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CASE STUDY

Panda House Al Khor Zoo

Clash-Free & Compliant

Upgrading to LOD 500 for the Panda Enclosure at Al Khor Zoo

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Build Better, Build Smarter

Ashghal-Approved Project

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ABOUT US

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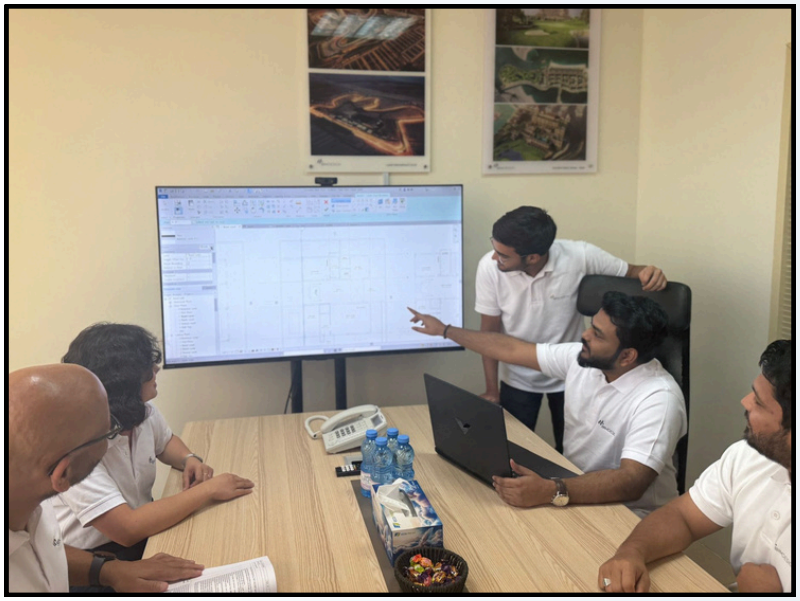

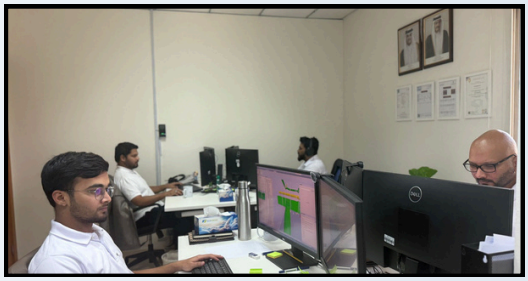

BIM DESIGN LLC is a leading ISO 19650 certified Qatar-based provider of multidisciplinary BIM services, offering comprehensive Building Information Modeling (BIM) solutions across all project stages - from concept design to construction and facilities management.

With a strong focus on BIM technologies and processes, we deliver tailored solutions to meet the specific needs of our clients.

Our goal is to support architects, engineers, contractors, and owners in integrating BIM methodologies seamlessly into their projects.

We are certified in all necessary ISO certifications including, but not limited to:

- ISO 19650
- ISO 9001:2015
- ISO 14001: 2015
- ISO 45001: 2018
- ISO 19650: 2018

We hold software capabilities with the following tools:

- REVIT
- AUTOCAD
- NAVISWORKS
- CIVIL 3D
- AUTODESK TANDEM
- AUTODESK CONSTRUCTION CLOUD

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PROJECT DESCRIPTION

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Panda House

The Panda Enclosure and Touristic Viewing Facility at Al Khor Zoo, Qatar, is one of the region's most unique and high-profile zoological projects.

The Panda Enclosure and Touristic Viewing Facility at Al Khor Zoo, Qatar, is one of the region's most unique and high-profile zoological projects. Designed to provide a world-class habitat for giant pandas, the facility combines advanced animal welfare standards with immersive visitor experiences.

The enclosure replicates the pandas' natural environment with specialized climate control systems, natural landscaping, and dedicated zones for feeding, resting, and veterinary care. Alongside the habitat, the touristic viewing facility offers educational and leisure spaces, including observation galleries, interactive exhibits, and landscaped pathways to engage visitors of all ages.

This project holds national and cultural significance, as the pandas symbolize friendship and conservation efforts, making the accuracy of design and construction documentation critical.

