Building Information Modeling in the U.S.

A Perspective from Across the Atlantic

Berlin 24 November 2021

BEHNISCH ARCHITEKTEN

BIM @ BEHNISCH

2009-2012

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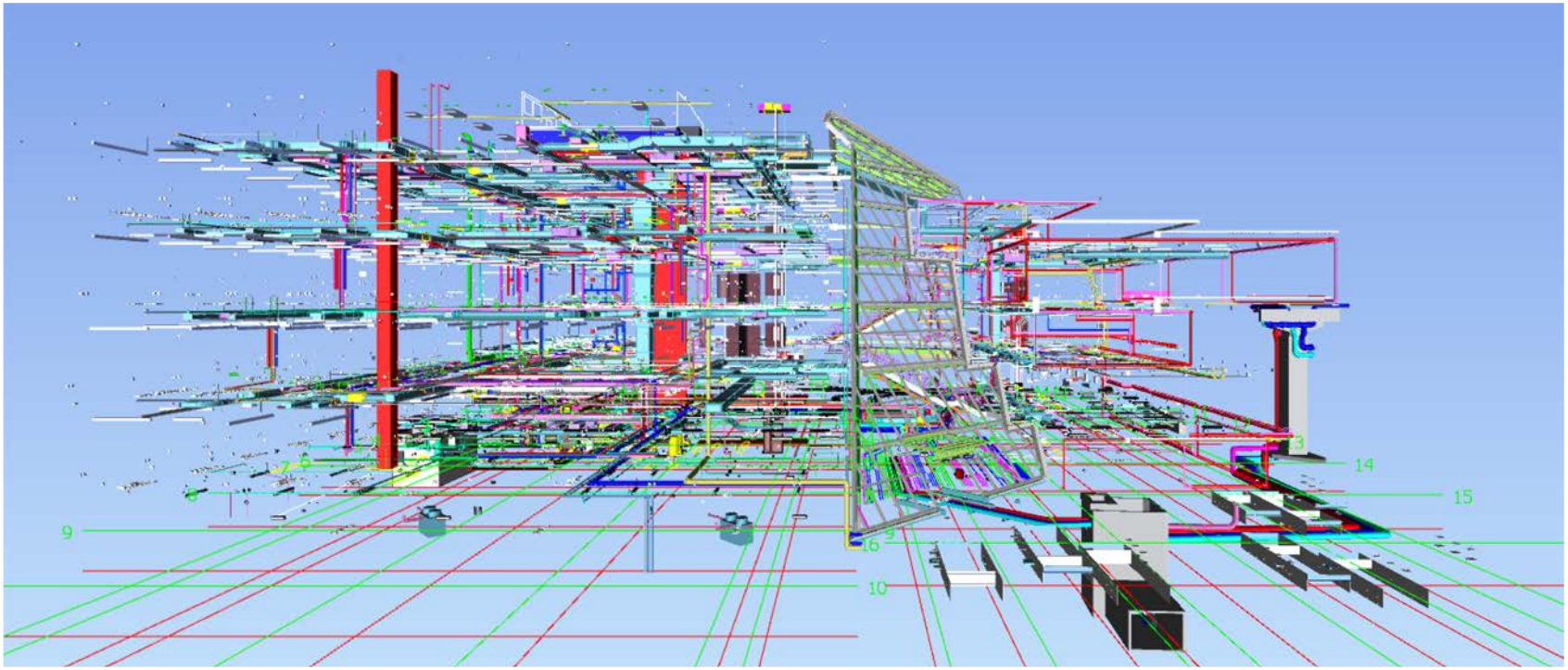
2014-2017



