



“With Revit Structure I’m using half the resources to do the same amount of work.”

Theo van Niekerk
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Revit Structure halves resources required

The introduction of [AutoCAD Revit Structure Suite](#) to South Africa has taken structural engineer, [Theo van Niekerk’s](#) use of building information modelling (BIM) to a new level. He has been using the BIM capability of [Revit Architecture](#) for some time. Now with [Revit Structure](#), he needs half the resources to do the same amount of work.

Revit Structure is unique as it combines a physical model of a building with an editable analytical model. The physical model is used for drawing production and coordination, and the analytical model is used by third-party structural analysis applications. Any design changes made during the analysis automatically update the physical model as well as the construction documents.

Using BIM, every view, drawing sheet and schedule is a direct representation of the same underlying database. This means changes to any part of the structure need to be made only once, maintaining consistency throughout the documentation sets. If a structural member changes, the views where this element is displayed are coordinated and updated automatically.

Van Niekerk has done four large warehouses and 20 residential projects using Revit Structure with Robobat’s ROBOT Millennium structural analysis and design software application. He also uses Revit Extensions and RCAD, for specialist reinforcing detailing. Revit Extensions allows a designer to detail the concrete reinforcing directly in a Revit model, then export it to RCAD (an AutoCAD based application by Robobat) for detailing.

Collaborating with architect Nico van der Meulen, Van Niekerk has been working on the design of a light industrial project for Electro Mechanica in Ormonde near Gold Reef City, south of Johannesburg. The project comprises a 1 500 square metre, steel framed warehouse and a reinforced concrete office block, which is made up of a basement and two levels, each of which is 1 500 square metres.



Almost the entire professional project team has been working on Revit, including the on-site contractor.

Time savings have been achieved in the development of concepts, structural analysis and generation of detailed drawings for construction.

“Construction began shortly after initial concepts were started,” says Van Niekerk.

He says creation of models for analysis, which would previously have taken at least two weeks to create manually, was done almost instantaneously.

“I had to create three models for analysis – the warehouse, the office block and also the basement of the warehouse. Previously, it would have taken me several days to create the models, and then there would also have been the laborious process of ensuring that changes resulting from the analysis were incorporated into the original model.

“With Revit Structure the model was exported to ROBOT Millennium for analysis. With the return of information to Revit Structure all information was automatically updated in all views. If the analysis required the size of a structural member to be increased, this was automatically updated in the Revit Structure model.

“Not only was the building model automatically updated, but there was also no need to further update the construction documentation. Revit Structure has done away with a whole chunk of work altogether, which translates into huge time savings.”

Theo van Niekerk & Associates is supported by the Gauteng Autodesk reseller, Cadplan Johannesburg, which is also a Robobat reseller.