Our role was to upgrade the project's BIM models to LOD 500 (As-Built) standards, ensuring that the final digital asset would serve not only construction and close-out purposes but also long-term operations and facility management.

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PROJECT OVERVIEW

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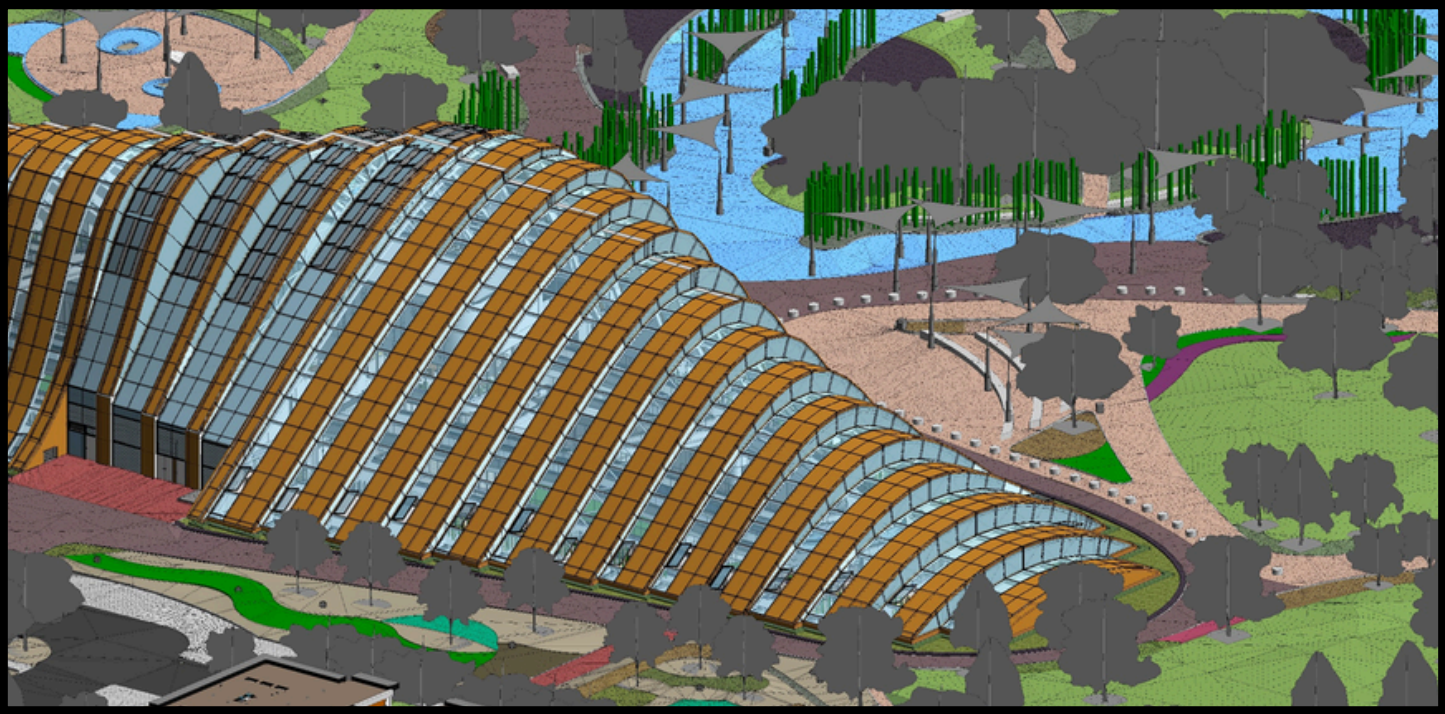

The image is a representation of the BIM Model of the Panda House Al Khor Zoo

PROJECT NAME	Panda Enclosure and Touristic Viewing Facility at Al Khor Zoo
PROJECT TYPOLOGY	Tourist Attraction
CONTRACT TYPE	Design & Build
PROJECT LOCATION	Al Khor, Doha – Qatar
PLOT AREA	15,944.62 m^2
GROSS FLOOR AREA	7,760 m^2

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INDUSTRY RECOGNITION

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Qatar Deserves The Best

ASHGHAL APPROVED PROJECT

Ashghal is Qatar's Public Works Authority. It is the government body responsible for overseeing major infrastructure, public buildings, roads, drainage systems, and national development projects across the country.

