

10 MicroStation® Case Studies

Global Designers Make Their Mark on Infrastructure



Bentley®

Designers and engineers around the world trust MicroStation

They trust MicroStation to produce high-quality drawings and 3D models for their projects every day. Selected from the 2023 *Year in Infrastructure* and *Going Digital Awards* event, this showcase spotlights unique customer projects that are using MicroStation to design and build creative and functional spaces across the globe.

- ◆ Hafencity Dresden
- ◆ Pedestrian Suspension Bridge over the Paiva River
- ◆ Villa Nest
- ◆ Project PLATEAU
- ◆ Vertical Work Campus
- ◆ M/Y Aurelia 29
- ◆ Smart System for Infrastructure Projects and Affected Plots
- ◆ Rostagno Funeral Home
- ◆ Road Survey with LiDAR on Movable Support
- ◆ Design and Engineering of Piping System for the PT/ED and Utilities Lines



Hafencity Dresden

IMMOGRAPH GMBH, SAXONY, GERMANY

Hafencity Dresden is an urban transformation project to turn a dilapidated area into an attractive district that features a redesigned harbor, dining areas, a promenade, and a total of 18 new buildings for commercial and residential use. Given the large project scale and various software used by the planning and engineering teams, compounded by a tight schedule, Immograph needed interoperable construction visualization technology to integrate the multisourced, voluminous data and provide a high-quality 3D representation demonstrating the interaction among the various new infrastructure.

They selected MicroStation to process the immense amount of data into accurate 3D models. The software's modular and hierarchal modeling structure allowed images and models to be conveniently linked and simplified change management, reducing the time it takes to make changes by 20%. Using Bentley's application significantly improved rendering and reduced file loading times by 40%. Through accurate visualization, they optimized planning and enhanced decision-making, shortening approval processes.



"Bentley's MicroStation enabled us to adhere to this project's tight schedule for coordination and presentations. The unique ability to structure models hierarchically to be able to carry out and present change processes clearly and concisely was especially helpful."

—Gerd Geisler, Managing Director, Hafencity Dresden



Images courtesy of Immograph GmbH

Pedestrian Suspension Bridge over the Paiva River

MUNICÍPIO DE AROUCA, AROUCA, PORTUGAL

The city of Arouca wanted to construct a pedestrian suspension bridge over the Paiva River as part of the award-winning Paiva Walkways. The estimated EUR 1.8 million metal-grated bridge is about 516-meters long and about 175 meters above the river. The bridge will help hikers navigate the steeply sloping cliffs while minimizing environmental impact. The city also wanted to improve tourism by making the beautiful area more accessible, as part of a larger citywide modernization project.

The project team used Bentley's MicroStation to facilitate and carry out the city's strategies. The application improved working conditions for team members and collaboration with outside stakeholders, including the general public and local businesses. The completed bridge is now considered a site of community importance. The city estimates that the suspension bridge will bring an additional 100,000 visitors to the area.

"More than two decades ago, the city of Arouca began its modernization of technical services... Bentley software immediately emerged as the first choice, given its national and international recognition in the field of exchanging know-how between specialized technicians. In fact, it was commonly accepted by all the technicians involved. This software combines powerful features and capabilities."

