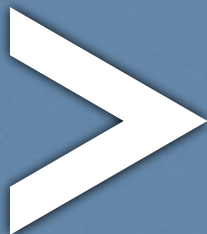
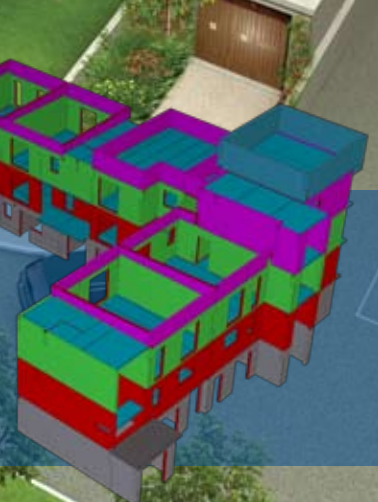




TEKLA® Structures



TEKLA STRUCTURES IN PRACTICE:
ADAMSTOWN PROJECT
O'REILLY CONCRETE, IRELAND





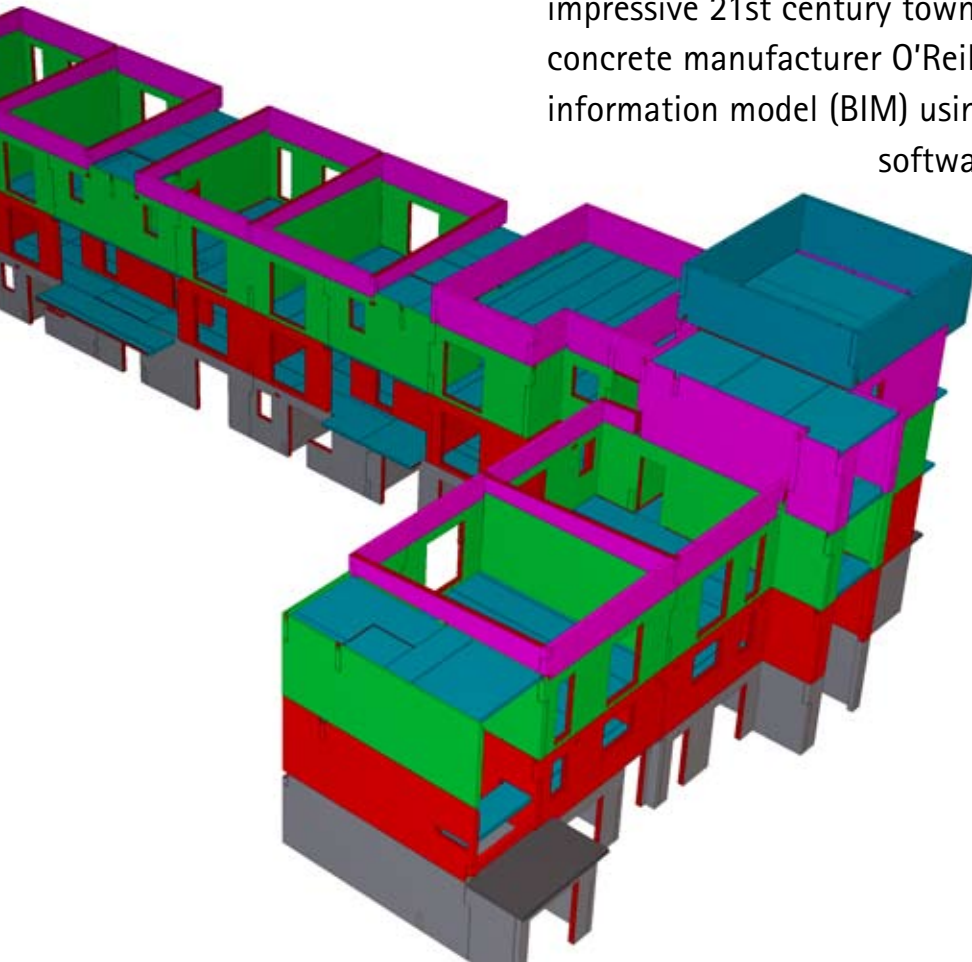
TEKLA Structures

3D BIM: FAST, EFFICIENT AND GREEN

> Adamstown, a new urban district west of the Dublin city center will house over 30,000 residents within 154,000 square meters. The Adamstown project is a work in progress, with completion expected by the year 2019. Total cost for this impressive 21st century town is 1.2 billion euros. Irish precast concrete manufacturer O'Reilly Concrete designed its building information model (BIM) using Tekla Structures. Using the

