Achieving Excellence in Steel and Concrete Design with ProStructures™

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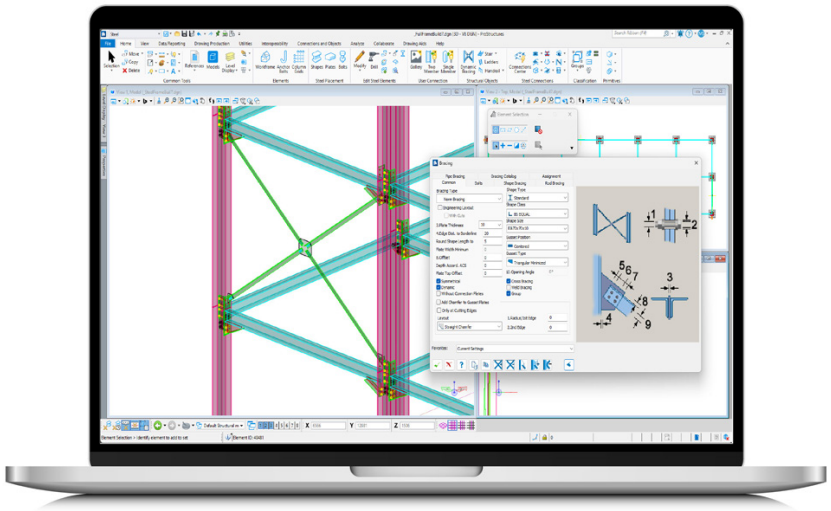
The Structural Challenge: Inefficiencies, Errors, and Delays

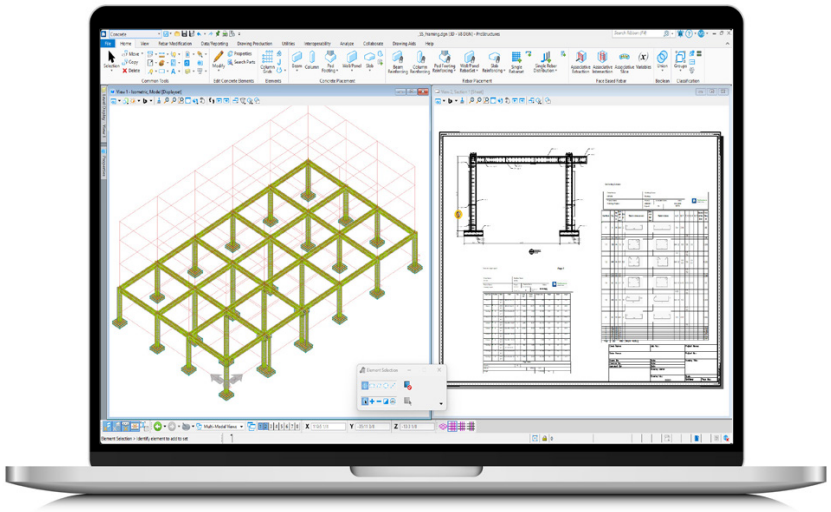
Structural teams face relentless pressure to deliver high-quality projects on tight deadlines. Generic 3D design applications fail to meet the specialized needs of steel and concrete detailing, leading to inefficiencies, errors, and costly rework. Without seamless integration between design, detailing, and fabrication, teams struggle with data inconsistencies, manual revisions, and misaligned documentation—delaying projects and increasing costs.

Introducing ProStructures: ProSteel and ProConcrete

ProStructures, featuring ProSteel and ProConcrete, is a comprehensive steel and concrete design application built to streamline the detailing and fabrication of structural steel and reinforced concrete.

- ProSteel automates steel detailing, ensuring precise, standardized models that improve collaboration and reduce errors.
- ProConcrete simplifies reinforcement detailing, enabling fast, accurate modeling and documentation of reinforced concrete structures.