An Ashghal approval means that a project has met strict governmental standards for:

- Technical compliance
- Engineering accuracy
- Regulatory alignment
- Quality and safety requirements

For our team, achieving Ashghal approval reflects the level of precision, coordination, and professionalism we bring to every project. It demonstrates our ability to deliver work that meets national regulatory expectations at the highest level.

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CLIENT FEEDBACK

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"BIM Design LLC successfully finalized the models by resolving all conflicts, delivering a Clash-free, standards compliant digital Asset.

Their adherence to PWA requirements, detailed QA/QC process, and clear coordination reporting significantly improved model reliability and confidence for downstream use, including as-built documentation."

Nezar Sheet
Project Coordinator
Lead Structure Engineer

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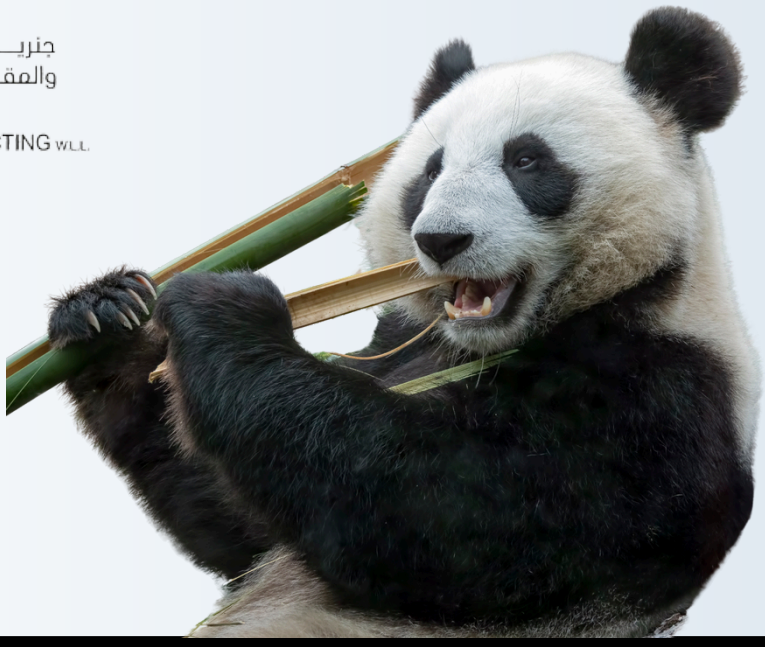
جنريك للتقنيات الهندسية والمقاولات ذ.م.م
GENERIC ENGINEERING TECHNOLOGIES & CONTRACTING W.L.L.



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KEY CHALLENGES

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Upon review, we discovered that the models were not even at LOD 400 level and had multiple deficiencies, making them unreliable for downstream use.

The goal was to transform the models into a clash-free, standards-compliant, and accurate digital replica.

We identified the key challenges below:

- **Models below the required maturity**
  The models received were not even at LOD 400. Before achieving LOD 500, significant effort was required to first upgrade them to LOD 400 level of detail, including refining geometry, enriching metadata, and correcting inconsistencies.

- **Inconsistent & overlapping geometry**
  Several elements were inaccurately modeled, resulting in conflicts across disciplines.

- **Improper material assignments**
  Missing or incorrect materials reduced reliability for visualization and quantity take-off.

- **Non-compliance with PWA standards**
  Naming conventions and modeling structures did not align with Public Works Authority requirements.

- **Significant clash issues**
  Numerous clashes existed between Architecture, Structure, and MEP systems, preventing seamless coordination.

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OUR APPROACH & *SOLUTIONS*

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Model review & upgrade to LOD 500

We began with a thorough audit of the architectural, structural, MEP & Landscape models to identify gaps and errors. Since the models were below LOD 400, we first upgraded them to LOD 400 by refining geometry, enriching metadata, and aligning them with design intent.

