Bentley
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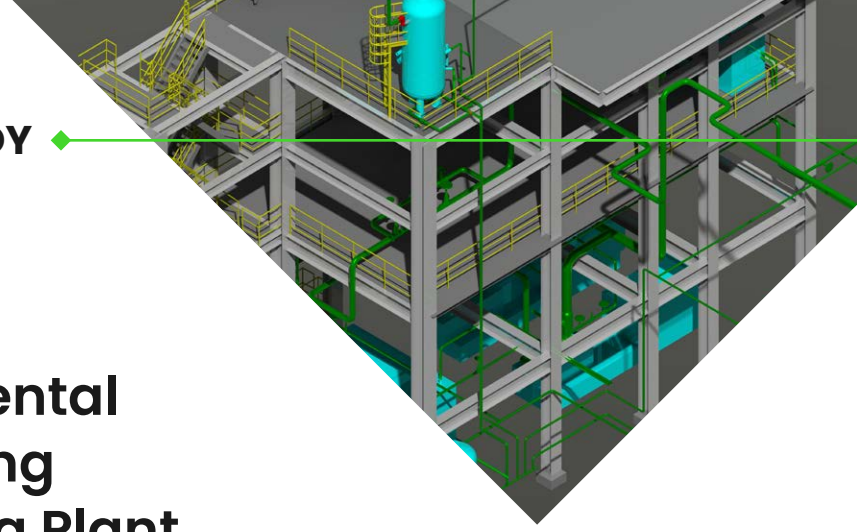
CASE STUDY



Hangzhou Bole Promotes 3D Design and Environmental Protection When Delivering Local Betel Nut Processing Plant

Bentley's Integrated Modeling and Analysis Applications Shortened Project Completion Time by 20%

A LOCAL BENCHMARK INITIATIVE

In China, betel nuts are primarily grown in the Hainan province and processed in the Hunan province, with the industry supporting millions of farmers. It has also seen significant growth in production over the past decade, exceeding CNY 40 billion in gross annual value. The refined betel nut industry in Hunan has been transformed from small-scale family workshops to large-scale industrial processing plants that involve modern technology, techniques, and treatments, essential to mitigating the harmful effects of refined betel nut products. To support industry growth and high-quality betel nut production, Hunan Onyear Food Co. is building their Onyear Betel Nut Processing Plant in Hunan, retaining Hangzhou Bole Digital Intelligence Technology (Hangzhou) to design the CNY 1 million process factory project. Known for their advanced processing solutions and collaborative BIM design approach, Hangzhou will work to promote 3D digital design and ensure environmental protection. "The Onyear Betel Nut Processing Plant project is a typical process factory project being recognized as a local benchmark project," said Shi Jie Hou, sales manager at Hangzhou.

STRICT DESIGN REQUIREMENTS, TIGHT SCHEDULE

Betel nut processing involves advanced techniques and technology to improve the softness of the fiber, address microbial contamination, and prevent brine whitening. Controlling the chemical and environmental pollution that often occurs in refined betel nut production requires optimal processing methods and stringent regulatory measures. Therefore, to maximize the plant's processing potential while minimizing environmental impact, the owner imposed exacting design requirements on Hangzhou. "To complete the project, the owner has carried out a very strict assessment on the design team and products," explained Hou.

To adhere to the high design and environmental standards, Hangzhou had to engage with area residents and multiple project participants and stakeholders, including presenting their proposed design to an evaluation team for approval. Faced with these challenges on a tight schedule, Hangzhou realized that they needed integrated 3D modeling and analysis technology to digitally coordinate data and design workflows. "To cooperate with the local residents and to reduce the design risks, the designers collected key design data to respond to the tight schedule," stated Hou.

ESTABLISHING AN OPEN MODELING PLATFORM

"We determined that Bentley applications could be used to transition to 3D modeling and digital delivery while meeting all project requirements," said Hou. Leveraging OpenPlant, the team established a 3D factory model. Utilizing AutoPIPE and STAAD, they generated pipeline and structural analysis models that were integrated into the single digital plant model. They used ProStructures to create detailed design models and construction drawings, which were automatically updated whenever the 3D plant model was modified.