Why ProStructures? Unlock the Power of Automation

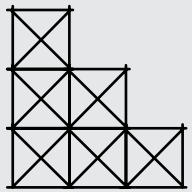
ProSteel – Precision and productivity for steel structures

- **Automated steel detailing** – Boosts accuracy and speeds up connection and assembly creation.
- **Seamless documentation** – Generates fabrication drawings, erection drawings, and NC data automatically.
- **Interoperability and flexibility** – Integrates smoothly with Bentley and third-party tools, eliminating data duplication.
- **Parametric design capabilities** – Smart connections and customizable templates ensure compliance with standards.

ProConcrete – Smarter reinforcement detailing

- **Intelligent reinforcement placement** – Automates bar detailing and clash detection.
- **Advanced bar bending schedules** – Automatically generates bar lists, schedules, and reports.
- **Seamless collaboration across disciplines** – Ensures accurate data sharing between teams.
- **Effortless change management** – Instantly updates models and drawings to reflect modifications

What Sets ProStructures Apart?



Unmatched accuracy for steel and concrete design

Capability: Advanced tools for precise detailing of steel and reinforced concrete.

Advantage: Smart parametric connections and reinforcement modeling reduce errors and optimize workflows.

Outcome: Faster, more accurate designs with minimal rework

Seamless interoperability for maximum efficiency

Capability: Full integration with Bentley and third-party software.

Advantage: Eliminates data duplication, enabling smooth collaboration.

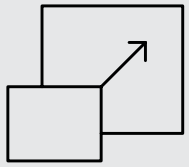
Outcome: Faster workflows, real-time data sharing, and better project outcomes.

High-quality fabrication documentation, instantly

Capability: Automated 2D documentation directly linked to 3D models.

Advantage: Minimizes manual revisions and ensures consistency.

Outcome: Reduced errors, improved efficiency, and faster project delivery.



Scalable for any project, big or small

Capability: Handles everything from small-scale structures to massive infrastructure projects.

Advantage: Flexible, powerful tools adapt to diverse project needs.

Outcome: Reliable performance for both small firms and large enterprises

Why Change? The Shift to Smarter Workflows

Current challenges in structural detailing

- Manual detailing leads to costly mistakes and rework.
- Poor integration between design and fabrication delays projects.
- Lack of automation increases workload and slows progress.
- Inefficient workflows drive up costs and extend timelines.

How ProStructures solves it

- Automates complex detailing tasks, eliminating manual errors.
- Seamlessly integrates with fabrication workflows, ensuring accuracy.
- Generates high-quality, standardized documentation, reducing revisions.
- Optimizes project delivery, helping users complete projects faster.