—Margarida Maria de Sousa Correia Belém, President, Arouca City Council



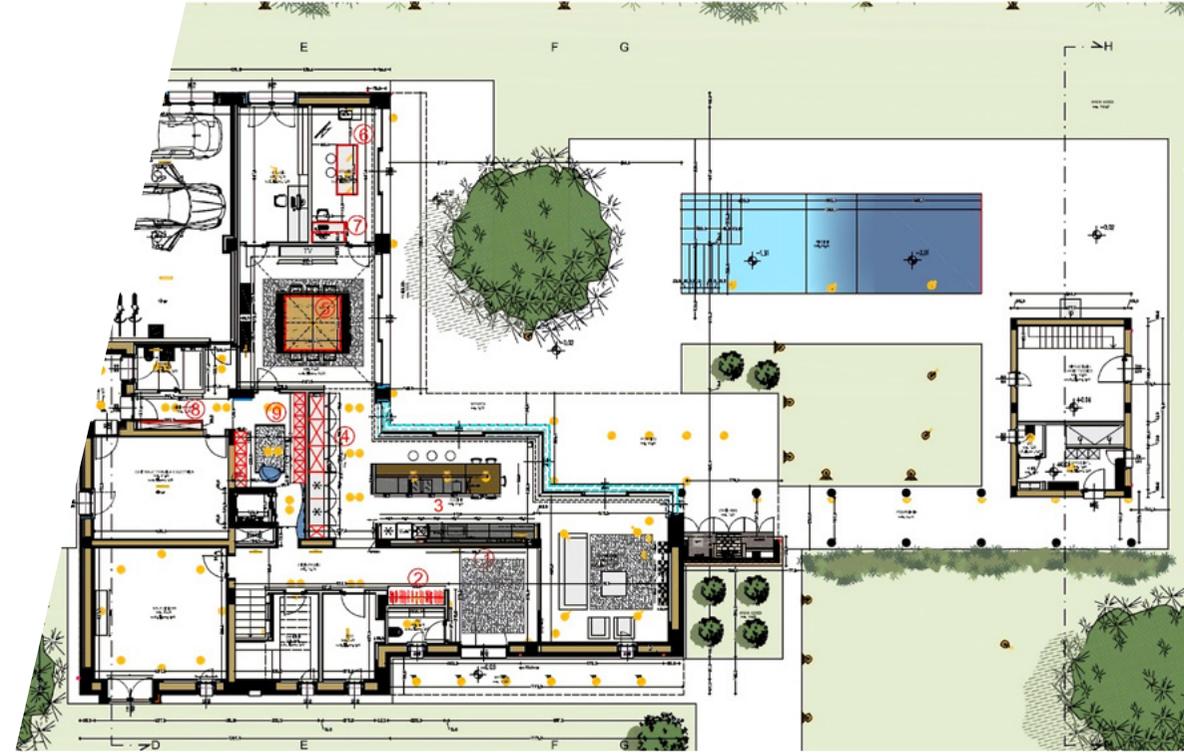
Image courtesy of Município de Arouca

Villa Nest

MOBILI IMBOTTITI DAL POS ANGELO SRL, ODERZO, TREVISO, ITALY

Villa Nest is a private residence in the small town of Oderzo in the Veneto region of Italy. Mobili Imbottiti Dal Pos Angelo was hired to design the interior furnishings, with special attention to the kitchen where the client wanted a moving back panel on the rear of the wall units and a retractable mechanism for the television, among other highly customized features. Faced with a tight timeline, Mobili needed to accelerate the design process to quickly move into production.

To address these challenges, Mobili decided to use MicroStation to digitally model the furnishings and design the various components quickly. Working in a digital environment enabled them to make changes in progress, accelerating the design process and minimizing errors to keep the project on schedule.



"We call ourselves visionary artisans. With futuristic partners like MicroStation, you can achieve your goal."

—Luca Dal Pos, Owner, Mobil Imbottiti Dal Pos Angelo



Images courtesy of Mobili Imbottiti Dal Pos Angelo S.r.l.

Project PLATEAU

KOKUSAI KOGYO CO., LTD.
NUMAZU, SHIZUOKA, AND KAGA, ISHIKAWA, JAPAN

Project PLATEAU aims to develop Japan's largest-scale 3D city models for 56 cities and promote their use by releasing them as open platform data for urban activities and smart-city management. Kokusai Kogyo conducted 3D modeling for the project and implemented initiatives to achieve more detail. However, they faced challenges incorporating intricate spaces and complex features, such as underground passages and traffic infrastructure into their models.