Once stable, the models were further upgraded to LOD 500 as-built standards, representing the actual constructed elements with verified accuracy. This ensured the models were ready for reliable downstream use, including handover and facility management.

Material specification & appearance

Materials across the models were inconsistent and in many cases incorrect or missing. Our team standardized the material library to reflect actual construction specifications and corrected assignments across all elements.

We also enhanced the visual representation, making the models not only technically accurate but also visually clear for stakeholders.

Clash coordination & resolution

We followed the standard Clash detection process created by **Public Works Authority (ASHGHAL)** which is available for public use on their website. All architectural, structural, and MEP systems were checked for interferences, and thousands of clashes were identified during the initial review. Through multiple coordination workshops and systematic resolutions, we eliminated these clashes to achieve a clash-free federated model.

Comprehensive clash reports were generated at every stage to track progress, document resolutions, and maintain full transparency with stakeholders.

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OUR APPROACH & *SOLUTIONS*

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Quality compliance & validation

To ensure compliance, the models were reviewed against Public Works Authority (PWA) BIM standards and PWA QAQC Checklist. We established strict QA/QC checks covering geometry, metadata, file structures, and naming conventions.

QAQC Reports were prepared to evaluate that all models met client and authority requirements, providing assurance of model accuracy, consistency, and completeness before handover.

4D & 5D BIM Simulation

The upgraded models were integrated with project schedules and cost data to generate 4D and 5D outputs using Navisworks. The 4D simulations provided a clear visualization of construction sequencing.

The 5D cost and quantity reports supported accurate estimation, budgeting, and resource planning. Together, these simulations became essential tools for project planning, monitoring, and decision-making.

As-Built Sheets Extraction

Once the model achieved LOD 500, accurate 2D documentation was extracted directly from it on top of PWA standard Title block. This included plans, sections, and elevations that reflected actual site conditions and construction status.

These as-built sheets were verified against on-site data to ensure accuracy and provided the client with a complete set of deliverables aligned with the final construction. This step ensured seamless integration between digital and physical project records.

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PROJECT IMAGES

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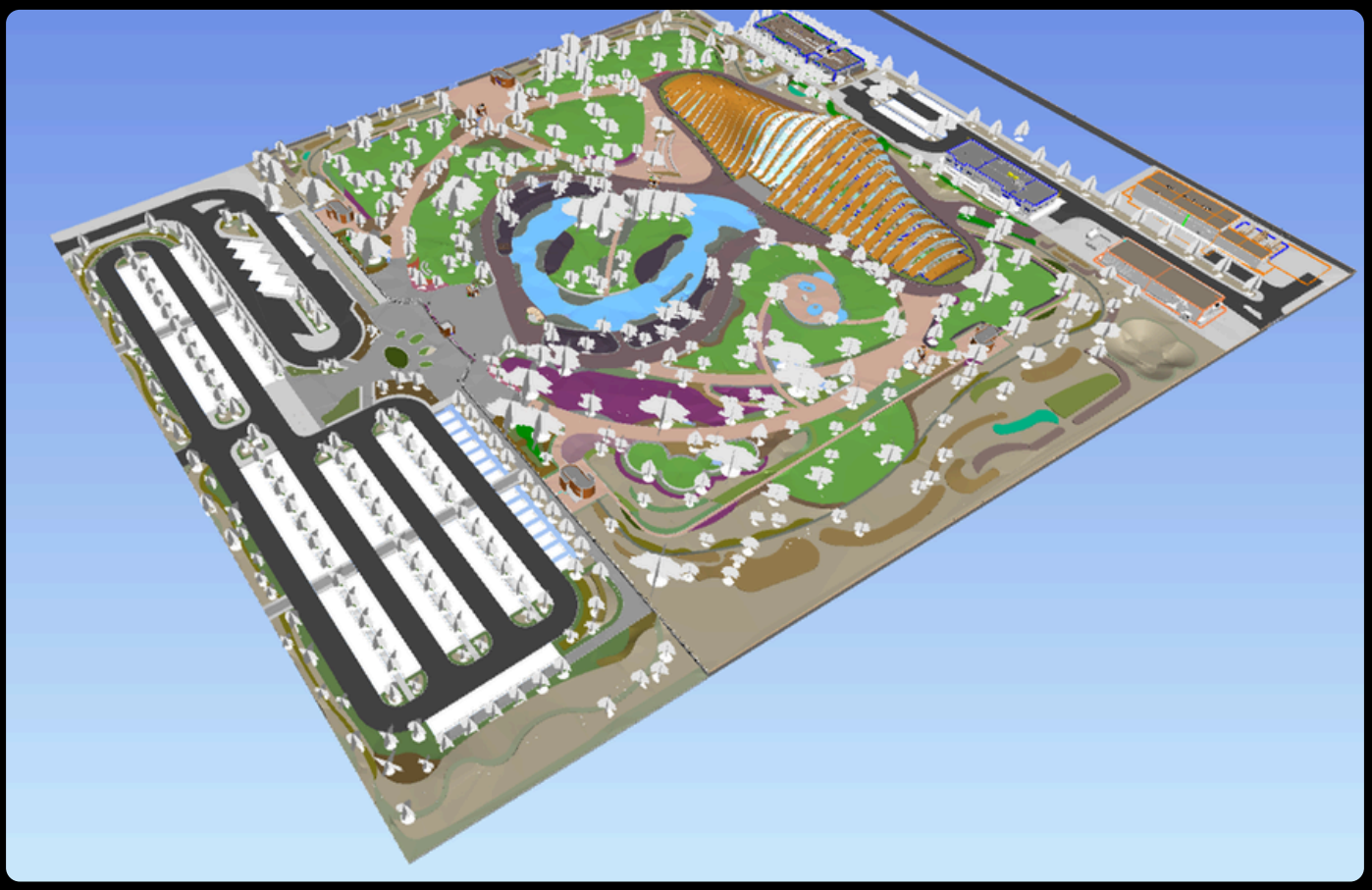

