

CONSTRUCTION CORNER



The more things change ...

By Bret Tushaus

"[Architecture] Firms with computer [CAD] capability will survive and those without it will die."

This is an excerpt from an article on computer-aided drafting from the May 1982 *Progressive Architecture* magazine. That period marked the beginning of mainstream use of CAD, and its value was being realized through increased efficiencies, improved access to information and opportunities for enhanced design experimentation and exploration.

We can't know for sure if all the firms that didn't embrace CAD in the early 1980s died. However, for the next 20-plus years, CAD became as commonplace as hard hats.

Today, the industry faces a similar crossroads. In the past few years, a new era in CAD gained significant momentum.

No longer is CAD just about inputting simple lines, arcs and circles and outputting only hard-copy, two-dimensional paper drawings. Instead, the process of building-information modeling is upon us, and construction projects are now being created, analyzed, visualized and coordinated in the virtual world before they are constructed in the real world. As a result, BIM is creating some very distinct and tangible benefits within architectural firms and beyond.

First, there is the opportunity to vastly improve communication within a project team. Because BIM-related tools let architectural teams create a virtual instance of a building before any dirt turns over on the project site, the ability to communicate the design and functional intent of a facility is enhanced exponentially.

Engineers and contractors can understand the details and how the building goes together much earlier in the process, which lets the team make more informed and timely decisions. Clients can see and understand the design in 3-D and no longer need to wade through only two-dimensional paper drawings.

Conflicts and interferences can be recognized and resolved within the 3-D virtual model prior to construction. This can result in saved costs and time during construction and can lead to higher-quality buildings. In a time when construction budgets and schedules are becoming more and more restrictive, this potential benefit can pay real dividends for a construction team.

Perhaps one of the most exciting possibilities of applying BIM within an architectural office is the opportunity for architects to focus more attention and effort on the design and building technology aspects of a project and less on the more tedious aspect of construction-document production.

Inherent in most BIM-related tools is the capability to automate and streamline many of the processes and tasks involved in producing a set of working drawings. Not only can this contribute to a more accurate set of drawings, but it also lets the architect dedicate more effort to design and construction exploration.

In addition, working within a BIM-based platform requires design professionals to think beyond two dimensions and really consider the third dimension as a project is developed. That way, architectural professionals are immersed in true architecture and construction.

The CAD landscape of today and the associated BIM movement are having significant effects on many facets of the construction industry. However, these changes are part of an evolution that started more than two decades ago.

The most important aspects of BIM and all that surrounds it are the opportunities for the industry to improve quality and efficiency of work, offer better and more services to clients and produce better-trained architectural professionals. BIM represents a new era in CAD, and one that might offer more upside than anything seen in the past 20 years.

The *Progressive Architecture* article from 1982 concluded by suggesting that the CAD movement might be the best thing to happen to the industry in two centuries, and it added that, "It will allow designers to design more in less time and will leave tedious drawing of final documents to machines instead of humans."

That sounds familiar, and it only proves that the more things change, the more they stay the same.

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