Success Story

Vettiger Metallbau AG

From scan to machine with HiCAD

"Glass is our passion," could be the motto of the Swiss company Vettiger Metallbau AG, which has been manufacturing facade elements made from steel, metal or glass for over 50 years. Their homepage offers attractive images of various building styles that seem to have one thing in common: transparency that unites with state-of-the-art technology and at the same time promises stability. And that, among other things, also for the area that can best be described with the following words: living and well-being. "In this area, no one should be left feeling cold," says Managing Director Guido Vettiger. He and his team of 60 employees are responsible for planning, statics, drawings, production and installation – e.g. of balcony glazing and glassed-in sitting areas, doors, windows, railings, canopies, facades together with skylights, and shading elements. The Swiss company handles all the necessary steps with the CAD software HiCAD – from measuring the dimensions of the model to forwarding the drawing data to the CNC machine.

VETTIGER

REFERENCE REPORT

3D planning with conviction

In 2014, Guido Vettiger decided to implement the 2D/3D associated CAD system from the Dortmund-based ISD Group, which also maintains a branch office in Switzerland: HiCAD. “Initially, we designed exclusively in 2D, then evaluated various 3D providers and acquired a HiCAD license for both Vettiger Stahlbau AG and Vettiger Metallbau AG,” he says. Since 2021, the company from Oberbüren has also been using an additional mechanical engineering suite. The direct DXF and IFC interfaces ensure loss-free data exchange and secure collaboration with customers. Additionally, the company benefits from the LogiKal interface and the HiCAD point cloud extension module.

“We often receive architectural plans for glazing and conservatories still in 2D, for example. Here, a floor plan is created, which is then used for dimensioning and for executing the variants via a legend,” explains Project Manager Tobias Balsiger. “In the early planning phase, adjustments can thus be implemented faster and more efficiently than in 3D. In terms of modelling, we are about the same speed in both dimensions. With 3D planning, however, we enjoy certain advantages when creating a BOM, can visualise projects for customers in a well-structured way, and avoid further inquiries from the workshop thanks to the representation of details such as connections and transitions.” BIM for the transparent flow of information between clients, contractors and all trades involved will become even more of a focus at Vettiger Metallbau AG in the foreseeable future. “The IFC interface has already supported us well in this context,” says Tobias Balsiger. “We were able to use it to import data from architects and compare it to dimensional drawings, and also to add any necessary changes.” At the beginning, there is the measurement with the point cloud. “When projects are planned in 3D, it is almost mandatory to take measurements via the point cloud,” the Project Manager continues, explaining his departure from purely 2D CAD software. The point cloud is a detailed, three-dimensional image of the model that can be further processed by various software tools. Elements can be moved and new parts can be inserted between them for a precise fit. “This is very advanta-

“Thanks to HiCAD’s LogiKal interface, we can realise more complex projects and create offers quickly and easily.”

Tobias Balsiger, Project Manager Vettiger Metallbau AG

Bilder: ©Vettiger AG; Drawing in the point cloud, glass roof

geous for conversions," says Tobias Balsiger. With the HiCAD point cloud module, he is able to capture high-precision measurement data in a short time. "We have been working with the point cloud scanner for five years now, and it has proven its value in terms of speed and reliability when it comes to taking measurements."

"When projects are planned in 3D, it is almost mandatory to take measurements via the point cloud."

Tobias Balsiger, Project Manager Vettiger Metallbau AG

As a user, he says his work now benefits from the FARO As-Built Modeler-Tool, which has been integrated into HiCAD in 2020. "With Pro Scan, it takes about four minutes, all measurements are taken in 60 minutes, and post-processing with Faro Scene is done in 30 minutes," he explains.

