



# Trimble Tekla helps save 30% time and 35% material cost in Metro depot wall construction



- ▶ *Structural engineering company - Telge*
- ▶ *Projects - delivers detailing services beyond boundaries, leverages BIM technology from Trimble*



## Solutions

- ▶ Tekla Structures
- ▶ Tekla Model Sharing

# Overview

Telge Projects Pvt. Ltd. is an ISO (TUV-SUD) 9001-2015 certified structural engineering services & solutions company headquartered at Pune, Maharashtra, India.



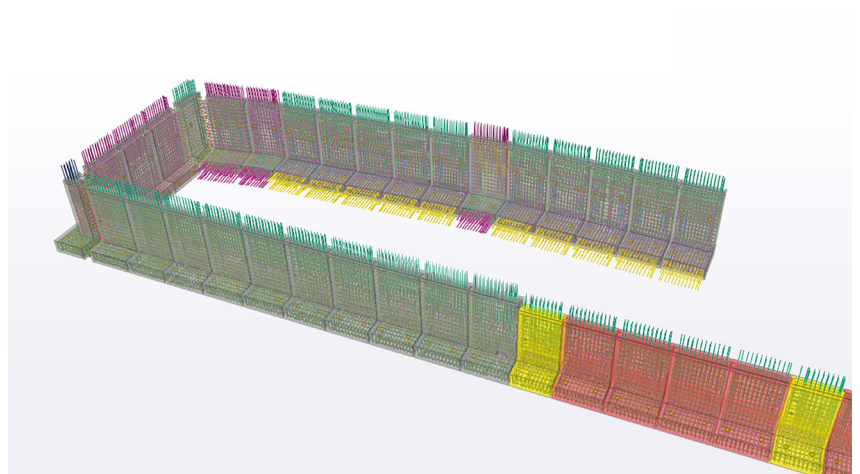
LOCATION: IRELAND



**Telge Projects** is a structural engineering company that offers civil & structural engineering & detailing services to the Architecture, Engineering and Construction (AEC) industry, in the domestic and international market. They focus on leveraging the latest & best in BIM technology to deliver their structural detailing services to building contractors, structural consultants, fabricators, & manufacturers across Steel and Concrete.

*“This project had a very thin delivery timeline and considering the geometry and the erection of the walls on site along with in-situ structures, very high precision was required. Transport for Wales (the client) could only trust Tekla under such conditions of limited time and necessity of high precision. Concrete structures cast off the maximum waste, and to reduce waste both on site and in yard, the client needed automated and accurate reports. Tekla Structures is the best solution to create the most accurate and constructible BIM models from scratch and extract fabrication drawings from it. Using Tekla allowed us to execute the project & construct sustainably by cutting down on the concrete and steel waste. Further, the client wanted to use IFC files for 3D scanning to compare the precast elements with the model, which would have only been possible by using Tekla.”*

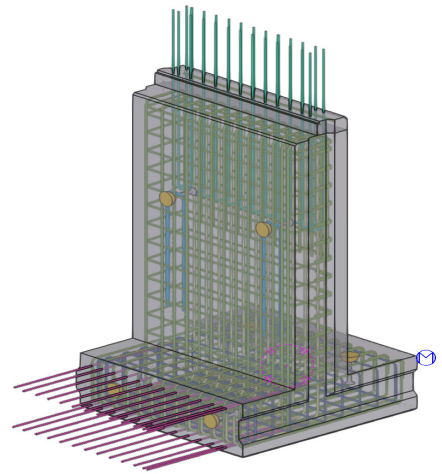
- **Mr. Jayesh Tatiya, Project Lead, Telge Projects, Pune**



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## + Array of retaining walls erected for a metro depot in Ireland + ++++

An array of retaining walls stretching over the length of 150 metres was constructed for a metro depot situated at the Taffs Well, Ireland. The primary purpose of the wall was to hold the backfill and provide a strong support for the metro depot. This concrete structure created for the Welsh train operating company, Transport for Wales, had 200+ precast retaining walls. Several geometric designs and the reinforcement requirement of the walls made the project very unique.



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## + Distinct geometry of each wall made the task complex and critical + ++++



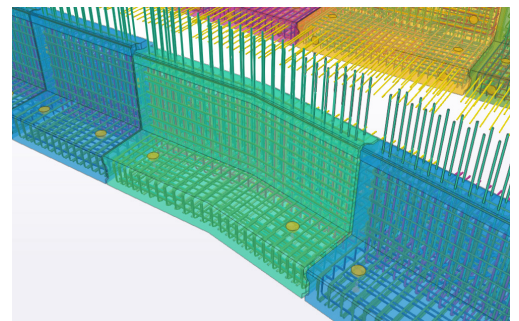
The engineers at Telge Projects encountered numerous challenges in executing the task. The unconventional alignment of the walls and varying angles at multiple levels made the overall geometry of the structure very complicated. Each retaining wall had male and female joints at the base slab and stem. The detailing became more complex with numerous individual units being centrally inclined. Every single wall needed utmost precision to erect on site.

