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Stewart McDowell,
Architect
Stride Treglown

Learning Curve

Autodesk® Revit® Building helps architects **Stride Treglown** show adaptability in creating a stunning new school.

Every project brings its own complications. However, architectural practice Stride Treglown faced more than its fair share when designing a new £25m Richard Lander School in Truro, Cornwall.

First there was the challenge of designing a building with such a high-profile within the area. The school for 1,350 11-16 year olds will also share its site with a public library and other community buildings and so public consultations, as well as extensive discussions with teachers, were an integral part of the design process.

There were also the usual design complexities. For example, wall thicknesses had to be adjusted when new acoustic regulations came into force and the school's IT requirements changed almost beyond recognition as the project progressed.

But it was the more unpredictable developments that resulted in real creative thinking. These included the discovery of 12 Iron Age circular houses and earlier Bronze Age activity on the greenfield site.

The architects also had to work around the traditional Cornish hedgerows on the site. These were retained not just for environmental reasons but for educational purposes too. Then there were demands from the existing residents. The fields had been home to many protected species such as bats and badgers and plans had to be adjusted to accommodate them.

In fact, the first structure to be built on the site was a hibernaculum or bat-house. According to architect Stewart McDowell, Autodesk Revit Building was instrumental in enabling the team to revise and refine their design to accommodate all these factors. It also helped them realise their ideas for a building that is not just practical, but also stunning and inspirational.

Capturing ideas

The Bristol-based practice won the contract to build the Truro school, plus a smaller primary school at nearby Devoran, as part of a consortium headed by a national infrastructure and facilities management group.

The Truro school, which replaces an existing 1960s school down the road, is being built on gently sloping farmland with wide ranging views. McDowell explains that Stride Treglown has created a striking U-shaped, low-lying building that relates well to the landscape.

Central to the design is a "street" eight metres across at its widest at the heart of the school. This provides a light, airy and welcoming space for socialising and displaying work as the daylight streams in from a large open void on the first floor.

McDowell explains how Revit Building came into its own from the very beginning of the bid process. It enabled the team to capture the broad sweep of their ideas very quickly. But as well as encouraging the creative process, it also helped them to manage the more technical aspects as well.



The Richard Lander School is a striking U-shaped building.

"We were given the specified floor areas and knew that we had to stick to them. Using Revit Building we could try out different ideas and could immediately see how this affected the dimensions. Revit Building makes it easy to adjust and experiment with a design because its parametric technology automatically updates all the associated data. There's no need to make any calculations or manual adjustments. We could keep track of the changing floor space as the design progressed and so keep control."

Once the consortium was selected as a preferred bidder, the team had to start putting more detail into the design. Once again, Revit Building played its part. Because the model automatically generates exact data as the building is designed, it was possible to be far more accurate in estimating costs than it would have been using more traditional methods of design.

Helping to get it just right

Because this data is always readily available, the team was able to pass on technical details to enable partners such as the mechanical and structural engineers to estimate costs as part of the bid too.

Work on the design hasn't stopped since the bid has been won and construction work begun. "With such a large project and so many interested parties, it is inevitable that adjustments need to be made all the time," continues McDowall.

"For example, we had to increase the thickness of the walls for acoustic reasons. As explained, the floor area had to remain constant and wider walls throughout really affected this. Using any other tool, the whole process of revisions and calculations would have been a time-consuming and tedious exercise, but Revit Building enabled us to easily change the design until we got it just right."

Throughout the project the provision for IT in the school has increased dramatically. Originally, only 10% of the classrooms had interactive whiteboards, but now all of them will be equipped in the same way. As a result the network hub room has grown from 10 square metres to 70 and the amount of cabling and cable ducts needed has upgraded accordingly.

Once again, Revit Building has ensured that changes can be made quickly and are automatically co-ordinated throughout the model.

The software has also been used to export schedules for doors and other fittings. "For such a large building this is quite a task. Also, £1.5m worth of furniture has been commissioned and we have been able to send the designers exact dimensions to enable them to ensure a perfect fit."

McDowall adds that it is not just the parametric side of Revit Building that has been invaluable. Teachers have played an important role in the design process and have been consulted on their needs for the new classrooms. "Being able to show them a realistic 3D model of the design has really helped us communicate our ideas and of course has meant we have been able to be more receptive to any ideas they may have, even changing the design as we speak to them,"

By now, Stride Treglown is ready for anything – and is planning to use Revit Building to help bid for further PFI projects. It has also ensured that Richard Lander School is already prepared for the future.

"We already have plans on how the building can be expanded by creating a lower ground floor, and we've designed the current services so that they can support this," says McDowall.

It seems that Stride Treglown and Revit Building may be going back to school themselves before too long.

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