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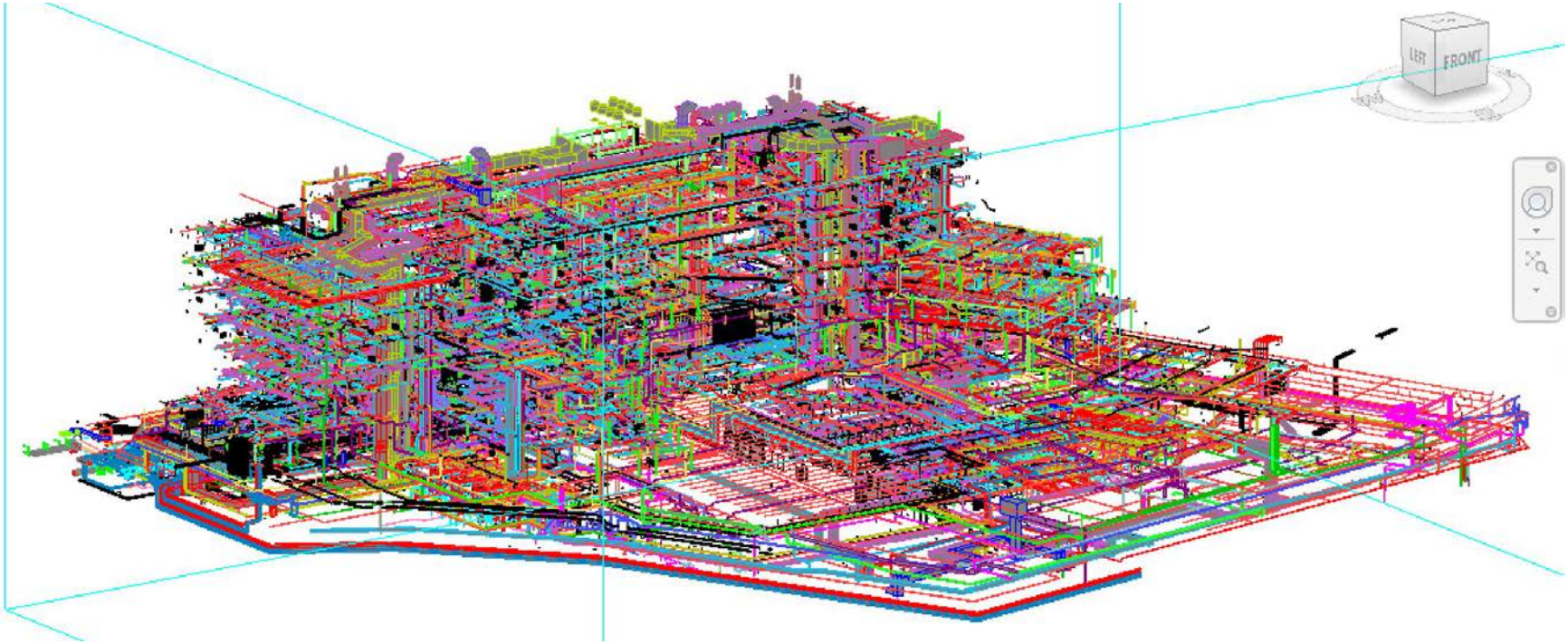
2015-2019



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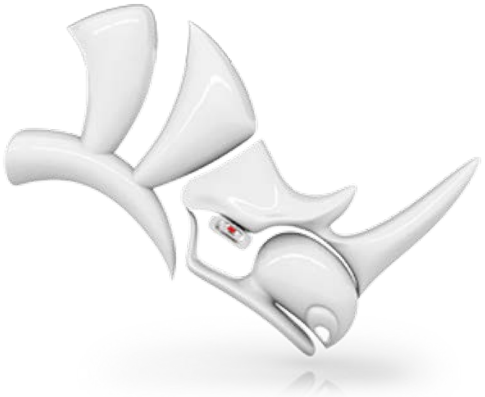

