AUTODESK UNIVERSITY

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Why Do We Still Resist Using Revit Structure for Reinforcement Detailing?

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Learning Objectives

- Consider using Revit Structure for rebar detailing
- Learn about the benefits of a BIM-centric workflow
- Learn about different workflows used for RC detailing around the world
- Tell possible missing features to software developers

Description

Although most projects are delivered with Revit software in most parts of the world, and many engineers use Revit Structure software in their daily work to model, analyze, and document various structures, the acceptance of using Revit software for rebar detailing is still somehow limited. In this roundtable, participants may discuss the reason(s). Is it the necessity to change the entire workflow in the office, or that reinforced concrete (RC) detailing is being offshored? Are there still features missing from the software? Is it slower (that is, more expensive) to work in 3D? Come and discuss! This session features Revit Structure.

Your AU Expert

After receiving his diploma in structural engineering at Technical University in Munich, Thomas Fink has worked in structural engineering and software development for over 30 years. He is co-founder and CEO of SOFiSTiK AG, a leading German supplier of software for analysis, design, and detailing. He was on the board of the German section of buildingSMART for more than 10 years, and chaired the working group “innovations” of the Bavarian Chamber of Building Engineers. Whenever he has time, he loves to fly balloons and to sail.

Introduction

Although Revit with all its flavors became a quasi-standard in building industry in many parts of the world during the last years, not many engineers use it for reinforcement detailing. This workshop will discuss with industry experts possible reasons.

We will limit the discussion on buildings and building-like structures, as we all know, that Autodesk has still to do some “homework” to enable Revit for reinforcing double curved faces which occur in many infrastructure models.

Traditional and suggested workflow and benefits

Traditional Workflow

Engineers model their analytical model using geometry coming from an architect using software like ETABS, Robot, SOFiSTiK and many others. Design or code checking is done with modules integrated into analysis software, other software or very commonly Microsoft Excel Spreadsheets. This results in required reinforcement (area or area by length). Engineers design intent is sometimes documented in hand drawn sketches. Using this information, a symbolic presentation of the real rebar has to be drawn using software packages like RebarCAD aka CADS RC or SOFiCAD. In USA this job is mostly done by rebar fabricators.

Suggested Workflow

Using Revit Structure and other applications it is now possible to perform with one model structural analysis, code checking, generation of a 3-D reinforcement model according to required reinforcement and finally deriving 2-D drawings sheets, bills of material and even fabrication data. Several past lectures presented by the presenter at previous AU events covered various aspects of this workflow.

Benefits

- Working in one single geometrical model with an analytical model attached to it significantly reduces the risk of inconsistencies in particular regarding revisions.
- Design results referenced to a geometrical model allows semi-automatic generation of rebar cages.
- Automatic checking of reinforcement required vs. reinforcement in the model is possible.
- Increased efficiency allows engineers to stop outsourcing and to keep control of their work.
- 3-D-Rebar model can be used for clash detection and automatic fabrication.

Topics to discuss

- Will the suggested workflow work?
- Is it desired?
- Shall/can traditional workflows be changed?
- Does the software work?
- Is third party software a barrier for entry?
- Is it really more efficient?
- Other reasons?