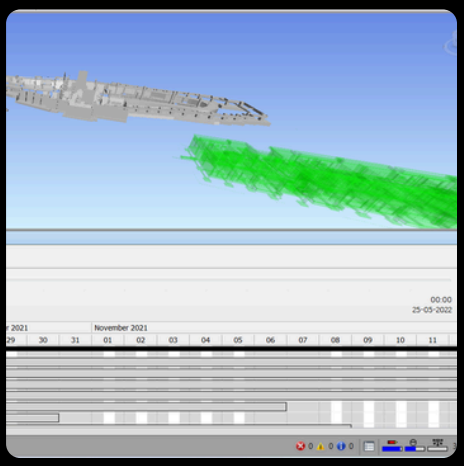

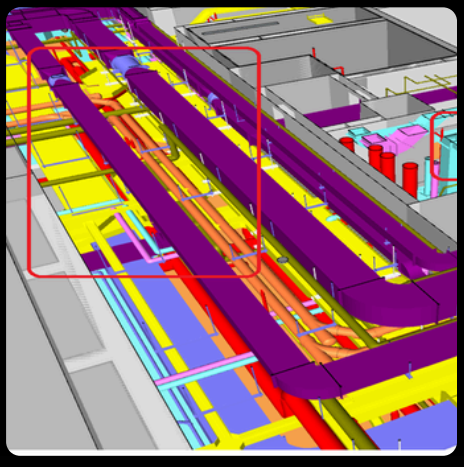

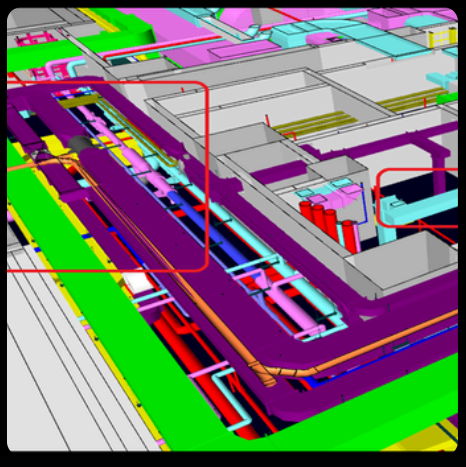

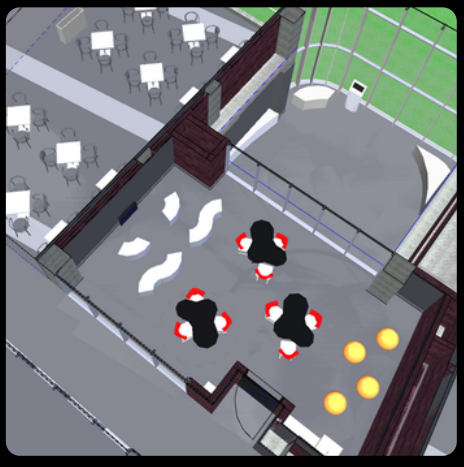

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SUCCESSFUL *DELIVERABLES*

