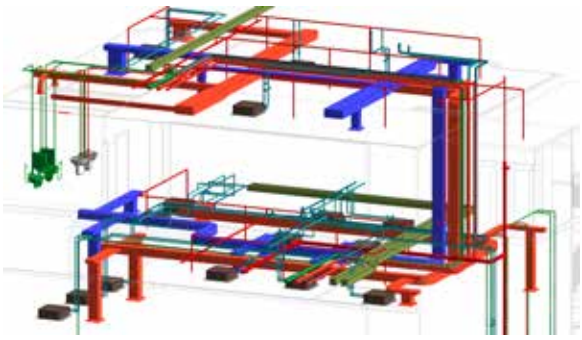
enventure

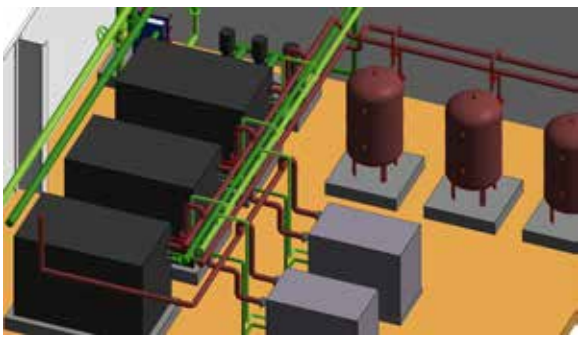
Engineering Excellence.
Building Trust.

Beefing up meat production with a state-of-the-art slaughterhouse

Type of Project	Client Industry	Location	Project Duration	Tools Used
Industrial building	**GC**	**USA**	**6** months	Revit+ Navisworks

Project Profile	Team details
200,000 sqft	Architect: **8** Yrs | Electrical Engineer: **5** Yrs | PHE Engineer: **6** Yrs HVAC Engineer: **6** Yrs





This General Contractor (GC) customer was established in 2000 and had very quickly built up a reputation for superior performance and quality standards. Within a span of eight years, the customer had become one of the top and most sought-after GCs. Enventure was a partner in this progress, with a long list of successful engagements spanning modelling, value engineering, clash detection, quantity take-off, coordination drawings, On-site coordination and final as-built preparation.

This project, the construction of a new world-class slaughterhouse was a challenging one. With hygiene as the cornerstone to a meat producing facility relying heavily on electromechanical services, specialized water supply systems and compressed air cleaning, the slaughterhouse was the definition of state-of-the-art. That said, Enventure had the task of designing and creating an appropriate Building Information Model, pre-construction 3D visualizations, 2D extractions and the ability to extract Bills of Quantities (BOQ) from the model. Whilst also complying with a myriad of building codes and standards for food producing and processing facilities.

While Enventure's selection for performing this task was natural, given the multitude of engagements delivered successfully, past performance was never a guarantee for future success. Hence the delivery team immediately set out to scope the project and draft the project plan. Using Enventure's REFR approach, the estimation was carried out with an aggressive timeline and an appropriate program management approach was laid out.

Enventure Approach

There were risks in the project from day-one, since the customer did not have extensive experience with the construction of slaughterhouses, alongside a need for the project to be operational by 2020. The fact that the modeling process was punctuated by the global Coronavirus crisis added an additional dimension of complexity to this already challenging project.

Delving into Enventure's experience with delivering a few BIM projects for slaughterhouse construction, the team began the process of identifying parametrization opportunities to create a library of reusable components in addition to those already available from similar projects. Subsequently the three-shift step-delay team swung into action, and the project began its swift journey towards completion.

The Coronavirus outbreak had little effect on the project, although it did cause the need for a few project huddles and online meets with the customer. Enventure was following the progression of the Coronavirus outbreak since the beginning of January 2020 and was well aware of the impending lockdown, as of February. Our business continuity processes mandated that a work-from-home policy be available for catastrophic loss of service, as was the case with the outbreak and the subsequent lockdown. By the first week of March, the entire team's computers were physically moved to their respective homes and redundant connectivity was established to avoid disruptions to work.

Using a phased approach, this transition was made with no disruption to work, and by March 16, 2020, the entire Enventure workforce was working remotely. This preemptive approach eliminated all scope for a delay or disruption in the work on this critical project, something the customer appreciated, but was not surprised by, given their understanding of Enventure's work culture and customer commitment.

Project/Solution Overview

During the course of the model development, Enventure made numerous suggestions for improvement of the design, based on its experience with slaughterhouse design, which were well received by the customer. In addition, relevant value engineering recommendations were also adopted by the customer, which would reduce cost and construction time. These included reduced lengths of ducts and pipes and routing suggestions that would allow for reduced loss of pressure for the compressed-air cleaning systems.

It was business as usual during the development of the model as the Mechanical, Electrical, Plumbing, and Firefighting design teams worked in tandem with the analysis and quality oversight teams. Following Enventure's step-delay approach, the development, validation, analysis and quality oversight processes were fluidly functional with no team waiting inordinately for the other to complete their tasks.

The BOQ extraction also meant that the customer was able to efficiently procure the material and equipment required for construction without maintaining an extensive inventory, nor experiencing waiting times. With the early completion of the design, and a staged delivery, the customer was also able to strategize procurement to reduce working capital strain.

Customer benefits

The project was completed well before the deadline, which by itself meant several days of buffer for improved and stress-free construction execution. Additionally:

- The value engineering suggestions and recommendations provided by the design teams helped reduce construction cost by as much as 25%
- The preconstruction 3D visualization allowed for the construction team to plan their activities efficiently, reducing conflict, reducing construction time, and most importantly, reducing wastage
- Enventure's familiarity with construction codes and standards for food processing units allowed for a zero-rework approval of the plans, thus avoiding cost and time overruns

Conclusion

At Enventure, we consider every project as unique, irrespective of the familiarity of the scope or the longevity of the partnership with the customer. This slaughterhouse project was however one of the most important milestones for Enventure, especially given the fact that it allowed for a live test of the Business Continuity and Disaster Recovery processes. The customer was happy with the result but while we watched the horrors of the Coronavirus outbreak unfold, we had a semblance of reassurance. Our REFR processes had taken on new dimensions:

- Responsive to changes in the landscape
- Efficient irrespective of the foreseen and unprecedented challenges faced
- Fast to adapt to new ways of working
- Reliable because of the maturity of processes and depth of documented knowledge

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