The AVEVA Bocad Advantage

How Iemants owes its success to AVEVA Bocad

Iemants N. V. is an international steel construction company from Belgium, with a long history of impressive projects as diverse as bioethanol plants, topsides for tension-leg platforms (TLPs), wind farm jackets and substations, as well as a host of architectural projects that include the Ferrari theme park in Abu Dhabi, the Tour D2 skyscraper in Paris, and a new terminal for Rotterdam's central station, for which they won the national steel award at the Staalbouw Dag, a steel construction fair in the Netherlands. We spoke to Patrick Maes, Technical Director at Iemants, to understand how the company has used AVEVA Bocad™ to deliver such varied and sophisticated projects.

Camille Nedelec-Lucas
Editor of AVEVA World Magazine and PR Specialist

To meet the requirements of a wide range of clients, Iemants uses both AVEVA Bocad and a competitor's software. The choice depends not only on a client's preference but on the nature of the project. One deciding factor for using AVEVA Bocad on a project is its ability to automatically generate large parts of the design, even on very complex projects. 'For example, a long time ago we completed the 300-metre Aspire Tower in Qatar,' Patrick explained. 'The key advantage AVEVA Bocad brought on this project and others like it was that, once one floor was designed, AVEVA Bocad could automatically generate all the others, which was a huge time saving.'

Automated design

AVEVA Bocad enables a lot of key project information to be automatically generated. It provides all required project information (piece numbering, piece-to-piece information, location marks, and weld information) to gain full control of the project to shorten lead times and eliminate errors in the fabrication and construction processes.

Iemants used AVEVA Bocad to support its design work on the Ferrari theme park in Abu Dhabi. Photograph courtesy of Iemants.

By doing as much as possible automatically, time and effort can be saved and sources of error eliminated. Out-of-the-box automation and standardisation are readily extended by AVEVA Bocad's built-in macro and programming functions.

'We customise Bocad to improve standardisation, which allows us to execute projects more quickly and increase production,' said Patrick. 'That is part of our competitive advantage. For example, ladders, handrails and stairs can be difficult elements to design and fabricate because they have to be configured to each project; each Owner Operator has its own standards and requirements. With Bocad we can create railings almost automatically; we have about twenty types of handrail on file. Generating this element of the design automatically is hugely advantageous. Bocad is unique in its ability to do this; it would cost Iemants a lot more time and effort if we were to use any other tool for these types of task.'

Shop drawings

The Tour D2 tower in Paris involved designing and fabricating 260 different node plug-ins because, in every node, each of the four endplates was at a different angle. To achieve this, a lot of companies would have to spend time manually editing their drawings in a 2D design system. AVEVA Bocad can deliver accurate, shop-ready drawings and CNC data for such complex parts direct from the 3D model.

Another key advantage of AVEVA Bocad is the completeness and organisation of its outputs. 'When the shop drawings are ready to be released, very little time is wasted in refining them, unlike many other competitor software solutions, which require often extensive manual rework of the 2D drawings prior to fabrication,' Patrick said. 'Bocad is great at generating, managing and controlling our entire fabrication deliverables and production information. Rival solutions may offer fast viewing and nice pictures, but at the end of the day I would have nothing but a picture.' ▸▸

The 300-metre Aspire Tower in Qatar was a particularly complex project. Photograph courtesy of Iemants.

AVEVA Bocad delivered accurate drawings and CNC data direct from the 3D model for the Tour D2 skyscraper in Paris. Photograph courtesy of Iemants.

AVEVA Bocad has also been utilised by Iemants on the London Array substation for an offshore wind farm. Photograph courtesy of Iemants.

Iemants won a national steelwork award for its work on the new terminal at Rotterdam's central station. Photograph courtesy of Iemants.

'Bocad is completely fit for purpose, no matter what the industry or project. Iemants' long and varied project list more than proves how flexible the company is and how flexible the software is that underpins our designs. But it also allows you to turn these designs into great deliverables and ultimately into high-quality, on-time construction...'

Standardised production output

AVEVA Bocad's ability to customise and standardise outputs to suit the CNC cutting and welding machines eliminates many potential sources of error and optimises the fabrication process to enable clients to get the best results out of their machinery. 'For example,' continued Patrick, 'It is easy to model a curve but when we fabricate complex steelwork it is critical to ensure that the production data and shop drawings reflect exactly what we create in the model so the fabrication shop has all the information they need and they understand exactly what is required. This is vital to ensure accurate and continual production. Bocad is very good at connecting how designers think with the way fabricators work.'

One of Iemants' bridge projects in Belgium required complex three-dimensional cutting. 'Bocad's interfacing with the machinery meant that we could do this in house, which we would not have been able to do with the rival software,' said Patrick. 'We know Bocad. It gives us a lot of possibilities that we don't get with other software products.'

Quality assurance

Once the steel parts are fabricated, accuracy is verified using laser scanning prior to leaving the fabrication shop. The 3D coordinates of any scan point can be imported into Bocad for comparison and any necessary corrections made to the fabrications before shipping to the construction site. 'This bidirectional integration is the future,' Patrick said. 'It can completely eliminate on-site rework.'

AVEVA Bocad integration

Iemants is eager to explore further ways of optimising its use of AVEVA products, and has tested the latest direct interface which links AVEVA PDMS™ and AVEVA Bocad. 'AVEVA has already made great progress in integrating models bidirectionally between PDMS and Bocad,' said Patrick. 'We are always looking for ways to improve how we communicate and work with our clients, and we are seeing major benefits with regular collaboration and clash checking to reduce fabrication and construction rework. AVEVA is clearly providing what the market is demanding and this is exactly how we want to move forward – completely integrated 3D modelling.

'Bocad is completely fit for purpose, no matter what the industry or project. Iemants' long and varied project list more than proves how flexible the company is and how flexible the software is that underpins our designs. But it also allows you to turn these designs into great deliverables and ultimately into high-quality, on-time construction,' concluded Patrick.

About Iemants

Iemants is an international steel construction company with over 50 years' experience in the engineering, supply and assembly of steel constructions. It is part of the Smulders Group, an international organisation employing 800 staff spread over its four subsidiaries: Iemants, Willems, Smulders Projects and Spomasz.

The Group has branches in Belgium, the Netherlands, Poland, Abu Dhabi, Qatar and India. Its core activities cover various market segments such as high-grade industrial constructions, commercial and architectural projects, bridges and infrastructure, brownfield revamp projects, on- and offshore oil & gas, and offshore wind. Iemants prides itself on its years of experience within these market segments. Learn more at **www.iemants.com**.◆