

Case Study:
Franklin Ellis



Franklin Ellis: DESIGNING BUILDINGS
ON THE FLY
with Vectorworks Software **AND CINEMA 4D**

*Franklin Ellis Architects
designs the unique
Science Priory for
Repton School in England.*





If you thought 3D animations of a building were just something snazzy for the marketing department to help sell a shiny new building that's in the process of being built, with everyone sipping champagne, think again. UK-based architecture firm Franklin Ellis Architects reports that clients now expect 3D visuals as part of the design process itself.

“Some clients struggle to interpret 2D drawings and feel more comfortable signing off a 3D image of the scheme,” explains Oliver Higgins, Architect & CGI Visualizer at Franklin Ellis. Seeing 3D visuals during the design stage also gives clients an opportunity to give feedback on the design.

“Clients will always comment on the 3D visuals, which will influence the changes we make to the design,” says Oliver. “The advantages to ‘modeling on the fly’ mean that crucial decisions can be tested virtually before stepping onto site. In some respects, having the visual means that the entire design and construction teams are working towards the same end goal; there is no danger of people interpreting the 2D drawings differently.”

There is one potential snag, however, in providing 3D visuals while the building is still being designed: If your CAD software does not play friendly with your visualization software, it can be time consuming to switch back and forth between the applications to make the changes to

the building design. Clients probably think you just press a button, but in reality it's more complex. To ensure speedy 3D visuals, Franklin Ellis uses the powerful and well-integrated combination of Vectorworks® software and CINEMA 4D for designing the building and visualizing it, respectively.

CINEMA 4D's support for the Vectorworks program includes import of all materials and lights, the preservation of the scene structure, and an intelligent update function. With the smart updater, you can go back to the Vectorworks application at any time to modify the design, then update the changes in your CINEMA 4D visualization without losing the work already done in CINEMA 4D, such as the addition of trees, people and, of course, animation.

"CINEMA 4D's integration with Vectorworks is extremely valuable to us, as it allows the building to be refined in Vectorworks and constantly updated in CINEMA 4D in minimal time during the process," says Oliver. One project in which Franklin Ellis combined Vectorworks software and CINEMA 4D to provide rapid 3D visuals during the design process was for the new Science Priory at Repton School in England.

Notable former students of the leading school span all fields, from author Roald Dahl to Top Gear presenter Jeremy Clarkson and Adrian Newey, the only designer to have won Constructors

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—Oliver Higgins, Franklin Ellis Architects, Bedfordshire, United Kingdom

Championships with three different Formula One teams. The concept behind the unique Science Priory is to locate classrooms, laboratories, and lecture rooms in a new science building so that the rooms for physics, chemistry, and biology will be in adjacent spaces and will make use of shared resources, such as IT and technical rooms.

Additional resources include a multimedia 'science cave' in which structures can be projected in three dimensions to make it possible for students to examine molecules, channels, organs, and intra-cellular structures close up. "We needed to produce an animation that visually explains the function of the building and at the same time holds the attention of the audience," recalls Oliver.





“It was decided from the outset that the animation would follow a storyboarded approach rather than simply flying a camera around the spaces. This would allow for more realistic camera movements, the creation of a visual in which the user can engage.” One of the main challenges facing Franklin Ellis was controlling the number of polygons within the scene. Architectural scenes are often polygon heavy due to the complexity of foliage and other natural objects coupled with the intricate features of the building itself.

One CINEMA 4D feature that helps with coping with high polygon counts is the XRef system, which enables a scene to be split up into multiple files that are grouped together in a single master file. The entire scene is accessible through the master file, but you can go into any of the individual referenced files and make changes there without the overhead of the rest of the complex scene. “XRefs allowed separate files to be worked on without slowing down the main file,” comments Oliver. “Scenes were turned on and off as needed.”

Franklin Ellis also made good use of other tools that at first sound like they are not part of an architect’s toolbox, such as the hair system, which is a favorite of character designers. “The hair system is a great asset to us, as it allows for the easy creation of extensive lawns and grassed areas without creating millions of polygons in the scene,” explains Oliver. And the MoGraph tools—popular for creating amazing motion graphics—can also play a part in architecture. Oliver reveals: “Combining MoGraph and XRefs allowed us to quickly and easily update furniture, such as the chairs in the lecture theatre, as the design progressed.”

With 3D visuals now a firm part of the design process, Franklin Ellis is finding that it’s not just the buildings themselves in which clients are

interested. It’s also the finer details. “More often we are also getting requests to model individual components of a building such as glazing systems. This additional modeling helps to explain the more complex junctions of the building to the client and contractors.”

Almost any request from clients can be met with CINEMA 4D’s full suite of 3D tools, even a singing dinosaur if your client really wants one. “CINEMA 4D is invaluable within our design environment. From the early concept model to the polished image, CINEMA 4D provides all the visualization tools we need, and it keeps getting better,” says Oliver.

Acknowledgements

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<http://www.franklinellis.co.uk/>

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