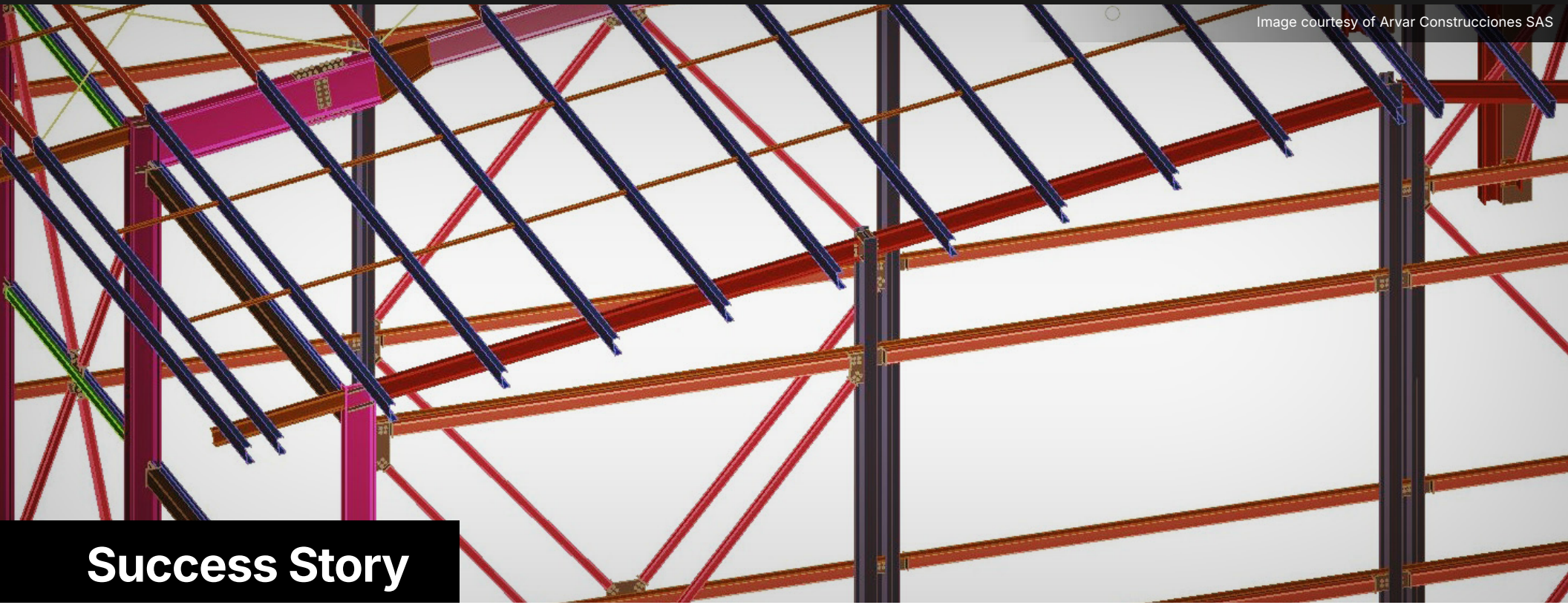


Image courtesy of Arvar Construcciones SAS

Success Story

Structural Expansion in Operation

Arvar Construcciones SAS I Cudinamarca, Facatativa, Colombia

The new high-rise warehouse in Cundinamarca, Colombia, is a food and beverage storage and distribution center that will expand production of an existing facility. To save energy and reduce the carbon footprint, the project includes cold storage in operations, avoiding additional energy consumption costs generated by evaporators and chilled water circuits. The project required integrating the new facility with the existing warehouse, as well as meeting Colombian building codes. To involve stakeholders and secure commitment from partnering firms, the team sought to digitally present the construction design and engineering plans.

They selected ProStructures and STAAD® to model and analyze the warehouse structure from conceptual design through construction engineering. Using Bentley's applications facilitated structural design and analysis in accordance with Colombian standards through 3D digital modeling and virtual tours that validated the construction process and ensured structural integrity. The digital structural design solution saved 25,000 work hours and delivered a 70% return on investment while avoiding delays and cost overruns.