software on the project made it

easier for all parties to view details in real-time, collaborate, share reference files and to visualize the structures.



> "THERE ARE SO MANY
POSSIBILITIES AND ADVANTAGES
OFFERED BY TEKLA STRUCTURES."

- RICHARD KOWALSKI, CHIEF ENGINEER

ADAMSTOWN PROJECT

> A major achievement was winning the project bid for the concrete work on Adamstown, a new urban district west of Dublin city center that will house over 30,000 residents within 154,000 square meters. Adamstown is a mixed-use community providing residential, commercial, leisure, civic and cultural facilities. The Adamstown project is a work in progress, with completion expected by the year 2019. Total cost for this impressive 21st century town is €1.2 billion.

Chief Engineer (for O'Reilly Concrete) **Richard Kowalski** asserts that drawing in 3D was essential when designing such complex concrete structures. "The most important realization as a precast manufacturer is 'how' to benefit from 3D modeling not only in the design but also in the manufacturing process. Tekla Structures provided us with the possibility to transform our 3D model onto the set of production and construction drawings relatively quickly and easily. Our detailers were able to assess critical points in the structure and in the design connections, facilitating fewer mistakes."

"It was much easier to impress the client with our Tekla 3D model than with standard 2D drawings. The powerful visualization capability provided O'Reilly with a dynamic presentation tool that allowed all parties to view details in real-time. We probably wouldn't have been able to cope with a huge project like Adamstown without the additional benefit of Tekla Structures software."



THE GREEN CONCRETE FACTOR

> Adamstown has been planned as a sustainable community. The buildings have been designed to achieve in excess of 40% energy savings using 30% renewable energy sources. Once complete, there should be a reduction of CO² emissions of up to 1,750 tons per year. It has been estimated that through the use of low-carbon concrete, the community will save another 7,300 tons of CO².

The proposal to use low-carbon concrete was a great opportunity to showcase the capacity for environmental awareness. O'Reilly Concrete components for precast construction lowers energy consumption by allowing minimal air infiltration; and the thermal mass delays internal temperature changes to reduce peak heating and cooling loads.

For the Adamstown project, the company manufactured precast concrete based on CEM II, a more sustainable concrete than ordinary cement. CEM II cements are referred to as 'fly ash cements' due to their cement replacement made from re-used materials and bi-products. Manufacturing CEM II significantly reduces the overall CO² gas emissions traditionally associated with the production of concrete.

Richard maintains that sustainable concrete will be used increasingly in the years to come. "The Adamstown project was a win-win situation for us and the environment. O'Reilly Concrete were able to use sustainable design as a platform for our quality product while keeping in mind the future impact of our constructions. Concrete is the most widely used building material. It can be crushed and recycled accordingly further reducing waste."

STREAMLINED PRODUCTIVITY

> Although the manufacturing of green concrete was used as an efficiency measure on-site, utilising Tekla Structures optimised productivity in-house. The software's efficient throughput of data reduced both detailing and lead time errors during each phase of the project.

"Since there was such a short turnaround time to prepare drawings and then subsequently obtain approval, it was in our best interest to deliver the most reliable and up-to-date information. The Tekla model automatically generated all our GA and cast-unit drawings as well as bending schedules and reports. Whenever we did make a modification, all components reacted to the change which added value further down the process."

Richard was particularly pleased with the ability to create customized connections. "We were able to prepare 3D drawings for the construction site showing connections and the fitting sequence. This aspect is significant because our wall connection system is quite tricky and sometimes it may be confusing for fitters. Providing them with the 3D visual definitely eliminated potential clashes prior to installation and erection."

