



A Model Decision

HOK pledges support for building information modelling and Autodesk Revit Building

All industries and professions have their barometers - usually a small handful of pioneering firms that predict the future climate of the market and signal the way ahead. HOK is one of these; what it does today, the rest of the architectural world often follows close behind.

Its CEO, Patrick MacLeamy is renowned in the industry for his views on using IT to work in a more effective way: "Around the world, I want people to think of us as the smartest firm out there for managing technology and information," he says.

His views are echoed by his CAD director, Mario Guttman, who commented: "It's about the building industry using computers and new ways of working to be more efficient - and create a better build environment.... As a firm, HOK chooses to lead."

With this in mind, it is significant that HOK has become the latest large global company willing to stand up and be counted on Building Information Modelling (BIM) - a building design and documentation methodology characterised by the creation and use of co-ordinated, computable information about a building project in design and construction.

As a result, its London office has bought 150 licences of Autodesk Revit Building and is already working on a full range of projects - around 15 in all - across the practice. It is now well on the road to BIM with plans to integrate the structural design into the single building model when the time comes.

UK CAD manager, Miles Walker, says that the benefits will be huge, and will become increasingly evident as projects progress.

"One of the main strengths of BIM is that it ensures projects are in a good position when they reach the construction phase. For example any clashes will have been ironed out long before. Because data has been enhanced throughout the design process, the central model holds all the information needed and this can be shared with engineers, construction teams, the clients and, even when the time comes, facilities managers."

Working smarter

In 2006 the HOK board pledged itself to an idea it called HOK buildingSMART. This self-explanatory concept would be applied to the entire building process from concept design through to facilities management and the ultimate aim would be a single, integrated building model throughout these phases. Or, in other words, BIM.

To help reach this goal it committed to a suite of software products including Autodesk Revit Building. It also set itself the task of piloting Revit Building on over 20 projects worldwide during the first year.

Revit Building is purpose-built for BIM, enabling users to work in a single model environment holding all current design data. Its parametric technology co-ordinates the entire model every time a change is made, so helping to eliminate errors through using outdated data and saving the time taken to change every aspect of a design.

Walker explains that the concept of a single building model was not new to the practice. "We had begun to move towards the idea on a major healthcare project, the Barts and London Hospital, a few years ago. This was designed using Autodesk Architectural Desktop.

"However, Revit Building does require a shift in culture. We wanted to move the emphasis back from the technology to the design, giving architects more control for longer."



In the UK, HOK has been working with Autodesk reseller partner Excitech which has implemented Revit Building and developed bespoke training programmes. Around 60 staff have been trained on Revit Building and from the beginning, the focus has been senior designers – rather than technicians – first. Now the 20 pilot project landmark has been and gone. The London office has embraced the new technology wholeheartedly and already has around 10 projects running on Revit Building, all at various stages. The variety of these – they range from a 50 storey tower in Istanbul to a new airport terminal in Delhi – certainly shows that the software has been put through the paces.

A major focus has been a large London office building for an international financial institution. The project is now at Stage D and HOK's structural engineers are linking the single Revit Building model with Revit Structure for structural design, analysis, co-ordination and documentation. This will cut out the need to re-create and re-enter data manually during the next stages of the project.

"This is one of the major benefits of BIM. Once a single model has been created, it can be shared with other disciplines further downstream. All the time the model is being updated and populated with further important information."

"There's no need for each stage to re-create their own data or for paper to be sent to and fro."

Integral process

"As CAD has progressed, we're recognising that 2D drafting is actually at odds with the way architects think. It had become a parallel process, rather than an integral one," explains Walker.

"On the other hand, Revit Building helps architects realise their ideas faster. They can put down their initial concept and everything builds on that. Because more detail can be added and, therefore, better co-ordination information is available earlier in the design, many issues can be settled sooner, taking the pressure off the working drawing stage," he adds.

Because Revit Building gives architects more freedom to design, the overall consensus is that it is "engaging and enjoyable" to use.

"Even senior designers who would not usually have much to do with CAD are finding they like using it," says Walker. "Rumour has it that they are even playing around with it at the weekend. Technology has to be compelling for that to happen."

However, Walker is realistic enough to recognise that it is not always plain sailing. *"Anything that breaks new ground is a challenge and it has required good training and rigorous application."*

"You have to push for change and it's not always easy. That is, until everybody starts to see the benefits and then it makes sense."

He reports that he has found guidance from Autodesk, Excitech and user groups. *"HOK also has a network of worldwide CAD managers from its 24 offices and we regularly meet to exchange ideas. It's been healthy to bounce ideas off fellow users and as BIM becomes more widely used, the whole process will become more commonplace."*

"Designers are now coming out of the first stages of the Heathrow Terminal 5 project (which uses a single model environment) and have seen the benefits of working this way. I think that if you work with people who have already had this experience, the path becomes smoother. They all say they wouldn't go back to the traditional way of working, so as time goes on, the momentum will grow."

Bob Garrett of Excitech agrees: *"We've been able to use our experience working with BAA at Terminal 5 to advise HOK and there's a healthy exchange of ideas across the industry showing that the concept of BIM is beginning to take hold. Once people can see the practical benefits, it becomes far clearer to them and they understand what we have been talking about."*

Although ADT and AutoCAD are still used in the background at HOK, new projects will use Revit Building wherever possible. *"We've used it enough now to be over the honeymoon period and we're still eager. Already we have seen enhanced co-ordination, accuracy and also innovation – all leading to higher quality," says Walker.*

"I am still excited about the whole programme. It's been described as 'getting back to doing architecture again' and this is a major pull. However, it is also much more. For example, it is a better way of managing risk as it ensures a far more co-ordinated team, but also well-documented projects."

"It's a real leap forward for us – and for design and construction as a whole. However, we are proving there is a better, smarter way to meet the industry's challenges."