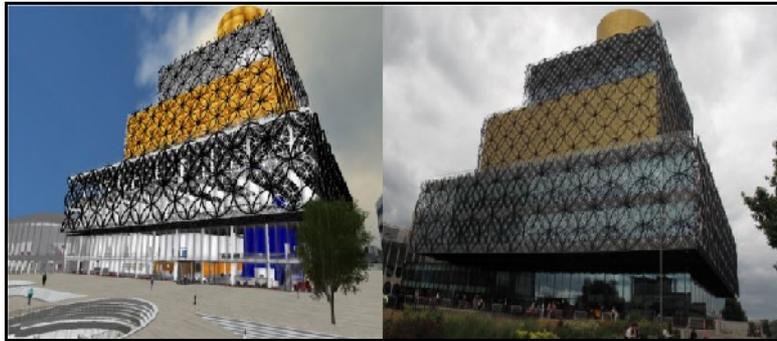


Virtual Library of Birmingham

The new £188.8m Library of Birmingham opened to the public on Tuesday 3rd September 2013. In 2009, during the design stage, Birmingham City Council contracted immersive environment specialists Daden Limited to deliver a 3-dimensional interactive model of the new library, to support community engagement, to inform the internal fit-out and to investigate the potential of a mixed physical/virtual Library space.



build (a restriction which the Library team later regretted) with the aim of making the layouts, spaces and navigation routes around the building to closely match those of the physical building. Since the virtual build was being done before work even started on the physical build some details of lighting, furnishings and fixtures were added as more representational aspects within the build. However Daden also taught key members of the Library team how to use objects in the warehouse to update the build as plans developed, and even how to make some new objects themselves.

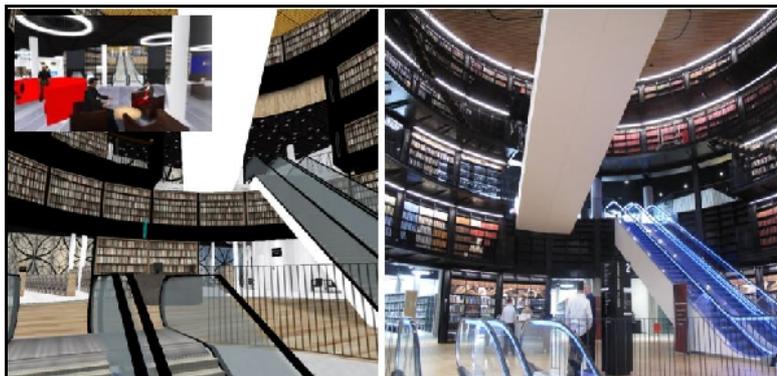


Daden used the architects' plans as a base to build the model, with the architect's fly-through videos and style book as references. The build phase took place during 2010 in three phases of about 3 months elapsed time each. Phase 1 focussed on the structural elements (the concrete and steel of the build), Phase 2 on the fixtures and fittings (during which Daden created a virtual warehouse of potential furniture for the Library, and Phase 3 on the community engagement and feedback tools – including voting pods and a flying book tour. The work focussed on the public areas of the

The virtual library was hosted in a public virtual world environment – Second Life. This meant that anyone would be able to download the viewer software and tour the Library from their own home – this was not something that would be confined to special events or hardware.

David Burden, MD of Daden Limited, comments, *“Back in 2009 Second Life was the obvious choice for this project – it gave us an open system that could not only be made easily available to the public, but also an environment where we could rapidly teach*

Library staff how to build in world. At the time we said that we expected the immersive environment landscape to change and if we were doing the project again today – where there is far more interest in web and mobile delivery – we'd probably use a platform such as Unity3D – which would also increase our ability to make use of existing CAD and architects' 3D models”.



To ensure that visitors understood the context of the project, and how to use the system, Daden built an orientation area – similar to a site Marketing Office – where visitors could learn about the background to the project and see a scale model of the Library within its setting in Centenary Square. The orientation area also gave visitors the chance to try out some of the consultation tools, which included voting and survey podiums for specific questions, a configurator so that users could try out different layouts, and a set of 3D “Post-It” notes which visitors could use to leave comments anywhere in the Library, and

which later visitors could vote on. All these systems were integrated with a web-based database, and Library staff had on-line access to the results.

During early 2011 (as construction on the physical Library started) Daden worked closely with members of library staff to make sure that the Virtual Library reflected the planned real life building as closely as possible, and the Council launched the Virtual Library in July 2011.

Brian Gambles, Library Director, Library of Birmingham said: *“We opened the doors of the Virtual Library in 2011, two years before the real building opened in 2013, for the public to come in, explore and share their comments and ideas and encourage people to explore it for themselves.”*



actually quite small, but even in this “discovery” model the virtual library received a steady stream of visitors and positive comments from across the globe.

What it was hugely valuable for, and when it made its biggest impact, was during the facilitated public showcase sessions held in Libraries around the Midlands.



audience to drive himself around the Virtual Library while his Mom and Dad were watching on the big screen and they were absolutely staggered. There were 40-50 people at a time in those sessions, and to try and have the same impact other than through a 3D model, it would be really, really difficult. This had much more impact than the public doing it themselves.”

Following on from the engagement programme, the Library staff used the virtual build on a daily basis, working with contractors, suppliers and the community. With the use of a “virtual IKEA” built by Daden and the basic training they received, the librarians were able to make changes to the model, as and when, to try ideas and to embed their decisions.