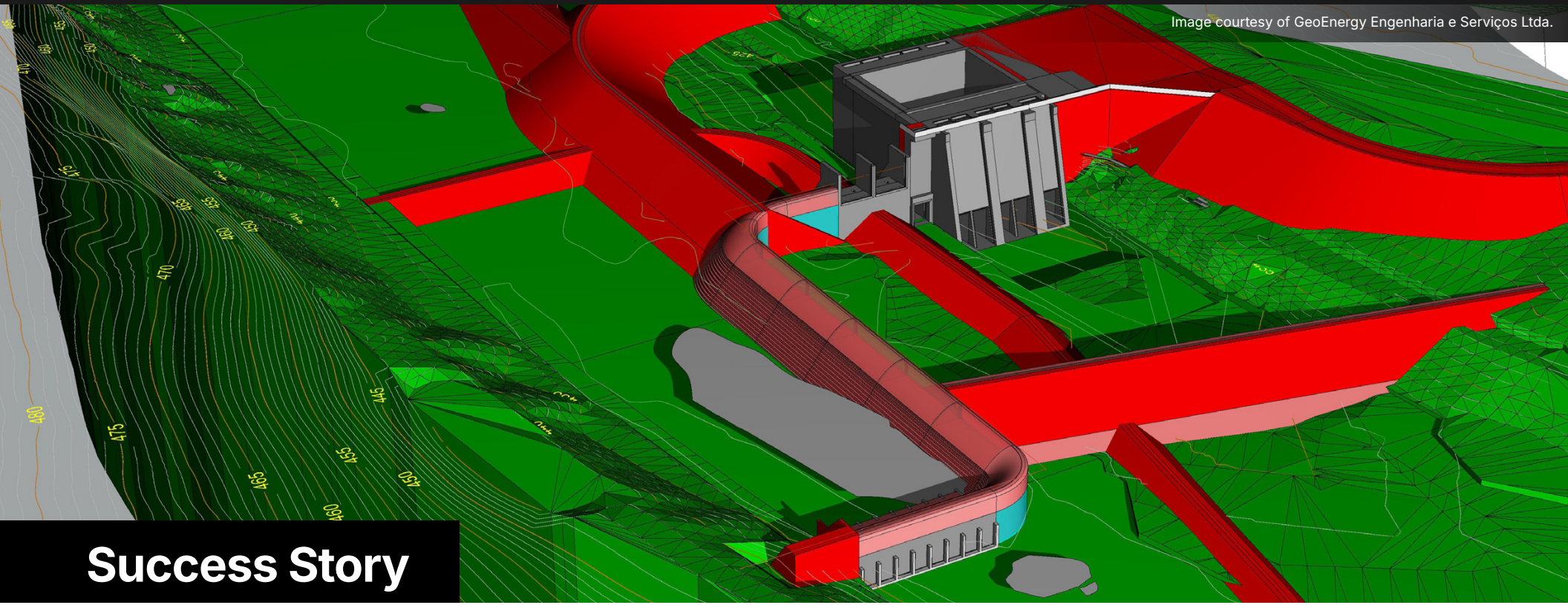


Image courtesy of GeoEnergy Engenharia e Serviços Ltda.

Success Story

BIM Application in the Lifecycle of the Águas de Ouro Small Hydroelectric Power Plant Project

GeoEnergy Engenharia e Serviços Ltda. | Ouro e Capinzal, Santa Catarina, Brazil

To improve hydraulic resources serving 85,000 citizens using renewable energy, the Águas de Ouro hydroelectric power plant will provide an additional 17 megawatts of installed capacity. GeoEnergy was responsible for hydrological study, environmental impact analysis, and engineering design. Faced with undulating terrain and challenging site conditions, compounded by coordinating a multidiscipline team amid a short project schedule, they realized that previously used 3D modeling applications would not be sufficient. GeoEnergy sought to implement a collaborative BIM design process.

Leveraging OpenBuildings®, OpenRoads, and ProStructures, GeoEnergy digitized workflows and established a comprehensive BIM model. The interoperability of Bentley technology eliminated the need for file conversion and provided an integrated digital environment, enabling real-time model and document updates and accelerating design changes while enhancing design quality. Working in a digital data platform improved productivity by 15%, saved 20% in time, and reduced documentation errors by 10%. The 3D model will facilitate digital construction management, reducing on-site errors and environmental damage.

