

Coventry University, Science and Health building

Client led BIM from construction through to operations



The Science and Health building is a new five storey research facility for the Faculty of Health and Life Sciences at Coventry University. It will provide teaching and research facilities, creating a 'superlab' for biological and analytical sciences, including a community house to test assisted living technologies.

During the Tender period, Coventry University asked for a Level 2 BIM Project, which we were able to provide due to our building information modelling (BIM) expertise.

As part of our Level 2 delivery we wanted to provide a more efficient and collaborative method of delivering the information captured during construction and passed to the Client at handover. To facilitate this, we had several meetings with the client and design team to help the university work out their Employers Information Requirements (EIR) and develop their Asset Information Requirements (AIR).

Client:
Coventry University

Contractor:
BAM Construction

Architect:
Broadway Malyan

Quantity Surveyor:
Gardiner & Theobald LLP

Project Management:
AECOM

Structural Engineer:
Buro Happold

M&E Consultants:
Buro Happold

Value: £38 million

Floor area: 92,300 sq ft

Completion: December 2016

BREEAM: Excellent (2001)

Key Features:

- BIM Level 2 scheme
- Development of client EIR's and AIR's
- 3D design
- Greater collaboration
- BIM360Glue gave the entire team access to the federated model
- Synchro software used to monitor progress against plan
- Data collection and auditing process established
- Site team used BIM360Field to capture and access data, and complete and review checklists

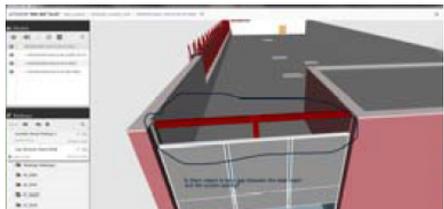
3D Design

As Coventry University did not ask for Level 2 BIM until the Tender Phase, Broadway Malyan had to recreate their AutoCAD drawings (2D design) into 3D using Autodesk Revit. However, their model only provided basic level information, for example the wall build up is not shown but the thickness is accurate. Buro Happold Structural was already designing in Revit and we made it part of our tender for the MEP Sub Contractor to produce a model drawn using Revit. This helped facilitate design coordination and capture the required asset information

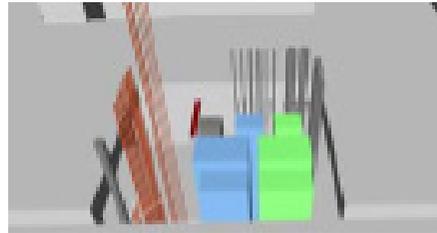


BIM360Glue

For Spatial Coordination we used Autodesk's BIM360Glue, as BAM's EBA with Autodesk gives us unlimited licenses for this online collaboration software. It provides a platform for the entire project team to view the Federated Model (without the need for specialist software) and allows them to comment and share views. At least once a fortnight, the design team's models were directly uploaded to the BIM360Glue portal. This enabled them to view each other's models online, in an almost live state and discuss design changes without the need for sharing models via livelink or having to travel to meetings.



The Client was also able to view and virtually tour the model. This allowed them to create mark-ups and better visualise the Building as a "Finished Product". On site, the project team used the Glue Model to check drawn information and better understand what should be built and how materials fitted together. It was even used as a tool to talk through the weekly work areas.



4D Comparison

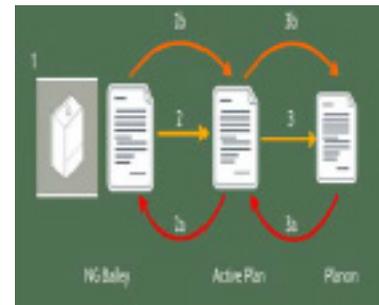
Coventry University was a pilot project for our use of Synchro, a Construction sequence software. It allowed us to compare snapshots from the model's time frames against actual on site images, so we could monitor progress against the plan.



Data Collection and Auditing

Defining the asset information required for a boiler or a door is relatively easy compared to the exercise of collating and checking it. To address this, Active Plan assisted us to capture the information received from multiple sources and amalgamate it into one source for handover to the client in a format which is useable/readable by their Facilities Management team; in this case Planon. We also agreed with Coventry University that we would use COBie Schema for data transfer as this is the industry standard.

We carried out a test "Data trip" for a boiler and NG Bailey populated the required information and sent it onto Active Plan for import into their software. They then highlighted any missing fields and requested further information, before producing a COBie export, which was forwarded onto Planon. The data was then imported and a final check carried out for any missing or incorrect information.



BIM360Field

Our Site Managers were provided with tablet devices that had Autodesk BIM360Field technology installed. This enabled them to access design information at the workface, monitor progress at the point of construction, and feedback any issues to our Sub Contractors and Designers. It also allows the site team to capture point of construction information related to safety, commissioning, work and snag lists. The latest drawings can

be accessed, along with specifications, standard and project specific quality checklists.

As well as BIM360Field on the tablet, Site Managers are also able to access Livelink through the web browser, as all tablets issued to site team have SIM cards provided.

We are now utilising the Equipment Feature within the software to identify items on site such as Builders Works Holes in the Slab, Scaffolding and even Fire Points to quickly show checklists that need to be filled out and issues raised.

Our use of Field BIM ensures site teams become active participants in the design process, challenging the design team to solve design issues more promptly. This helps to keep us on programme and budget and lowers risk. In addition, dynamic dashboard reports show the live status of site performance, work carried out, number of issues occurring, and time taken to resolve issues.

