

NCE IT: BUILDING INFORMATION MODELLING STANDARDS

A new system for design and construction planning – being trialled on London’s £14.5bn Crossrail project – could cut billions of pounds in wastage if applied across the industry. **Adrian Greeman** reports.



Crossrail: The Canary Wharf station will be part of the BIM trial

MAKING IT CLEAR

Tens of billions of pounds are being wasted by the construction industry’s inefficient handling of project documentation.

Huge inefficiencies in construction projects across the world, which are estimated to add up to 30% to costs, are caused simply by incomplete information in drawings or documents.

Time and resources are consumed by the need to go to and fro with RFIs to confirm dimensions, figures, and lines. At worst millions can be spent on site to redo work where elements fail to fit properly first time.

Drawings can be ambiguous or improperly finished, inaccurate, to the wrong style, or simply not fit for purpose at different stages of construction. They are often not even geo-referenced to the same base. Multiple versions proliferate all too easily on modern computers and electronic communication like emails, with no-one clear which is the latest version and what changes have been made to what.

Building Information Modelling (BIM) systems may create efficiencies by allowing different designers’ work to be brought together in a 3D model, helping planning and sequencing, clash detection and organisation on site, and increasingly to add in a cost line to the sequences. Last

week’s Government Construction Strategy puts it central to all future public sector work (see *News*). But they need consistency and control too.

To tackle all this in the UK, the defunct British Standard BS1192, developed in the 1990s, has been reworked as BS11920-2007. It sets out essentially a disciplined procedure for the production and issuing of documents specifying how they should be named, filed, referenced, styled, signed off and issued.

London’s £14.5bn Crossrail project is trialling the automated use of the standard through software designed in conjunction with US IT giant Bentley Systems. The software is a specially tailored version of Bentley’s ProjectWise document version control and tracking server, which now tracks CAD documents and other documentation to the standard.

The standard and software seemingly have most to offer to large projects like Crossrail, with dozens or even hundred of sub-contractors, suppliers, consultants and facilities managers can benefit strongly.

However, speaking at a recent conference ICE information systems panel chairman and Bentley senior consultant Phil Jackson said that there was a proven benefit at all levels to using the system, shaving

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Phil Jackson, Bentley

costs and adding 1-3% to profit margins, “which can mean a doubling [of profits] within this industry”.

“These are methods and procedures aimed at tackling common problems across the industry, which cost a huge amount every year, not just in Britain but in Europe and the US,” Jackson added.

MR1 Consulting managing director Mervyn Richards, one of the standard’s main authors, told the conference that the procedures involved, although time-consuming to explain in detail, are simple in principle: essentially designers and others producing drawings, models or documents, must follow a disciplined set of conventions for their designs.

An equally rigorous procedure then governs how these are certified as usable for specific

purposes and published for others to use. Essentially designers keep their own documents with an “original” label and a “user copy” is put into a public space for access by others working on a project. It is labelled as a copy and cannot be changed, but can be used by others as the framework for their work, such as adding services into a structure.

These designers too produce their own drawings and publish a copy into the public space when they are ready. Only their own additions are published and the original remains untouched.

Their accessibly copy cannot be altered but is used for further work and so on.

The procedures apply throughout the life cycle of a project from initial outlines to the maintenance and operations regime and even through to demolition.

All this could be applied to projects at any size, using any kind of technology, including even pre-computerised manual production of drawings and other documents. But it obviously works much better when automated. Hence Bentley’s development of its software to meet the standard for Crossrail.

The software will help tie collaboration systems into the gradual evolution and growing complexity of 3D design and information models.