Case Study IT034

Sharing CAD data among the design team on a construction project

The achievement

Buro Happold, consulting engineers, streamlined the sharing of digital data among the design team on a construction project and established procedures to ensure that current and correct sets of electronic data were maintained. They also devised a means to ensure that all issues of digital data could be tracked, and that data was compatible for use in the offices of all team members.

Key benefits

★ Improvements in quality of product
★ Increased efficiency
★ Virtually no expense to implement
★ Reduction in loss of data

The background

Buro Happold already followed well-established procedures in the issuing of information in hardcopy form. However, procedures for issuing digital data were not so well advanced, and so they decided to introduce improvements. Their main objectives were:

- To make sure that all information is available to all parties as required.
- To avoid problems that can arise when digital data is exchanged, in particular:
  - multiple copies of files
  - no backups
  - unusable data
  - no record of current or previous data

The approach

They reviewed internal office standards for the preparation of CAD drawings, such as layering, pen widths and colours, across all members of the design team. From this they were able to establish common ground and to assess the requirement for new standards. They noted where procedures for issuing digital data were absent, and introduced new procedures. By reviewing successes and failures in digital exchange from earlier projects, they were able to learn from past experience and collated the best elements.

The main difficulty was making sure that everyone adhered to the new procedures and protocols. This was overcome by:

- Customising menus for element standards within the software. For example, walls have to be drawn on a particular layer, with a particular pen width, in a particular colour.
- Appointing a CAD data co-ordinator at each end as a single point of contact for all incoming and outgoing information.
- Policing data regularly through spot checks on a sample of files every time data is issued to ensure adherence to standards and menus.

A particular concern was the uploading of new issues, and removal of superseded data. One person was made responsible for ensuring that CAD files on the server were the latest versions. Older versions were archived and over-written, so it was not possible to pick up an obsolete file in error. It was also important to check that outgoing issues of CAD files were consistent and adhered to the agreed standards. Backups of issues were made on CD to ensure that, if anything went wrong, they could still be retrieved.

All data has to be treated as "open". To get the best from concurrent working using digital data, the data needs to be exchanged as designs are being developed and modified, rather than, as with hardcopy drawing, waiting for a monthly issue. This may mean the data exchanged has not, at that point, been fully checked. To get the best from digital exchange there has to be a high degree of trust between the members of the design team.

Throughout the process, CAD data was treated as a special set of data rather than just a digital version of paper-based data. All issues were traceable without using an Electronic Data Management system. The CAD data could be used by every member of the team without the need for redefinition of any elements.

Benefits achieved

Improvements in quality of product - all data is prepared to consistent standards.
Increased efficiency – less time is wasted on converting data and re-assigning elements, and everyone knows where to look for information when it is needed.
Virtually no expense to implement – there was no need for additional software.
No lost issues of data.

Key lessons

- ★ All data has to be treated as "open" with a high degree of trust between the members of the design team.
- ★ It is important all members of the team are committed to this way of working and convinced they will gain some of the benefits.
- ★ Design teams have to recognise the need for change, and be open to new methods and improved procedures.

Further information

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