Kokusai Kogyo selected MicroStation, enabling them to create 3D models with an unprecedented level of detail for 17 cities nationwide. Bentley's software improved workflow efficiencies, reducing resource hours by approximately 50%, and provided a platform to comfortably model the enormous point cloud data. The technology delivered highly detailed 3D models, achieving simulations that are closer to reality than previously possible, promoting smart city management throughout Japan.

"Our precise 3D city models, created using MicroStation, are state-of-the-art reality modeling technology recognized by the Ministry of Land, Infrastructure, Transport, and Tourism."

—Tatsuya Muraki, Engineer at Kokusai Kogyo



Vertical Work Campus – Eclipse Düsseldorf

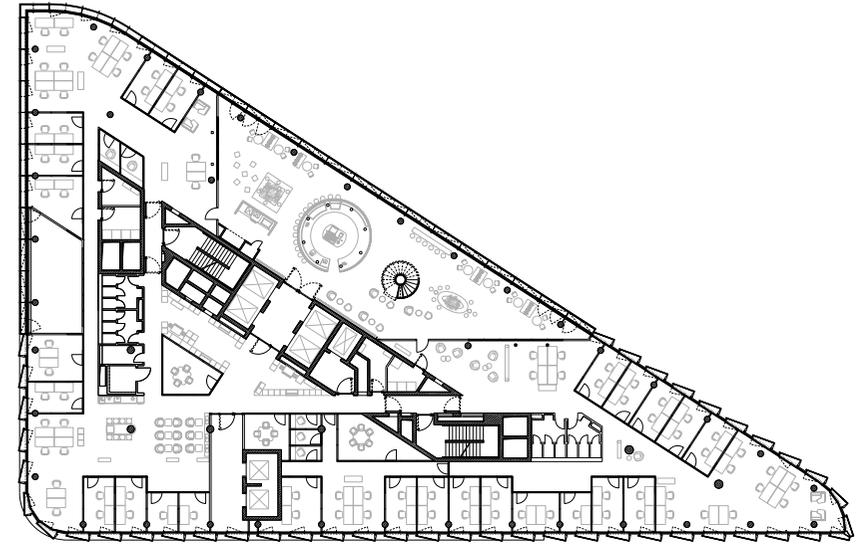
HPP ARCHITEKTEN GMBH
DÜSSELDORF, NORTH RHINE-WESTPHALIA, GERMANY

Forming the northern gateway to Düsseldorf, the 16-story Eclipse office tower is a modern, sustainable, vertical campus based on the concept of being healthy, ecological, and future-oriented. HPP Architects is responsible for the project design and planning implementation. The team faced challenges maximizing outdoor recreation areas and managing a multidiscipline team that was using varying CAD-based platforms. They wanted to incorporate the recreation areas within the building's architectural concept and implement intelligent processes, requiring an innovative design and integrated digital approach.

To optimize space, ensure energy-saving, eco-friendly operations, and manage various disciplines and multiple CAD formats, they selected MicroStation to automate and standardize workflows among the team and keep the project on schedule. The interoperability of Bentley's application with third-party technology enabled HPP to optimize technical operations and realize their smart, sustainable building concept, saving 200 tons of carbon dioxide annually, and allowing up to 15% of the rental space to be completely carbon neutral.

"The use of automated processes and standardized interfaces enabled the team to complete the project on schedule. The use of the HPP MicroStation standards also made a significant contribution to the success of the planning stage."