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300+ MATERIALS CORRECTED

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SUCCESSFUL
DELIVERABLES

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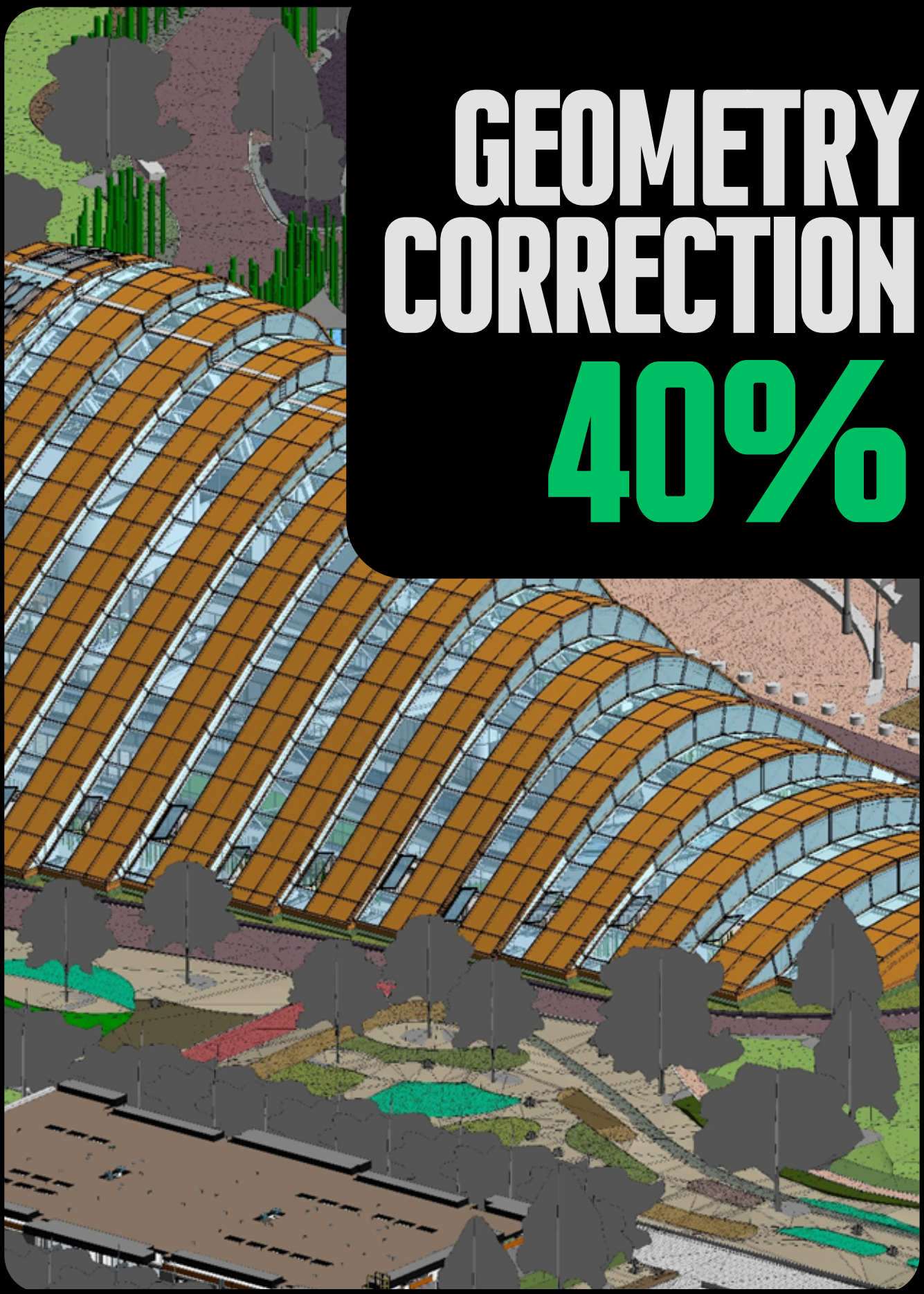

