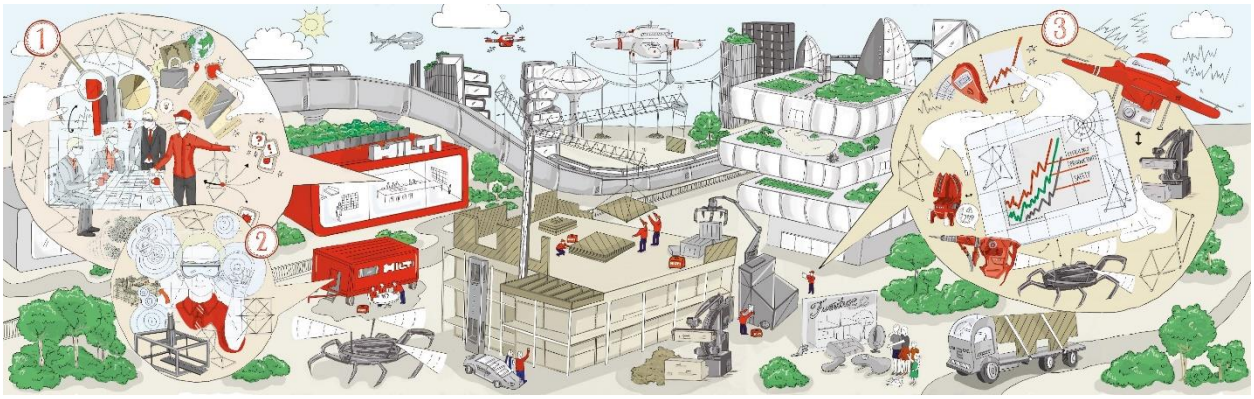

BES322748

Breaking down steel-to-concrete connection design and workflow limitations

Mario Fitz
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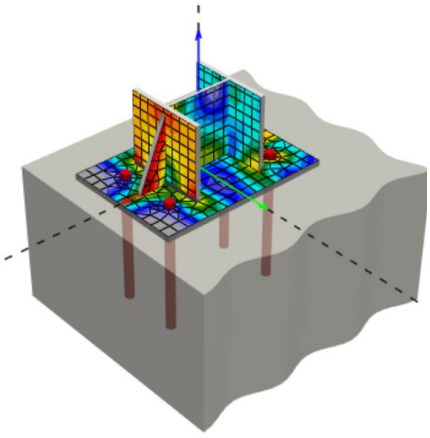
IDEA StatiCa

Anthony Ambrosio-Meir
DEGENKOLB ENGINEERS



Learning Objectives

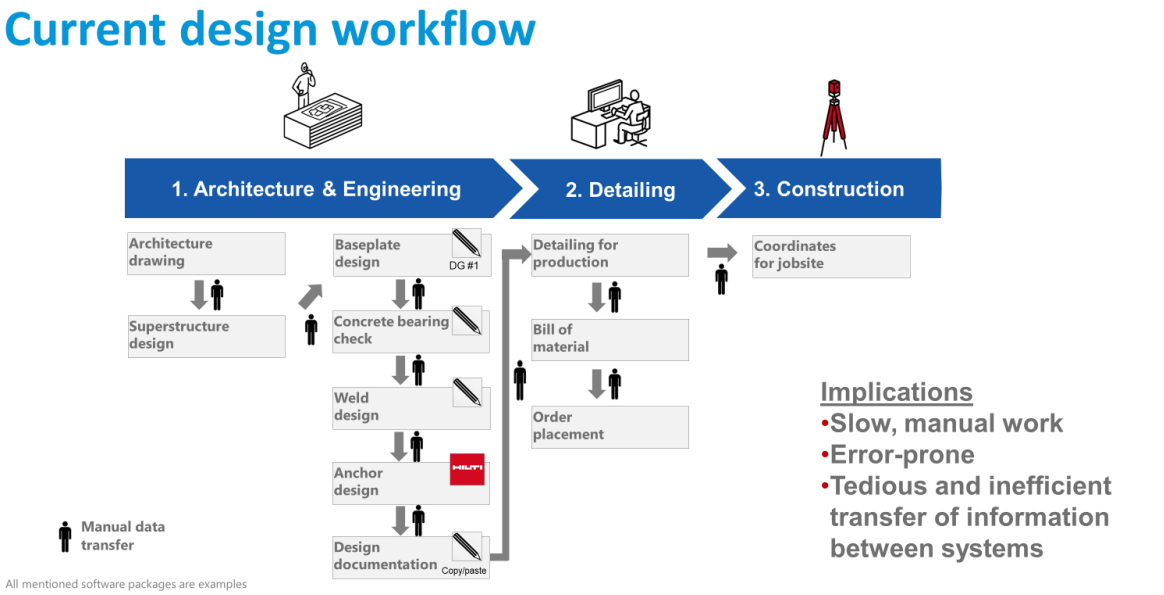
After completing this class, attendees will be able to:

