

Case Study



Converting from traditional draughting to 3D CAD

The achievement

MacKellar Schwerdt, a firm of architects with offices in Lewes and Newcastle introduced CAD in response to client expectations. This study shows how they set objectives, in particular for the production of 3D designs, established hardware, software and training requirements with a realistic budget, investigated different software options, and enabled knowledge-sharing throughout the practice.

This case study will be of interest to all those small to medium-sized design practices who intend to invest in CAD as a means of improving working methods in order to provide a better service.

Key benefits of using IT to support document management

- ★ A faster response to client instructions
- ★ Better integration between 2D and 3D work
- ★ Production of more exciting presentation material in terms of 3D
- ★ Quicker feedback on design
- ★ Rendered drawings are submitted to planners to facilitate the decision making process
- ★ Improved speed and efficiency in drawing work

The background

MacKellar Schwerdt was formed in 1991 with offices in Lewes and Newcastle. Each office is driven by two partners. Activities include feasibility studies, planning and design services, technical design and specification writing. The practice carries out a wide range of public and private work

Around 1991-1992 the partners felt they needed to address the issue of CAD in response to client pressure.

The approach

In terms of software, 3D was a priority, as they believe it essential to be able to demonstrate good visual design in a variety of contexts. AutoCAD, Microstation, ArchiCAD and MiniCAD were considered.

They attended exhibitions, lectures and demonstrations and gleaned what they could from magazine articles. A friendly competitor practice had acquired AutoCAD, and was able to give advice although MacKellar Schwerdt eventually chose ArchiCAD from GraphiSoft as it best satisfied their requirement for ease of use and their 3D aspirations.

The practice had a preference for an Apple Macintosh based CAD system as an Apple Macintosh based word processing package was already used by the practice for secretarial work and specification writing.

An early strategic decision was that Lewes and Newcastle would combine their purchases to get a bigger discount on a larger deal. One workstation would not be enough to cope with workload and on-going training, therefore two workstations per office would be required.

The complete hardware and software package was obtained from a dealer who was able to offer the best leasing arrangement. In total the package represented an investment of some £40,000. The leasing arrangement meant the cost of the system was spread over a number of years.

Two workstations, a plotter and DAT tape backup devices were acquired for each office. The workstations were networked to make information about a job as immediately available as possible and to make back up easier. There are currently seven workstations in Lewes and four in Newcastle.

Training was carried out at base mainly because the practice wanted to use and get used to their own equipment. Eventually a core of people was trained and played a major part in spreading expertise. Knowledge has been sustained by buying training for each new person who joins the practice. Workstations are grouped closely together so that an inexperienced user can sit next to an experienced user to gain solutions to difficulties immediately.

Although the new system was launched on a £2m housing project, it was not until the third or fourth project, and when jobs were at a stage where complete models could be built, that the full benefits of the system came into play. The model was used to get the client's approval for appearance and layout, planning approvals, building regulations approval and site construction drawings.

All major projects are now done on the system, and the original objective of providing the client with more visualisations is being met.

Benefits achieved

- The original objective of providing good rendered images has been achieved. Further efficiencies were gained by better co-ordination of changes, and through speed of turnaround to clients. The time created was used to do show the client more views of his project.
- The system makes a vital contribution to their quality of service in high quality design, and the ability to provide rendered drawings and consistent drawings.
- Major design changes in the 3D visualisations and 2D drawings can be executed quickly.
- Rendered drawings are submitted to planners to give a better understanding of how projects might fit into their surroundings.
- General speed and efficiency in drawing work has improved.

Key lessons

- ✦ Ensure the commitment of all partners. This is probably the single most important factor for any organisation.
- ✦ Take updated versions of the software but only when significant advantage can be gained.
- ✦ Make realistic financial plans – all procurement aspects should be addressed: system specification, peripheral equipment, backup software, training and support.
- ✦ Combined purchasing and leasing arrangements can be used to reduce and spread costs.
- ✦ Learn by talking to other practices before selecting software.
- ✦ Gradually introduce the use of the new software into current work load.
- ✦ Place workstations close to each other to facilitate sharing of expertise.

Further information

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