GEOMETRY CORRECTION

40%

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SUCCESSFUL *DELIVERABLES*

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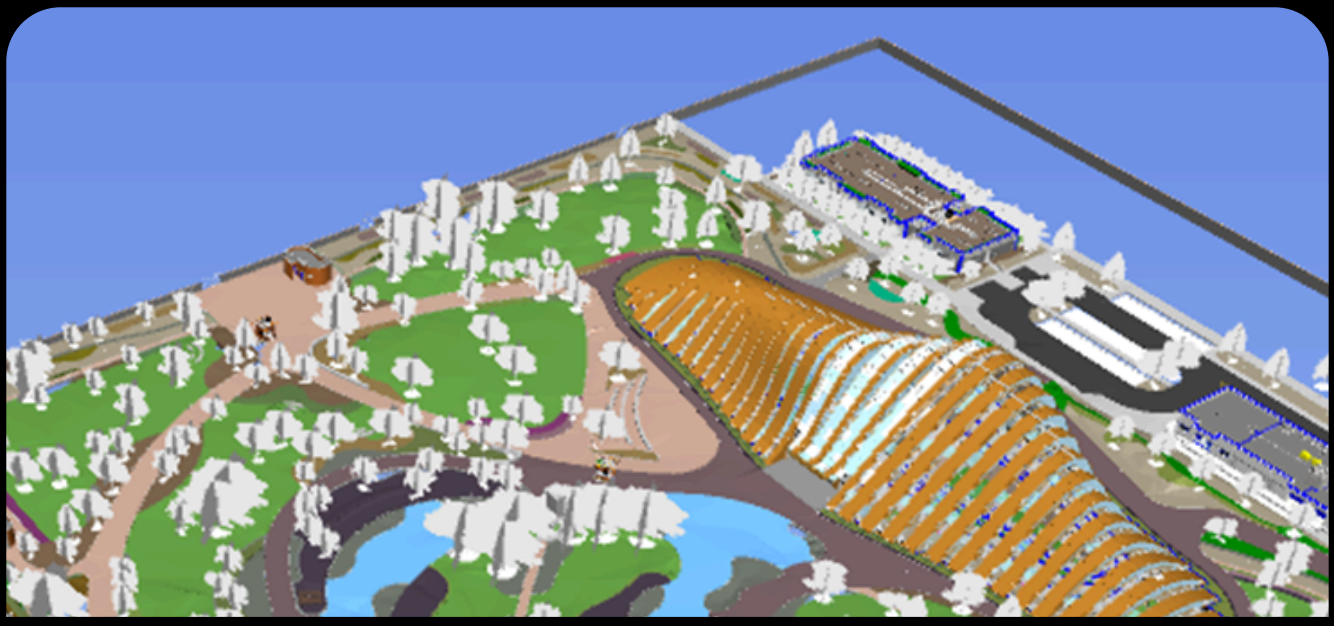

500+ SHEETS CREATED

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SUCCESSFUL *DELIVERABLES*

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COMPLIANCE ACHIEVED

100%

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PROJECT OUTCOMES

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- Delivered a fully upgraded & refined LOD 500 as-built model.
- Successfully transitioned models from LOD 400 → 500, ensuring accuracy at every stage.
- Produced a clash-free, standards-compliant federated model for reliable interdisciplinary coordination.
- Generated Clash Reports and QA/QC Reports as formal project records and approvals.
- Generated 4D/5D simulations and reports to support sequencing, planning, and cost control.
- Extracted as-built drawings directly from the model for handover and compliance.

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