—Rebekka Pottgüter, Head of Communications, HPP Architects



Images courtesy of HPP Architekten GmbH

M/Y Aurelia 29

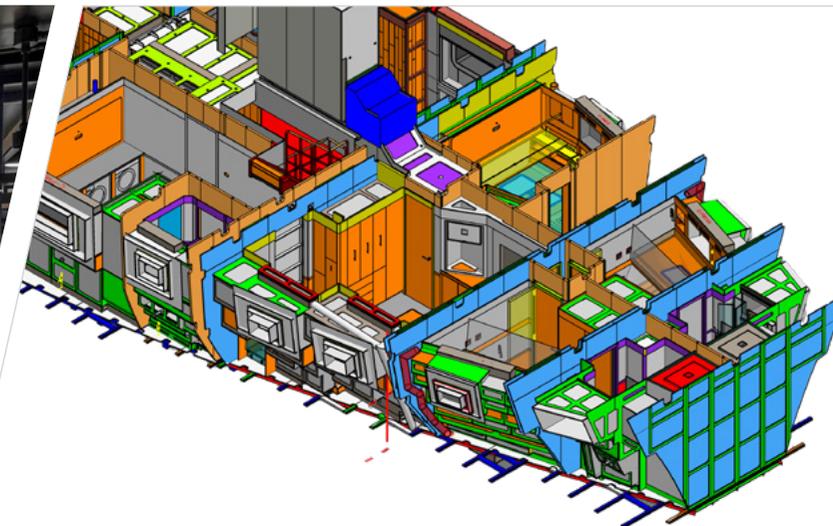
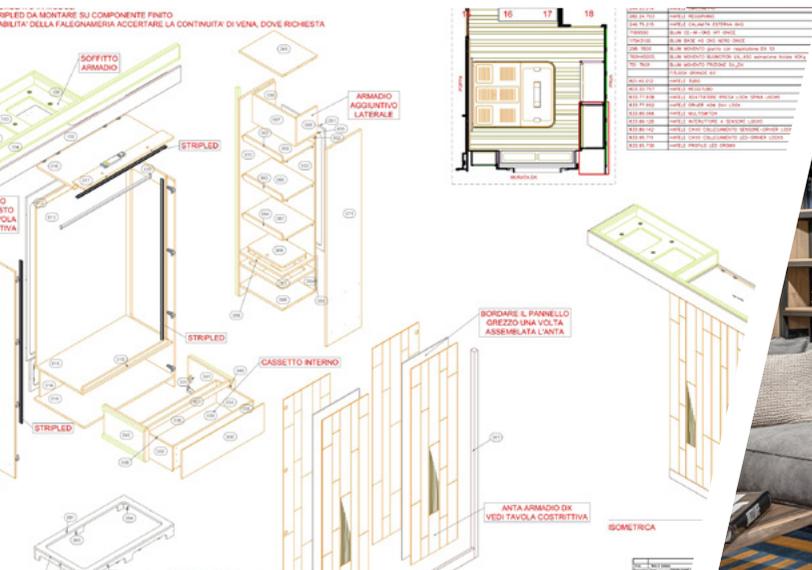
PAD PROJECT FOR CANTIERE DELLE MARCHE, FANO, PESARO AND URBINO, ITALY

M/Y Aurelia 29 is a 39.23-meter-long yacht with a waterline length of 38.23 meters, featuring a steel and aluminum displacement hull and three decks. Pad Project was hired to perform 3D design engineering of the furnishings but faced an unconventional industrial architectural style where modernity meets vintage, uncommon in the nautical field. The boat's interior required them to design approximately 46,000 components and manage more than 300 square meters of furniture surface to be engineered. To accommodate the unique architectural guidelines, numerous modifications, and many files, they needed flexible 3D modeling technology.

They selected MicroStation to integrate 3D point clouds and create a cross-referenced information flow with third-party software, managing thousands of files without slowing down the design. MicroStation enabled the team to work simultaneously in a single environment in real time and modify the architectural elements timely and cost effectively. The digital solution decreased production times and reduced modifications by the on-board fitters by 50%.

"The advantages were appreciated across the team, including on-board fitters who reduced modifications and remaking of parts on board by 50%, saving time and increasing profit margins."