“The virtual model showed us areas where we needed to review our existing plans, and was a huge help in planning the layout of the facilities that were installed” said Tom Epps, Development Project Manager, Birmingham Library Service.



decided to use two double portrait orientation to display the information. Which is weird, but we tried it out in the virtual library first and put an image on there and thought “blimey that’s good!” And it is such an unusual shape, we probably wouldn’t have had the nerve to position the screens that way if we had not been able to test out first in the virtual build.” John Marsh, Project Manager, Service Birmingham said.

Other advantages identified by the team included:

- The flows of people through the building, including walkways, viewing spots and potential pinch-points

The initial goal for the Virtual Library project was for public engagement - for people to try it out themselves and to look around and was built with funding from the West Midlands Improvement and Efficiency Partnership. Visitors included those who were used to Second Life (including its global user base) , people who lived in Birmingham and people (again globally) who were interested in Libraries. A Venn diagram showed that the number of people who hit all three was

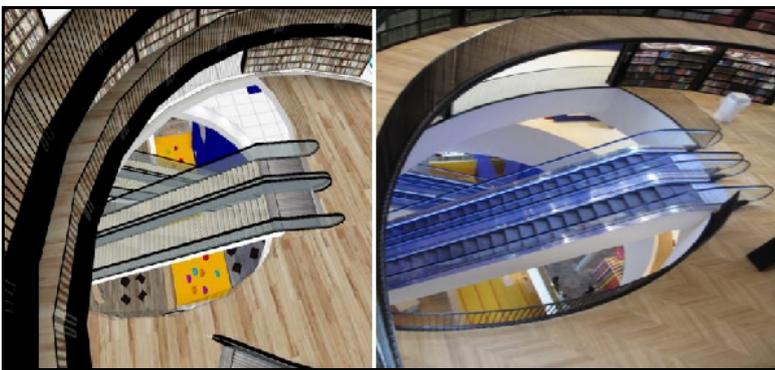
Tom Epps, Development Project Manager, Birmingham Library Service said *“The opportunity to reach more people, more quickly and in a more meaningful way was extremely important to the planning for the new Library. “*

John Marsh, Project Manager, Service Birmingham remembers *“I ran a session at Yardley Library and the effect was astonishing got one of the kids out of the*

could be more easily identified, just by watching how they themselves and other visitors to the virtual build behaved.

- The voice and text communications facilities within the environment Second Life allowed virtual meetings to be held in the relevant area of the virtual library to examine any points of discussion or concern. This saved on travel and meeting set-up time, and minimised the risk of misunderstanding from people looking at 2D plans or even sharing 3D CAD models.
- The layout and internal geography of the building is much more easily appreciated from the subjective viewpoint of being an avatar in the 3D virtual model, compared to plans or drawings or even a CAD style 3D model. Each user had free movement around the space, and the space could be explored as a group of individuals – giving it far more of the feel of exploring a real building than of looking at a CAD model.

Even other construction industry professionals found that this immersive 3D model helped to improve their understanding of the build, and their part in it – even though they were used to interpreting 2D plans. *“Due to the unique nature of the building, practical and serviceable physical locations for the Wireless Access Points would be a challenge and important to get correct. This challenge was greatly assisted using the Virtual Library of Birmingham in Second Life. Having calculated the locations required to provide The Birmingham Library with the WiFi coverage they need, the virtual build helped us verify the practicality’s of establishing these positions.”* commented Phil Hewson, Senior Wireless Consultant, Lan2Lan.



In the spring of 2013 the staff got their first look inside the physical build. There was a real sense of déjà-vu with how exact the real build was in comparison to the virtual version. Their 2 years had built up a real muscle memory of how to navigate through the build – they felt completely at home. And the sense and behaviours of the physical build almost exactly matched those of the virtual build. There was “a sense of being a little kid in a toy shop”, reported one staff member, seeing how precisely the two environments matched, and how features which they had laboured

over in digital form were now realised in the physical form.

“Having recently visited the Library to carry out some post installation RF tests, I felt I was more than familiar with the building having spent so many hours in Second Life during the design stage, the likeness and detail felt almost surreal.” continued Phil Hewson.



The key phrase to Daden, was that the model was a “*godsend*” in running the project since it gave the Library staff (the real users and owners, rather than the contractors or even the estates team) the ability to understand the build and develop it for the 2 years when they had no on-site access. *“The trick that was missed, and we were discussing when we were moving into the real build, was that we only built the public part of the building. If we knew then what we know now, we could have put all the back office in, so now staff wouldn’t*

be wandering around looking for their desk or even how to get out of the building - so they could understand where all their own facilities were as well as the public ones!” commented John Marsh, Project Manager, Service Birmingham.

Brian Gambles, Library Director, Library of Birmingham agreed, saying: *“This has proved a powerful tool for the project team and staff as we develop the new library, enabling us to get a really good feel for how the spaces in the new building will work that would not otherwise be possible.”*

The longevity and continued use of the virtual build has been outstanding, giving over 2 years of solid service, and with it being used right up to the last minute to visualise and decide everything from where to place the communal tables and chairs to the positioning of the ‘Welcome to Birmingham Library’ screen - *“As a new building training tool, that has be a big tick for me and absolutely tremendous.”* concluded John Marsh.

For more information about the Birmingham Library visit www.libraryofbirmingham.com

For more information about Daden and their building visualisations visit www.daden.co.uk