Working in Bentley's open modeling platform, all design teams and participants could review and update the 3D model throughout the project. "With the aid of the Bentley platform, various teams brought all elements into a single digital model that was accessible to all project participants," clarified Hou. The flexibility and interoperability of Bentley software also helped the team present their proposed designs to the evaluation team in an immersive way, keeping them informed of any changes.

PROJECT SUMMARY

ORGANIZATION

Hangzhou Bole Digital Intelligence Technology Co. Ltd.

SOLUTION

Process and Power Generation

LOCATION

Xiangtan, Hunan, China

PROJECT OBJECTIVES

- To deliver the Onyear Betel Nut Processing Plant as a local benchmark design project.
- To promote digital design and ensure environmental protection.

PROJECT PLAYBOOK

AutoPIPE®, OpenPlant®, ProStructures™, STAAD®

FAST FACTS

- The Onyear Betel Nut Processing Plant project is recognized as a benchmark initiative, promoting 3D digital design and supporting environmental protection.
- Hangzhou Bole Digital Intelligence Technology was retained to design the CNY 1 million process factory project.
- Using OpenPlant, AutoPIPE, and STAAD, they generated an integrated digital factory model.

ROI

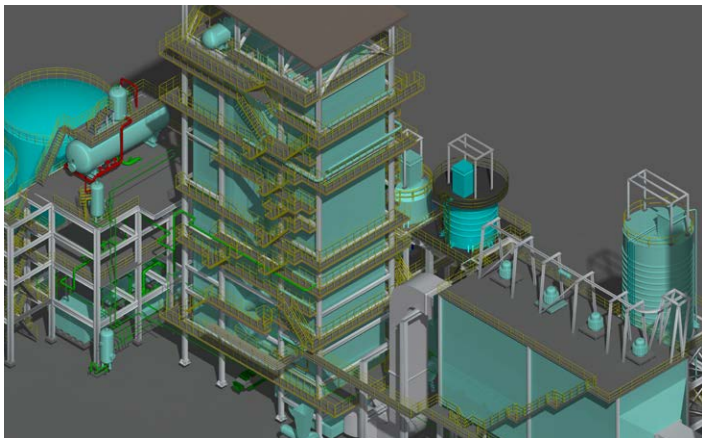
- Working in an open modeling platform streamlined workflows to accelerate project completion by three months.
- Leveraging Bentley applications saved 200 hours in design time and CNY 800,000 in costs.

"The integrated use of Bentley applications to build new workflows has enabled us to deliver the project three months ahead of schedule."

– Shi Jie Hou, Sales Manager, Hangzhou Bole Digital Intelligence Technology

DIGITIZATION DRIVES SAVINGS AND SUSTAINABILITY

By establishing an open, connected digital design environment, Hangzhou streamlined modeling and analysis, allowing them to optimize design and deliver the project efficiently. "By using Bentley products, the design time could be reduced by 200 hours and a cost of CNY 800,000 could also be saved," said Hou. With Bentley's integrated applications, they implemented collaborative digital workflows that enabled them to deliver the project three months ahead of the already tight schedule. "The entire project was completed smoothly, thus shortening the completion time by 20%," emphasized Hou. The digital 3D modeling and analysis solution not only reaped quantitative savings, but also avoided rework and material waste, resulting in high-quality, sustainable deliverables.



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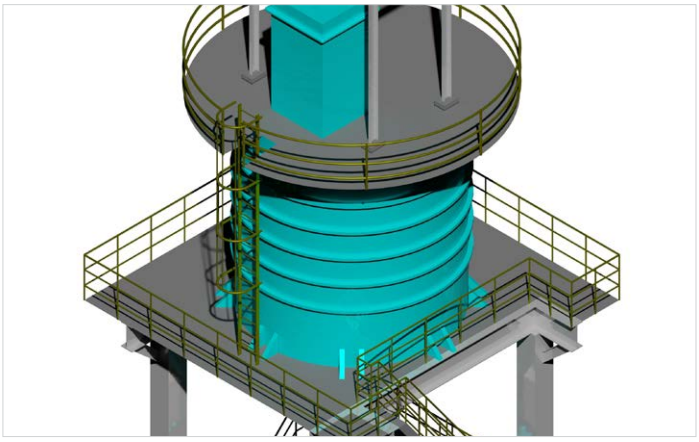

Avoiding rework and eliminating material waste supported sustainable plant delivery.