—Rino Zaccaro, CE, PAD Project



Images courtesy of Pad Project for Cantiere delle Marche

Smart System for Infrastructure Projects and Affected Plots

DUBAI MUNICIPALITY, DUBAI, UNITED ARAB EMIRATES

To improve efficiency and accelerate the approval process for Dubai's roadway projects, Dubai Municipality (DM) launched a smart system initiative, automating previous manual processes. DM receives dozens of requests to approve road projects annually, requiring numerous personnel efforts and communications between DM and the Roads Transport Authority, taking 30 days to approve a project. DM held several meetings to determine the requirements of their system and identify challenges. They realized that they needed interoperable technology to establish a shared digital working platform and speed approvals.

They selected MicroStation to digitize the road project plans, uploading urban planning routes, showing all the data related to the lands and streets. The interoperability of MicroStation allowed the team to upload and open CAD files, adding greater flexibility to the system. The smart solution resulted in the establishment of a 100% paperless and digital system to review and approve roadway project requests, reducing resource hours and shortening the approval process from one month to two working days.

"MicroStation was relied on to upload urban planning plans through the system, as it is the most appropriate for drawing and uploading plans and showing all the data related to lands and streets."

—Theab Badrawi, Senior Urban Planning Engineer, Dubai Municipality



Image courtesy of Dubai Municipality

Rostagno Funeral Home

STUDIO ARCHITETTO PORTA, CAMBIANO, TURIN, ITALY

Conceived when death rates rose during the early acute stages of the pandemic, the Rostagno Funeral Home project aimed to design a funeral home based on the concept of architecture for emotions. The scope of the project required regenerating a former 600-square-meter warehouse space. Transforming the industrial space into a multifunctional, scaled building, featuring public areas and private rooms with stringent hygienic regulations, presented technical challenges compounded by a tight schedule during the pandemic lockdown.

The architectural design team determined that MicroStation provided a collaborative 3D digital modeling environment capable of accommodating the multiple design changes, eliminating scaling issues, and reducing errors. Bentley's platform provided the team with full control over the project, saving time and enabling timely completion. The MicroStation renderings were irreplaceable in helping the client fully understand the design proposals. The project has been nominated for the Architecture Rivelate 2020/2021 prize awarded by the Turin Association of Architects.

"MicroStation brings the architecture of emotions to life with digital generation and supervision."

—Pier Luca Porta, Architetto Libero Professionista, Studio Architetto Porta



Images courtesy of Architetto Pier Luca Porta

Road Survey with LiDAR on Movable Support

CONSULCAD, PERUGIA, UMBRIA, ITALY

For this project, the client required a topographical survey along a 21-kilometer roadway, comprising 434 sections, to highlight the embankment size, slope geometry, and position of the road curb to replace and install barrier protectors. ConsulCAD was invited to submit a tender but faced survey challenges due to the dense vegetation at the roadside and near the underpass, compounded by a tight schedule. They needed an integrated solution to model a large volume of captured data quickly and accurately, then present it to the client.

ConsulCAD used MicroStation to process mobile, LiDAR-captured point clouds totaling 40 gigabytes, within a 3-centimeter accuracy. Using Bentley's 3D modeling application simplified and accelerated management of the voluminous point cloud data and 3D elements, saving time and delivery costs. MicroStation provided a viable digital solution that sets a benchmark for the continued future use of the modeling technology.



"As this was an urgent project, it was important to produce the compositions quickly and accurately, which obviously required state-of-the-art instruments and reliable software that provided certain guarantees. We found a viable solution for our needs in MicroStation, and we are confident that it will continue to bring us great satisfaction long into the future."

