Prescription for Faster Design

MicroStation® V8 and Bentley® Architecture™ Help SWECO FFNS and AstraZeneca Take Nexium IV to Market

With the design process only one month ahead of the scheduled start of construction, Sweden's largest engineering, environmental management, and architectural consulting company switched to Bentley's 3D architectural design technology to design a new facility for manufacturing the drug Nexium IV, a promising successor to the successful stomach ulcer medication Losec.

Time was a critical factor in developing a design plan for a new manufacturing facility to produce AstraZeneca's promising new stomach ulcer medication Nexium IV, a follow-up to the drug Losec. The pharmaceutical giant put the bid out for the USD $70 million facility to be built in Milano, Italy, or Södertälje, Sweden, where AstraZeneca already has two large industrial estates in Gärtuna and Snäckviken. When the Södertälje location was decided, the Swedish firm SWECO FFNS accepted the challenge.

With only one month of lead time until construction was scheduled to begin, SWECO FFNS quickly had to develop its plans for the 13,500-square-meter production facility and the 2,400-square-meter microbiological analysis laboratory. The company was required to start delivering drawings immediately to construction contractors. Design planning began in January 2002, and construction is expected to be complete in October 2003. Commercial production of Nexium IV is scheduled to start in the second quarter of 2004.

BRIEF

Organization
SWECO FFNS

Vertical Market
Building

Location
Södertälje, Sweden

Project Objectives
- Meet a tight deadline to design AstraZeneca's newest manufacturing plant, with only one month of lead time from design to construction.
- Begin producing construction documents almost immediately upon beginning the project.
- Transition the design team to MicroStation and Bentley Architecture, migrating to MicroStation V8 early in the project.

Fast Facts
- The facility measured 13,500 square meters, and included a 2400-square-meter microbiological analysis laboratory.
- Designing in 3D allowed the team to generate and deliver section views and 2D drawings in a matter of minutes.
- Using MicroStation V8 allowed the team to easily handle and deliver DWG and other file formats used by contractors.
- Even team members with no prior experience in MicroStation were able to begin work at full speed with very little training.

Bentley Products Used
- Bentley Architecture
- MicroStation V8

SWECO FFNS Changes its Technology Prescription

Adding to the challenge, SWECO FFNS' design team decided to switch from a CAD software application it had been using to MicroStation® and Bentley® Architecture™ for the project, migrating to MicroStation V8 early on as the project progressed.

While the software application the firm had been using was meeting its current needs, it was not user-friendly or flexible. In addition, future development of the product was not promising, so SWECO FFNS couldn't foresee the application meeting the long-term challenges of both the project and the firm.

"We realized there were going to be challenges involved in using a product for the first time on a project of this scale," says Anna-Brita Krakenberger, lead architect with SWECO FFNS who manages the use of Bentley software in the firm. "But we experienced success with Bentley Architecture on smaller projects and believed it could handle any problem we might face. We didn't feel as confident that the application we were using up until that point would be able to meet our demands moving forward.

"We saw switching to Bentley applications as an investment in our future," continues Krakenberger. "And the benefits so far have been better than we expected in a lot of ways—ease of use, capabilities, time-saving features, and future potential, to name a few."

Fast Absorption Rate for Quick Results

Training the project architects on the Bentley applications proved to be a lot easier and take less time than the project team had initially anticipated.

"We had been prepared to spend a lot of time training our people on Bentley Architecture, but we were pleasantly surprised when our people—who had no previous experience with the software—started to work at full speed," remarks Krakenberger. "That was really impressive, and a relief, as we were expecting to encounter a lot of problems, too."

The team found Bentley Architecture more user-friendly than they had imagined, particularly when it came to designing complex 3D models.

"Bentley Architecture is very intuitive, which is good for architects," explains Krakenberger. "We found we could design complicated corners, for instance, very easily using Bentley Architecture. And we could see our efforts immediately in 3D, which makes it easier to think in 3D."

Positive Side Effects

Using MicroStation and Bentley Architecture on the project proved to be beneficial in a number of ways. Because design was sometimes

only one week ahead of construction, SWECO FFNS had to deliver 2D design files to construction contractors very quickly. Since SWECO FFNS was designing in 3D, SWECO architects and engineers could generate section views and 2D drawings from the 3D model in an instant and present them to the builders in a matter of minutes.

"We generated sections, plans and floors directly from the 3D model, which is the first time we've been able to do that," explains Oskar Svensson, a building engineer on the AstraZeneca project. "We couldn't trust other programs.

"We had different types of files in the 3D model, like the facade files, and we didn't need to divide everything in floors like traditional horizontal designing," he continues. "We could make more vertical designs very easily."

A Remedy for Interferences

Designing in 3D provided another advantage. Since the HVAC and electrical engineers primarily designed in 2D, SWECO FFNS redesigned air ducts, piping, and electrical installations on certain complex floor sections of the production facility in 3D and incorporated them into the model to visualize the interferences between the disciplines.

Relieving the Pain of File Translation

Many of the electrical, structural, HVAC and construction contractors were working in AutoCAD® and required drawings to be delivered in DWG. Using MicroStation V8, SWECO FFNS was able to handle and deliver DWG and other CAD format files easily with no complications.

"It is a great advantage to us that we can view and use the DWG files the various contractors send us without any problems, as well as export them back with no problems, with MicroStation V8," explains Krakenberger. "Sometimes, we would receive 30 or 40 files at a time. To import them into the old MicroStation and translate them would have taken a lot of time—time we didn't have on this project, as we were designing at virtually the same time as construction was going on. We did the drawing sheets in MicroStation V8, because otherwise we would have had problems exporting them to the other contractors. So MicroStation V8 saved us a lot of time and hassle."

Getting Nexium IV on the Shelf

As of November 2002, the laboratory structure is complete and will be outfitted with all equipment and furniture by first quarter, 2003. SWECO FFNS has met all project deadlines so far, with no delays. The production facility is scheduled to be online in 2004, for AstraZeneca to begin producing Nexium IV.

"Bentley applications allow us the opportunity to work in a completely different way," Krakenberger elaborates. "They enable us to think of a building not in terms of a bunch of abstract lines, sections, elevations, or drawings, but to design a structure as a whole organic entity and envision the end product.

"After our success on this project, we are looking forward to exploring the full potential the programs have to offer. To work more closely with other people involved in the project process and to get more value out of the model, for example, the cost estimation/cost savings potential and so much more. We believe in Bentley's vision and where Bentley products are headed."

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