effort in recent years to bring the property and construction industry up to speed in computer literacy, *LCADetail* and *LCADesign* are both timely applications for the industry to exploit to their full potential now and increasingly in the future.

Partners collaborating on the project are Arup Australia, Bovis Lend Lease, Woods Bagot, ABCB, Building Commission, Queensland Department of Public Works, CSIRO, QUT and RMIT. **BA**

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