— Massimiliano Papa, Surveyor, ConsulCAD

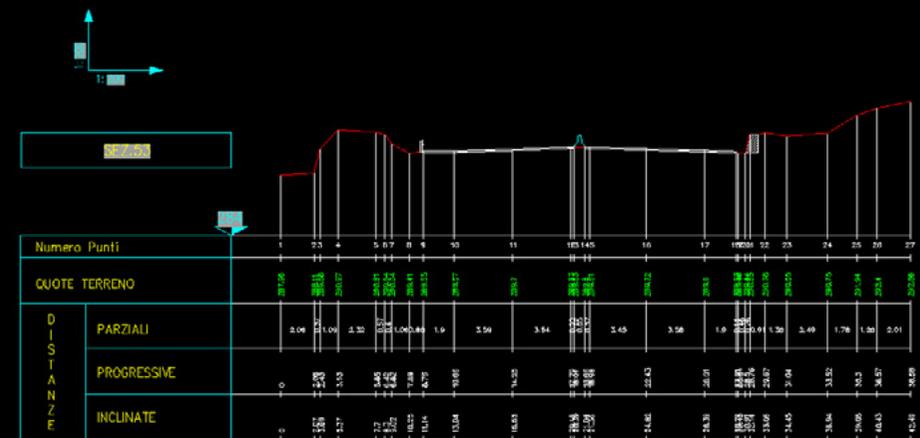


Image courtesy of ConsulCAD

Piping System for the PT/ED and Utilities Lines

TECNALFA DI DE MASTRO NICOLA AND VILLANI LORENZO SNC, FRANCE

GEICO SpA France commissioned Technalfa to carry out the piping design for a major auto bodywork and painting plant. Given the large size of the plant, they needed to avoid interference with other works. They also had to accommodate a significant number of changes as the project progressed. To overcome these challenges and ensure quality deliverables for the complex piping network, they realized that they needed careful planning and coordinated modeling.

They selected MicroStation to develop their design database and perform 3D modeling. The use of Bentley's high-performance software simplified material extraction and the production of 2D drawings. Using MicroStation for the first time, the team realized that they could reduce errors and deliver the project in less time compared to other projects using other software.

"MicroStation played a truly important role in this job... It was fundamental for the production of the isometrics, helping us to save time. MicroStation provided us with an incredible degree of support."

— Nicola De Mastro, Owner, Technalfa

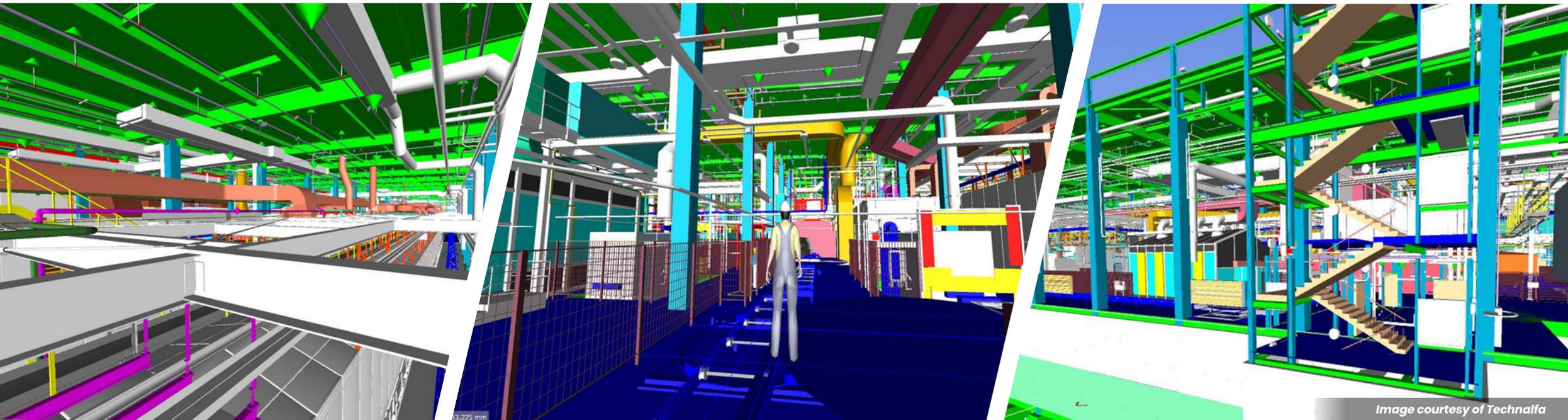


Image courtesy of Technalfa

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