Richard goes on to say that the company utilises the Tekla Web Viewer as a collaboration tool whenever possible, but unfortunately not all partners of the project team were on board with such technology. The Tekla Web Viewer application allows viewing and presenting Tekla models on the Internet browser.

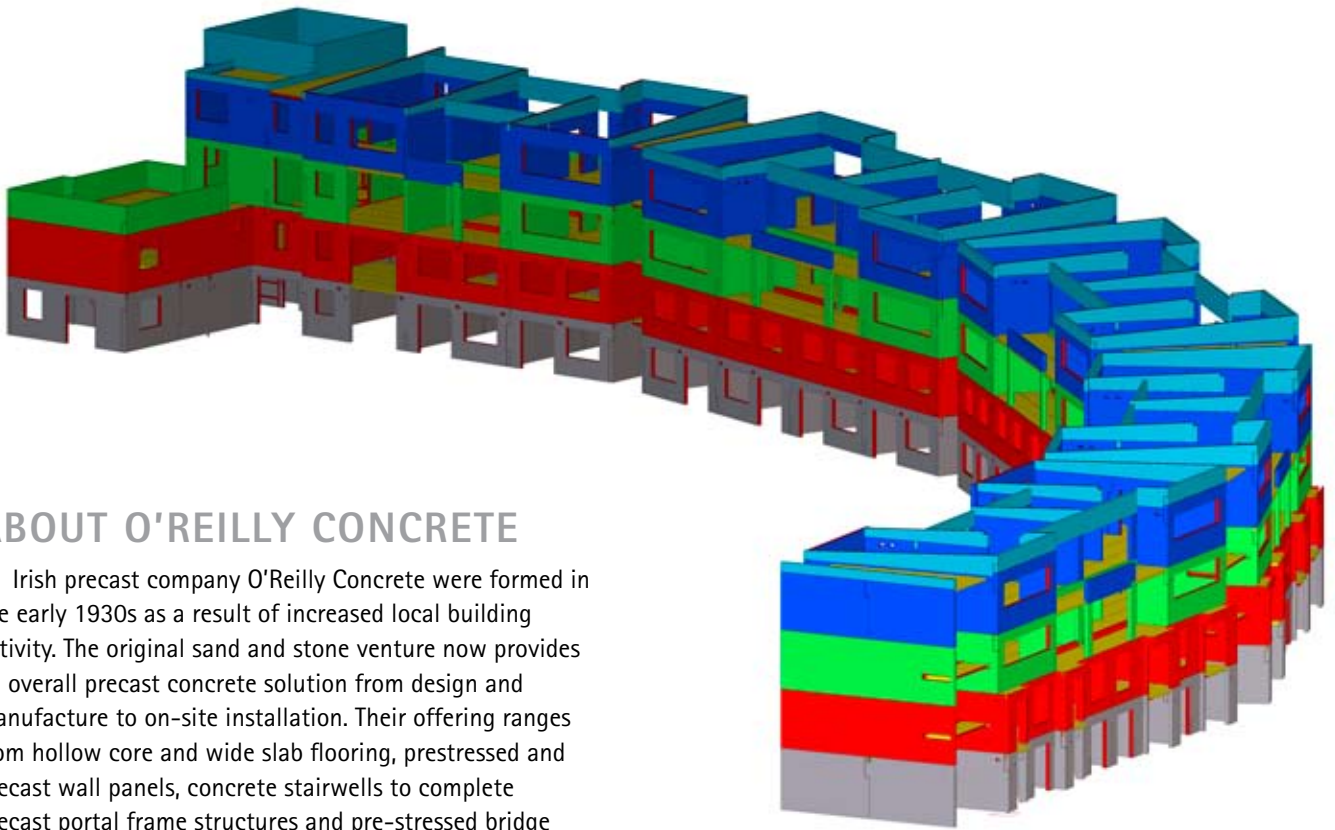
"This is a bit of a shame because Tekla Structures truly enhanced information management through the shared 3D building information model. Luckily we were able to share reference files from the architect ensuring that original design intent was compatible to the structural model built at the construction site."