The reinforcement design was equally critical due to the heterogeneous nature of the structure's geometry. The complexity to design and detail the walls and the vastness of the project made accurately and uniformly drafting productions/cast unit drawings for every wall extremely time consuming and tedious.

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## + Saving 30% time, 35% material and resource with Tekla + ++++

Reminiscing the project experience **Mr. Jayesh Tatiya, Project Lead, Telge Projects, Pune** said "Principal benefits of Tekla are the savings in time and money throughout the project life-cycle. With just two of our resources we could deliver this project within forty-five days. In fact, the modelling of units would have actually been a much longer process, considering the individual reinforcements and inserts for each wall unit, however we saved 30% of the time using copy to another object command within Tekla for reinforcements, and the custom component command for inserts. The automated reports and bar bending schedule helped us to secure 35% of material savings. Besides this, accurate modelling helped to avoid re-work on the project. And lastly, seamless & easy collaboration between fabricator and designer reduced the effort of fabricator for quality review and checking."



## Tekla features that further enabled the team to deliver the complex project with ease,

- ▶ The centrally inclined units were designed with the help of Tekla Structures' "*profile catalogue*" specifically the RCRW profile and with just 2 clicks the project team was able to model the basic structure of the retaining wall
- ▶ For the female and male joints, Tekla Structures' "*part cut*" command made it very comfortable for the team to provide the complicated joints
- ▶ Tekla Structures' "*rebar set command*" was very useful & made it a hassle-free task and also the clash check option made sure that the structure had a clean and clash free reinforcement for every unit
- ▶ The automated generation of the *bar bending schedule* made the review of the reinforcements details in the drawings easier
- ▶ Drafting the production / cast unit drawings of 200+ retaining walls was an intense task but the "*cloning*" feature made the job easy as multiple drawings could be cloned reducing around 40% of the time required for drafting of the walls



“The adoption of Tekla Structures helped the team to streamline the construction process by identifying conflicts, fit-ups, and clashes with other trades. Additionally, it also facilitated the resolution of project discrepancies, geometry, and intent early in the process. Possible construction errors were mitigated even before fabrication and installation, reducing unnecessary labor and material costs for our client. The constructible 3D models generated on Tekla also helped the concrete workers in visualizing the finished product before it is built.”

– Mr. Akansh Kashyap (Andrew), Chief Marketing Officer (CMO), Telge Projects.



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+ **TEKLA'S CONSTRUCTIBLE MODEL: THE KEY TO PRECAST SUCCESS** +  
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As far as structural BIM modelling is considered, Tekla is the best, one-stop solution, as it provided the project team with the outer and inner detailed look of the structure in a single model. Moreover the drawings, reports and quantity take-offs were possible from a single source. With clash check, the modelling of reinforcements got much easier.

In addition, remote working was seamless using Tekla Model Sharing. Not only did it allow the contractor to periodically review the progress of the work, but it also brought the whole project data at one place, inside one model, with as-built connections.

# Control throughout the structural workflow at your fingertips

Accurate, reliable information, as detailed as you need and always available, is necessary for a successful structural workflow. With Tekla software, your constructible design will promote error-free fabrication and successful construction. Welcome productive workflows and happy clients.

- ▶ **Tekla Structures** is the most developed Building Information Modeling software on the market. It makes accurate, constructible modeling of any structure possible.
- ▶ **Tekla Structural Designer** gives engineers the power to analyze and design buildings efficiently and profitably.
- ▶ **Tekla Tedds** is a powerful software to automate your repetitive structural calculations.
- ▶ **Tekla PowerFab** is a complete and connected steel fabrication management software suite.
- ▶ **Tekla Model Sharing** allows Tekla Structures project teams to work efficiently together regardless of their location or time zone.
- ▶ **Trimble Connect** is a cloud-based platform that connects the right people to the right constructible data.



**Trimble** is a technology company with a vision of transforming the way the world works. Trimble's construction offering ranges from total stations to advanced software, giving the industry tools to transform planning, design, construction and operation of buildings. The company also has products for trades like logistics and agriculture.

**Trimble Buildings** provides the widest breadth of technology solutions for each phase of the building lifecycle. With the industry's only constructible process and full range of tools and content to streamline team collaboration, Trimble solutions make data from complex projects more meaningful and actionable to improve productivity and achieve operational excellence.

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