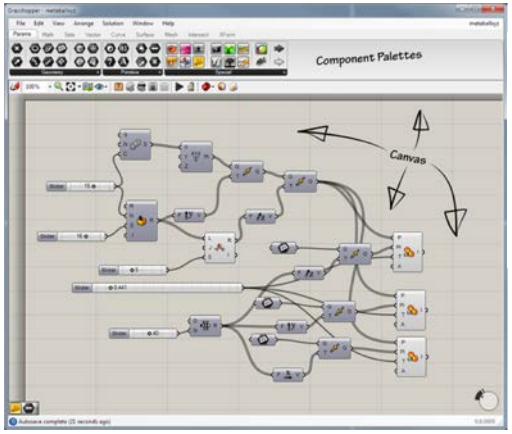

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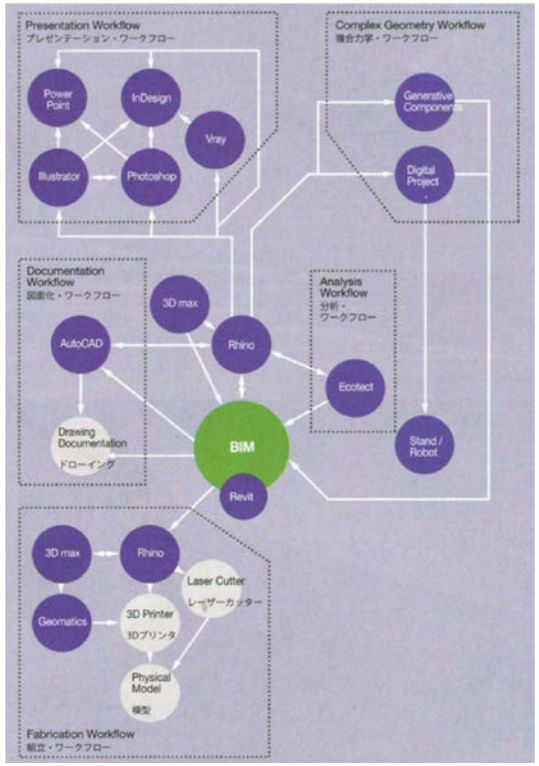
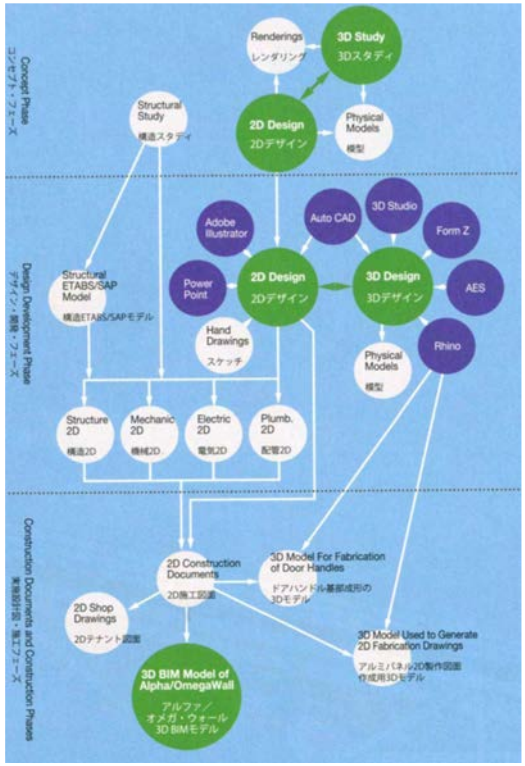
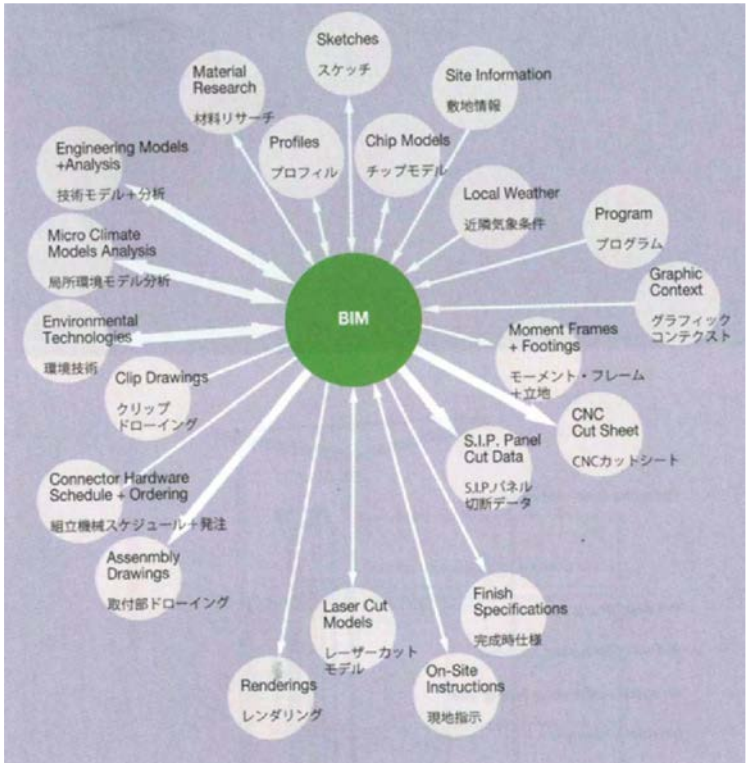
BIM and workflow...