From laser scan to machine

"After measuring by laser, the concept for the building permit is created directly in HiCAD," explains Tobias Balsiger. "Then the drawing takes place, where we benefit greatly from the fact that HiCAD supports both the individual and parametric drawing approaches in a single system." In addition to the many automatisms such as BOM output, identical part search, and drawing derivation for sheet metal and other assemblies, parameterised models save him a great deal of time – especially in the case of balcony glazing, slatted roofs and railings: "Slatted roofs and glazing are first constructed as parametric models and stored in the HiCAD catalogue. The catalogue is then successively expanded. Changes are recognised at all points and only the relevant area of the drawing will be updated. The interconnection of the model to various layouts ensures ongoing transparency in the process."

Incidentally, this interconnection is also provided by the bidirectional LogiKal interface, which Tobias Balsiger uses to secure complete access to the profiles of various manufacturers – for example for roof glazing. "After importing the profiles into HiCAD, further processing can be applied in no time at all. For example, holes for attachments," he says. "Then the whole thing is sent back to LogiKal, and after BAZ data is generated, the machine is activated from there." HiCAD also ensures that data can be exchanged without any problems:
"Sheet metal parts with drawing derivation and sheet development are stored in DXF format. If required, the customer is also provided with STEP data of sheets for external fabricators. This allows the 3D data to be read by different programmes used in product development," says the Project Manager, who programs aluminium and steel profiles with drawing derivation in Emmegi's CAM Plus.

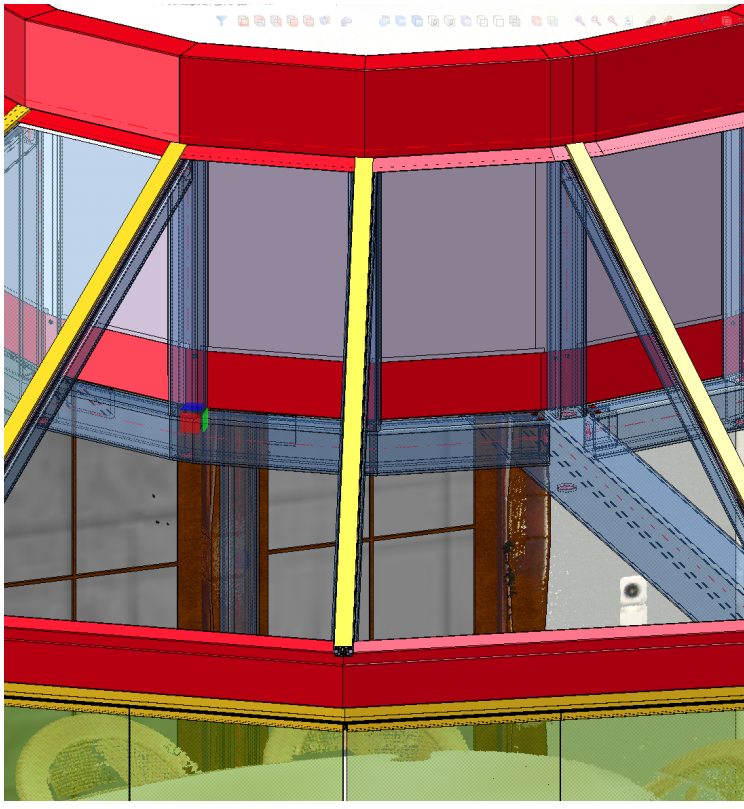

Image: ©Vettiger AG; 3D model glass roof

Overcoming challenges with HiCAD

In the case of the (St. Gallen) glass roof project, the challenge for Vettiger Metallbau AG was not only the drawing, but also the assembly and planning for transport. "Due to the different surfaces and angles, some very complex sheets were created," explains Tobias Balsiger.

“Since these were painted, we could not rework them subsequently during assembly. Thus, exact modelling was necessary, which was simplified by a realistic construction situation in 3D. Thanks to the BOM, it was also possible to take over helpful information for transport – such as dimensions and weight. As part of the collision check, it was ensured that all details were correct and the object could be manufactured internally in one process without reworking.”

Brief company profile:

- Vettiger Metallbau AG
- Industry: Metal engineering
- Software: HiCAD
- Services: Balcony glazing, slatted roofs and metal constructions
- https://vettiger-ag.ch

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