1) Utilize workflow productivity from digital interfaces
2) Understanding the assumptions of a rigid baseplate
3) Compare rigid and realistic baseplate and assess rigidity of the baseplate
4) Verifying the whole connection in on step

Description

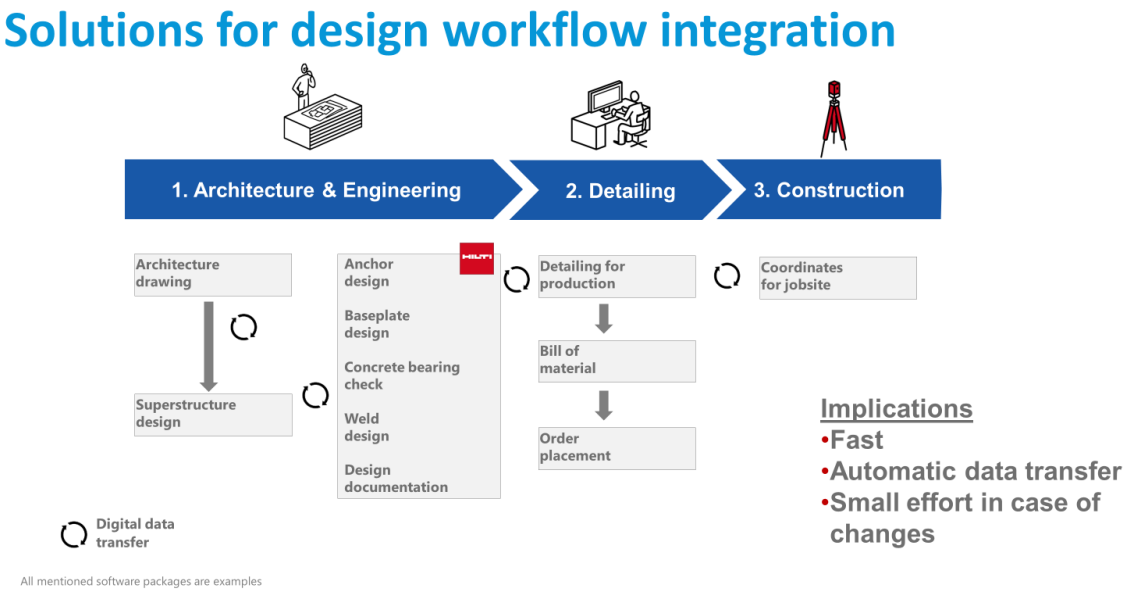
Together with one of our customers we will share the 2 main areas where a lot of productivity is being lost when doing steel-to-concrete (S2C) designs.

1) Workflow integration:



a) Connecting Autodesk Robot Structural Analysis, RISA Connection or SAP2000 with the S2C design software **[customer validated savings – 11 min per design]**.

b) Connecting S2C design software with Autodesk Revit **[customer validated savings – 14 min per design]**.



2) Design of the full connection including weld, stiffeners, base plate, profile **[customer validated savings – 60 minutes per design]**. This part will cover the following details:

    a) Rigid vs. Flexible base plate: code requirements ACI vs. reality – approach how to judge if your base plate can be considered rigid

    b) AISC Design guide 1

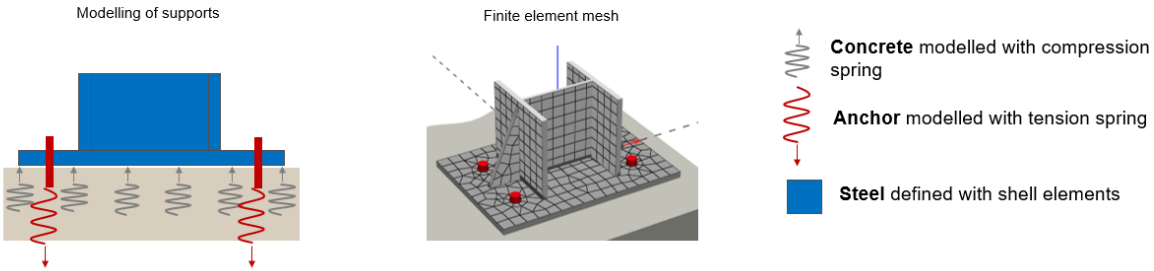
    c) Full design of the whole connection using the Component-based Finite Element Method (CBFEM) using real life anchor behavior

One of our customers will share the pain points and productivity challenges he faces every single day when designing steel to concrete (S2C) connections. We (Hilti and the CBFEM experts from IDEA StatiCa) will show how we plan to overcome these challenges in the future and where we stand in this exciting journey.