Architecture and Urbanism, August 2009 Special Issue, “Architectural Transformations via BIM”, 2009

come in many flavors

*WIE NAHMEN WIR **BIM** WAHR, ALS ES AUF DEM MARKT KAM?*

“Hardware/Software vs. Training”

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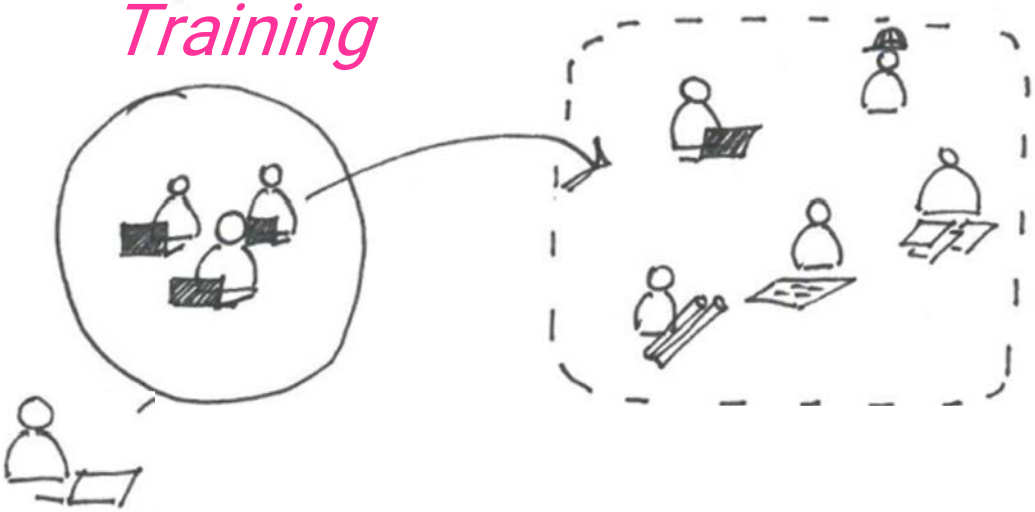
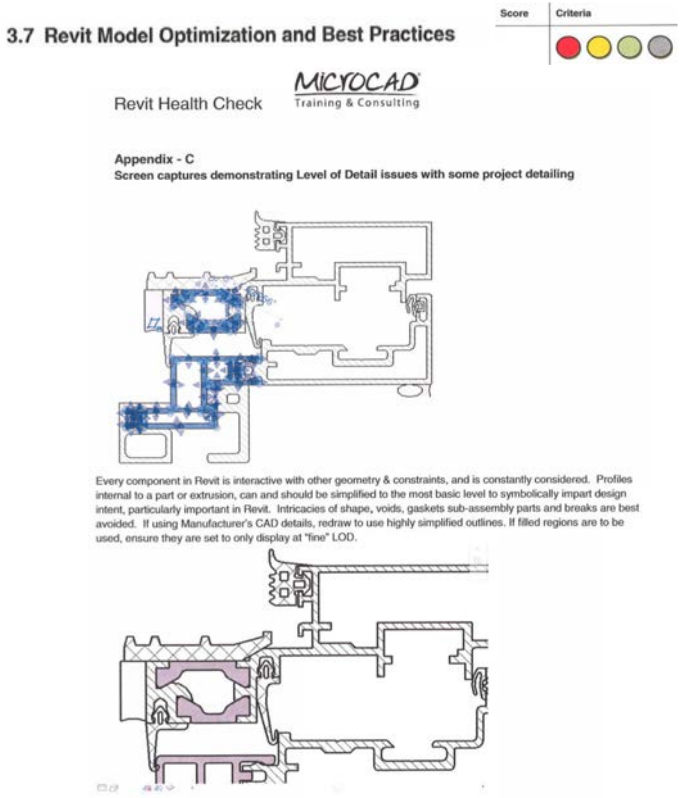
Hardware