O'Reilly Concrete anticipates using more from the software in terms of production planning and management. "There are so many possibilities and advantages offered by Tekla Structures that we haven't even utilized. The Tekla Open API™ (application programming interface) will help us coordinate better with cast-in-place projects as well as collaborate on projects using other building materials. We always look forward to the new versions, in particular the features and improvements made to macros and profiles."



> *"THE APPLICATION IS ALL-ENCOMPASSING AND IS THE BEST SOLUTION FOR O'REILLY CONCRETE AND OUR PRECAST BUSINESS NEEDS."*

- RICHARD KOWALSKI, CHIEF ENGINEER



ABOUT O'REILLY CONCRETE

> Irish precast company O'Reilly Concrete were formed in the early 1930s as a result of increased local building activity. The original sand and stone venture now provides an overall precast concrete solution from design and manufacture to on-site installation. Their offering ranges from hollow core and wide slab flooring, prestressed and precast wall panels, concrete stairwells to complete precast portal frame structures and pre-stressed bridge beams. O'Reilly Concrete have also recognized the ever-changing environmental standards, and have extended their business scope to include high-class sewage treatment systems as well as large water attenuation tanks and oil/water separator tanks.

O'Reilly Concrete purchased their first Tekla Structures software licence in 2006. Their pioneering practice with such 3D modeling technology has earned the company numerous projects within the Irish build market.

"O'Reilly Concrete considered several software options before deciding on Tekla Structures. The application is all-encompassing and is the best solution for O'Reilly Concrete and our precast business needs," says Richard Kowalski, Chief Engineer.

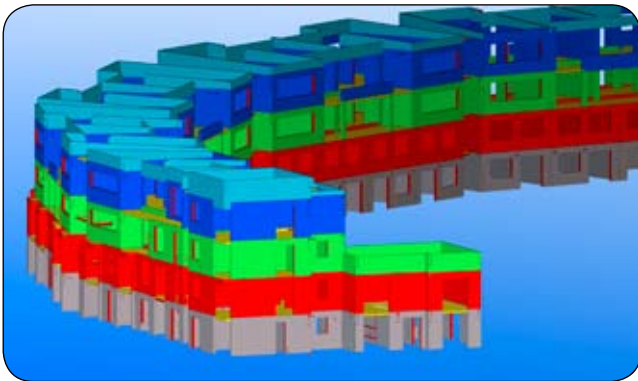
CONCRETE BUILT, BETTER BUILT

> The precast industry is rapidly shifting towards the use of 3D modeling tools. The biggest benefit for precast concrete manufacturers is increased productivity through more effective detailing and production processes. Such efficiency results in elements being produced on schedule and delivered as a perfect-fit solution. Tekla Structures easily combines precast concrete with other building materials to promote efficient project management and error-free collaboration throughout the entire building value chain.

TEKLA STRUCTURES - INTELLIGENT 3D MODELING



> Tekla's model-based software products make customers' core processes more effective in building and construction and infrastructure management. Tekla Corporation has area offices and partner organizations worldwide. International operations account for more than 80% of net sales. Founded in 1966, Tekla is one of the longest operating software companies in Finland.



> Tekla's technology creates new opportunities for the disciplines in the construction industry: Tekla Structures is the most advanced BIM (Building Information Modeling) software on the market that provides an accurate, dynamic, and data-rich 3D environment for structural engineers, steel detailers and fabricators, concrete detailers and manufacturers, and construction companies to share.

The highly detailed as-built structural models created in Tekla Structures enable effective visualization and management of any project from sales and bidding to follow-up. Openly integrating model and non-model-based data into the model allows collaborative workflows to streamline the design, fabrication, and construction stages for the highest level of constructability and integration in project delivery.

Centralizing project management into the model not only increases productivity in each stage, but also enhances the value of structural modeling throughout the value chain of building.

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