Another major pain point in the industry is around methods and tools to design: we will give background information on the ACI 318 requirement of a rigid base plate and how to judge if your base plate can be considered rigid, talk about AISC DG1 as well as the innovation CBFEM method to solve this problem in a holistic way covering all design proofs also for example connections.

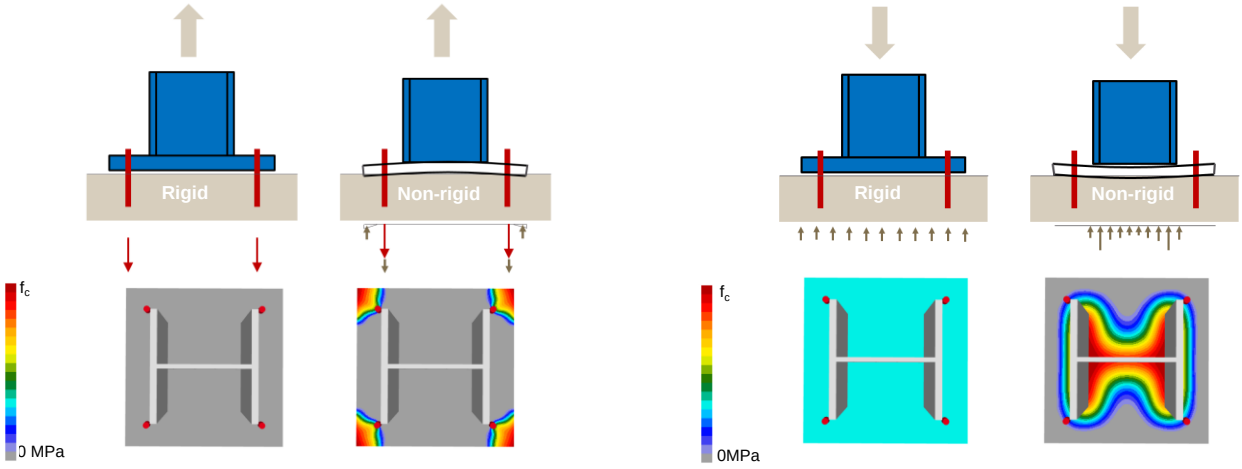
MODEL STEEL TO CONCRETE JOINTS: CBFEM / FINITE ELEMENTS

Hilti PROFIS Engineering models the baseplate using CBFEM – **component based finite element method** and a following **non-linear steel analysis**.



Join our class to learn more about the unique CBFEM method like:

- How does it work in detail
- Where you can apply it
- Your benefits
- Extensive verification and validation against physical tests



This class will open the eyes of structural engineers, BIM/CAD experts as well as managers in the construction industry and will unleash huge productivity and safety potential. **Some recent case studies with >400 engineers showed productivity improvements of > 60 minutes PER connection.**

Speaker(s)

Mario Fitz
Global Product Line Manager Structural Software
Hilti Corporation
Schaan, Lichtenstein

Mario Fitz (BSc, MSc) is a structural engineer with experience from engineering offices, engineering software as well as construction product supply. Currently responsible for structural software portfolio globally at Hilti Corporation.
His focus is providing productivity and safety to engineers around the globe. Recently published an article on “Design of fixtures and its anchorages based on realistic assumptions. STAHLBAU, 87(12), 1179-1186.” (available in the additional class material). Also responsible for Hilti PROFIS Engineering Software allowing the customer to utilize this approach for a fast and safe design.

David Kučera
Product Engineer
IDEA Statica
Prague, Czech Republic

David is Structural Engineer with over 12 years industry experience. He has a wide range of experience of different building types, especially with nuclear power plants and industrial buildings. David is a huge fan of Building Information Modelling (BIM), automation, and artificial intelligence. He is a part of IDEA StatiCa team, which develops applications missing in the global workflow of structural engineers and fabricators.

Anthony Ambrosio-Meir
Designer
DEGENKOLB ENGINEERS
California, United States

Anthony Ambrosio-Meir is a Designer at Degenkolb Engineers in San Francisco, CA where he works on the analysis and design of new and existing buildings. During his time at Degenkolb, he has been an extensive user of Hilti PROFIS Engineering design software on a wide range of projects. Anthony is a licensed professional engineer in the State of California and graduated from UCLA in 2015 with a B.S. is Civil Engineering and from Stanford University in 2017 with an M.S. in Structural Engineering.