Training



Best Practices



3.7 Revit Model Optimization and Best Practices

Score | Criteria

Revit Health Check — MICROCAD Training & Consulting

Appendix - C

Screen captures demonstrating Level of Detail issues with some project detailing

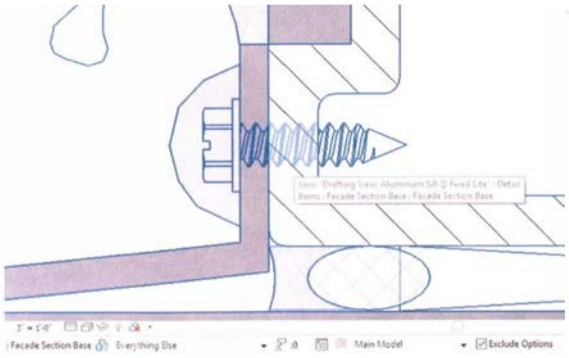
Every component in Revit is interactive with other geometry & constraints, and is constantly considered. Profiles internal to a part or extrusion, can and should be simplified to the most basic level to symbolically impart design intent, particularly important in Revit. Intricacies of shape, voids, gaskets sub-assembly parts and breaks are best avoided. If using Manufacturer's CAD details, redraw to use highly simplified outlines. If filled regions are to be used, ensure they are set to only display at "fine" LOD.

1.0 Grading System

The purpose of the Revit Health Check is to analyze a completed Revit project (and any linked project files) and compare with proven best practices and methodologies known to contribute towards model efficiencies and best outcome. A simple Red, Yellow, and Green rating system is used to provide an overall score for each section. Red indicates significant improvement can be made in a particular area, Yellow indicates that there is some room for improvement, and Green indicates that few improvements are necessary; however perfection is not required to earn a Green rating. A Red Flag may be used throughout the document to highlight an issue that may warrant additional attention. Red flags contains no bearing on the overall category-driven red, yellow, or green scoring system.

Status	Score
Excellent to Very Good – Requires little if any improvement	
Average – Requires some improvements	
Below Average – Requires significant improvements	
Unknown / Unused – Not supply enough information, or item does not apply.	
Red Flag – Indicates an issue with a specific item, a closer look needs to be taken.	

Score	Criteria
	• On the **BA_CD_Central.rvt** project file, I exported the project families to a folder, then examined file sizes, family file content, existence of nesting, and Level of Detail (LOD). In particular, I looked at the Façade component details which appear overly complex and consuming majority portion of the project file size; **69 façade family files = 160 MB**. • **357** primary family files, with a few dozen more if counting nested families. Total of **279 MB** file size Nested levels of family files. Average family size of Revit's library of Imperial/Metric family components: ~250 KB each. Allowing families to be twice as detailed, we'll assume 500 KB. Number of project families > 500 KB = 101, = 214 MB Number of project families > 1 MB = 65, = 190 MB • **LOD** for the façade families is unnecessarily detailed, perhaps they were downloaded manufacturer's details which are notorious for excessive detail, but if so, they need concerted simplification. No need to show detailed shape intricacies in aluminum extrusions, instead use simplified symbolic representation.