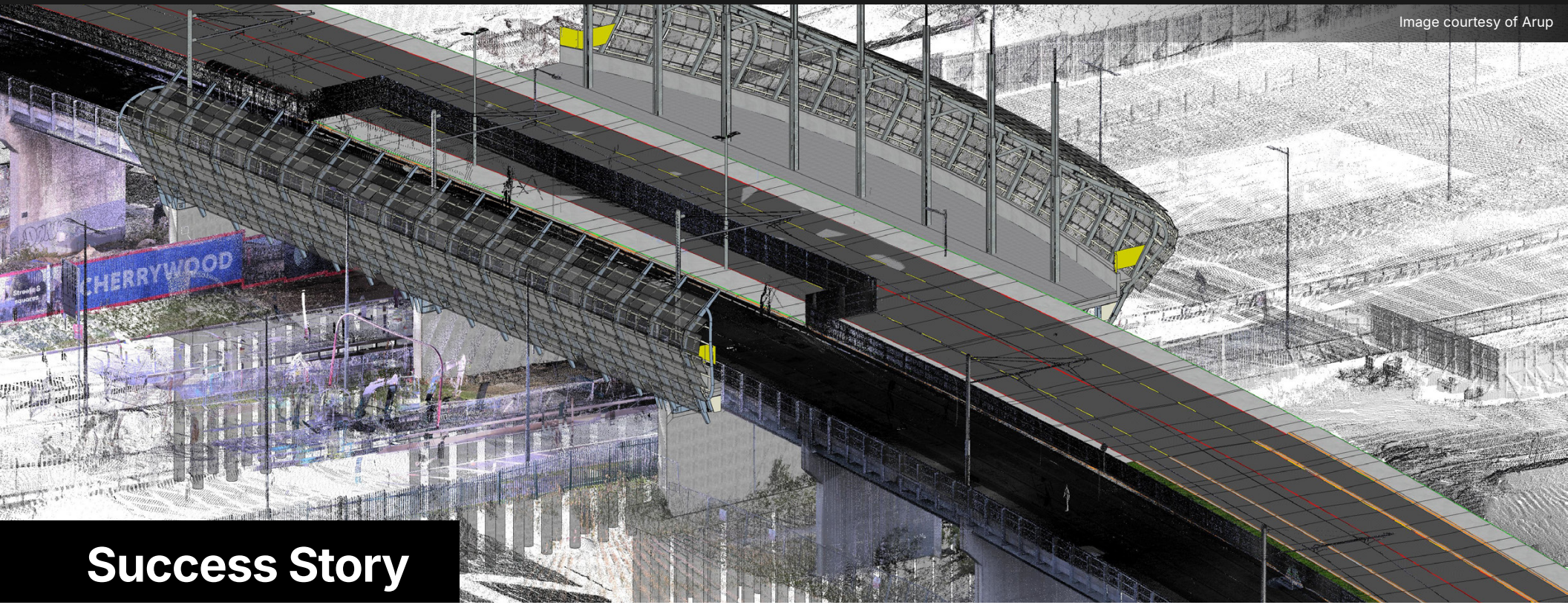


Image courtesy of Arup

Success Story

Cherrywood Grand Parade Bridge

Arup I Dublin, Ireland

Arup was retained to design Cherrywood Grand Parade Bridge as a sustainable transport system, forming a central part of a new residential, retail, and office space development. The bridge has two spans, each measuring 22.5 meters in length, consisting of composite steel girders and a reinforced-concrete deck slab varying in width from 13.4 meters to 16.4 meters. They wanted to use comprehensive 3D modeling to avoid errors. However, they faced a software learning curve, compounded by complex road geometry and bridge interfaces amid a tight timeline. Arup realized they needed to establish a connected data environment to coordinate information-rich 3D models.

Already familiar with ProjectWise®, Arup chose it to store project data and models. They used OpenBridge Modeler® and ProStructures for detailed modeling and automated drawing production, shortening the modeling process by at least 50% and the time to produce 70 drawings from one day to one hour. Arup's proactive, 3D initiative resulted in models that are ready for inclusion in the asset management process.

Transform Your Structural Workflows with ProStructures

ProStructures is revolutionizing the way steel and concrete structures are designed, detailed, and fabricated. If you're ready to boost efficiency, minimize errors, and accelerate project delivery, discover how ProSteel and ProConcrete can reshape your workflows.

Explore ProStructures today.

Contact Us