

Rydens Enterprise School and Sixth Form College, Surrey, United Kingdom



ARUP

THE PROJECT

The creation of a new building for Rydens Enterprise College and Sixth Form to replace the former school buildings. The old school building is to be demolished to make way for housing which will finance the development of the new, state of the art school building.

The plans for the new school include a 6 court sports hall, assembly hall and performance space, studio theatre and drama workshops. The design for the building is complex and innovative; it involves an exposed concrete frame, slabs and columns. The layout reflects the school's 'house' system with different teaching blocks leading off a central spine.

When complete, capacity at the school will increase from 1076 to 1699.

ARUP AND SCIA ENGINEER

ARUP is a multinational professional services firm which provides engineering, design, planning and project management for all aspects of the built environment. ARUP was founded in 1946 and first caught the world's attention with the structural design of the Sydney Opera House and now has over 12,000 employees globally.

This was the first time ARUP had used SCIA software on one of their projects.

The main advantage of using SCIA Engineer on this project was that the engineers at ARUP were able to use one software package to model the entire building. SCIA was used to model the designs in concrete and steel. If SCIA hadn't been used on this particular project then the team at ARUP would have used 3 or possibly 4 different software packages to achieve the same end result.

Using more than one software package would involve more man hours inputting data and an increased risk of errors.

Since the building was constructed using a mixture of concrete and steel and included some large cantilevers, the first and second floors project out by six meters at one point with no visible supports, the designs presented some complex challenges. The exposed concrete in the design was another feature which required careful and detailed consideration. SCIA Engineer was used to model the behaviour and verify any crack widths. With this particular design it was a crucial consideration as there would be no ceilings, partitions or plasterboard walls to hide behind. This meant that cracking, which might be structurally acceptable, could be unsightly and therefore needed to be avoided through careful calculations. This would be critical to preserving the integrity of the design and ensuring the success of the completed build.

CADS CUSTOMER:

ARUP, Bristol office

OWNER:

Rydens Enterprise School and Sixth Form College

BUDGET/PROJECT VALUE:

£27 million

SIZE:

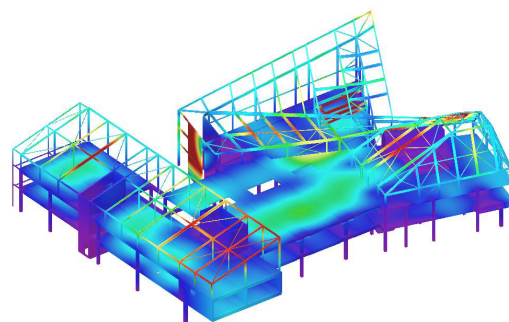
16,000 m²

SCHEDULED FOR COMPLETION:

Autumn 2017

ARCHITECTS:

Scott Brownrigg





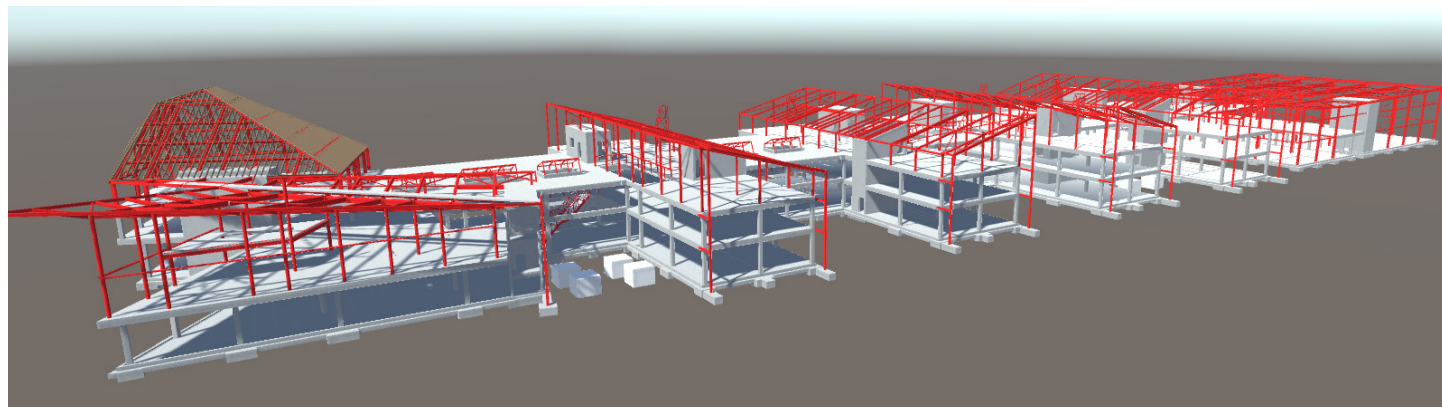
VISUALISATIONS BY SCOTT BROWNRIGG

THE ADVANTAGES OF USING CADS AND SCIA ENGINEER ON THIS PROJECT

- One software package instead of multiple packages
- Using one piece of software reduced the risk of errors
- Ability to model in concrete and steel
- Technical support from CADS
- Open BIM – the ability to model and share
- The power of the software and the functionality it offers

“We will certainly use the software again. We received a lot of support from the technical experts at CADS and using SCIA saved time which enabled us to spend more time on other aspects which will be beneficial to the project. We gained from the power of the software on this project but as it was the first time we’ve used it, it was also a learning curve. We will gain even greater time efficiencies on the next project.”

Mike Cribb, Associate Director at ARUP



CADS

CADS are SCIA's only UK partner and have also developed the Revit link and other functionality. CADS provided technical support to ARUP to ensure the smooth running of the project. Online tutorials were provided and a member of CADS technical team spent a day in the office with the staff at ARUP. They also benefitted from weekly support online and via telephone. It was the first time they had used SCIA Engineer and following on from the success they intend to use it on future projects.

SCIA

SCIA Engineer is a leading FE structural analysis software used to design all kinds of structures to UK, EC and International building codes. SCIA Engineer perfectly plugs into BIM workflows via a seamless link to Revit, developed and sold by CADS. More and more structural engineers are being asked to participate in collaborative, model-based workflows, and SCIA provides a practical solution to this type of collaborative working.