1 screw =
228 objects, 304 KB
~1/3rd MB

if 3 diff. screws = ~ 1 MB
LOD = all levels

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USA *(BOSTON)*
IM VERGLEICH MIT
DEUTSCHLAND
(STR + MUC)

“Hardware/Software vs. Training”

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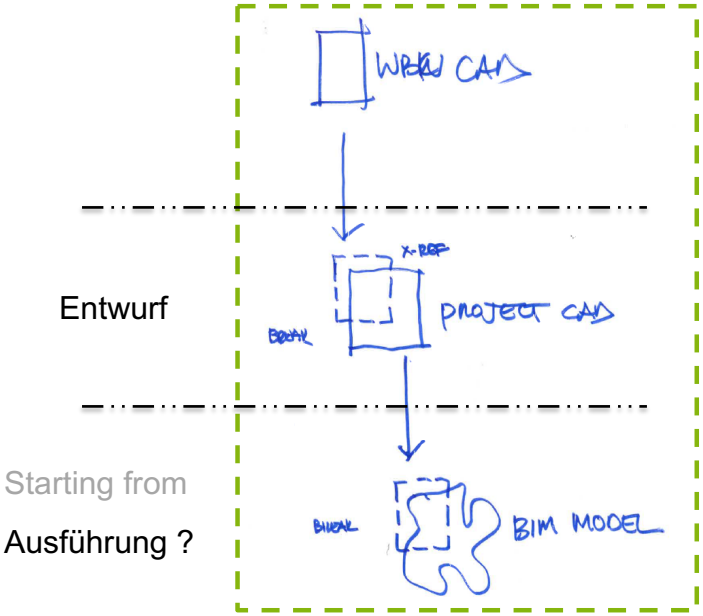
Schedule

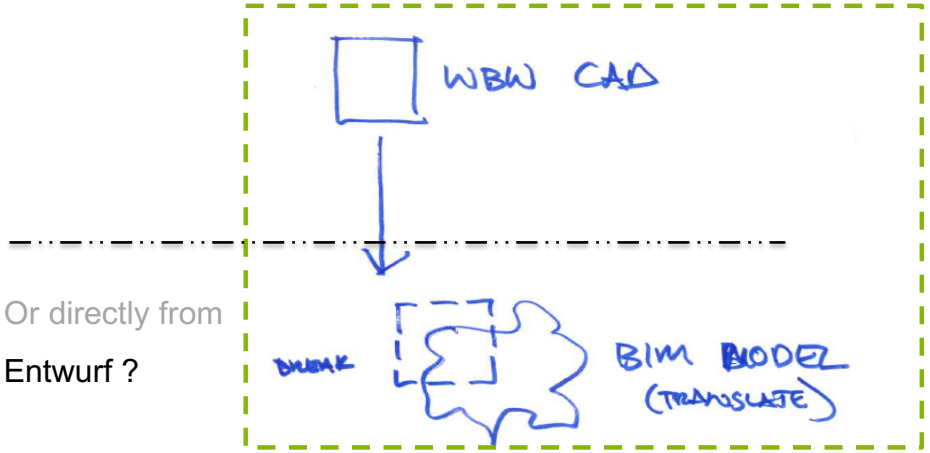
review schedule				
data gathering review project standards overall organization how to do (planar)				
early finish				

Drawing Conventions and Standards

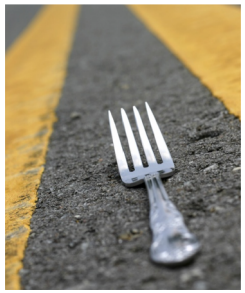
Shared set of Templates MUC /STG

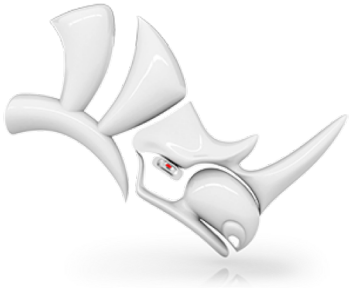
Pressure to jump in early





How we think...





Supports an architectural vocabulary – open thinking of form and space

Plane has to be a ceiling, a wall, or a floor. Forms are „Generic Components“ – forces a restrictive vocabulary

Open vs. Closed BIM or both

IFC®

IFC file exchage

BCF (BIM Collaboration Format)

*MITWIRKUNG MIT **BEHÖRDEN***

“Sie sind noch nicht digitalisiert”

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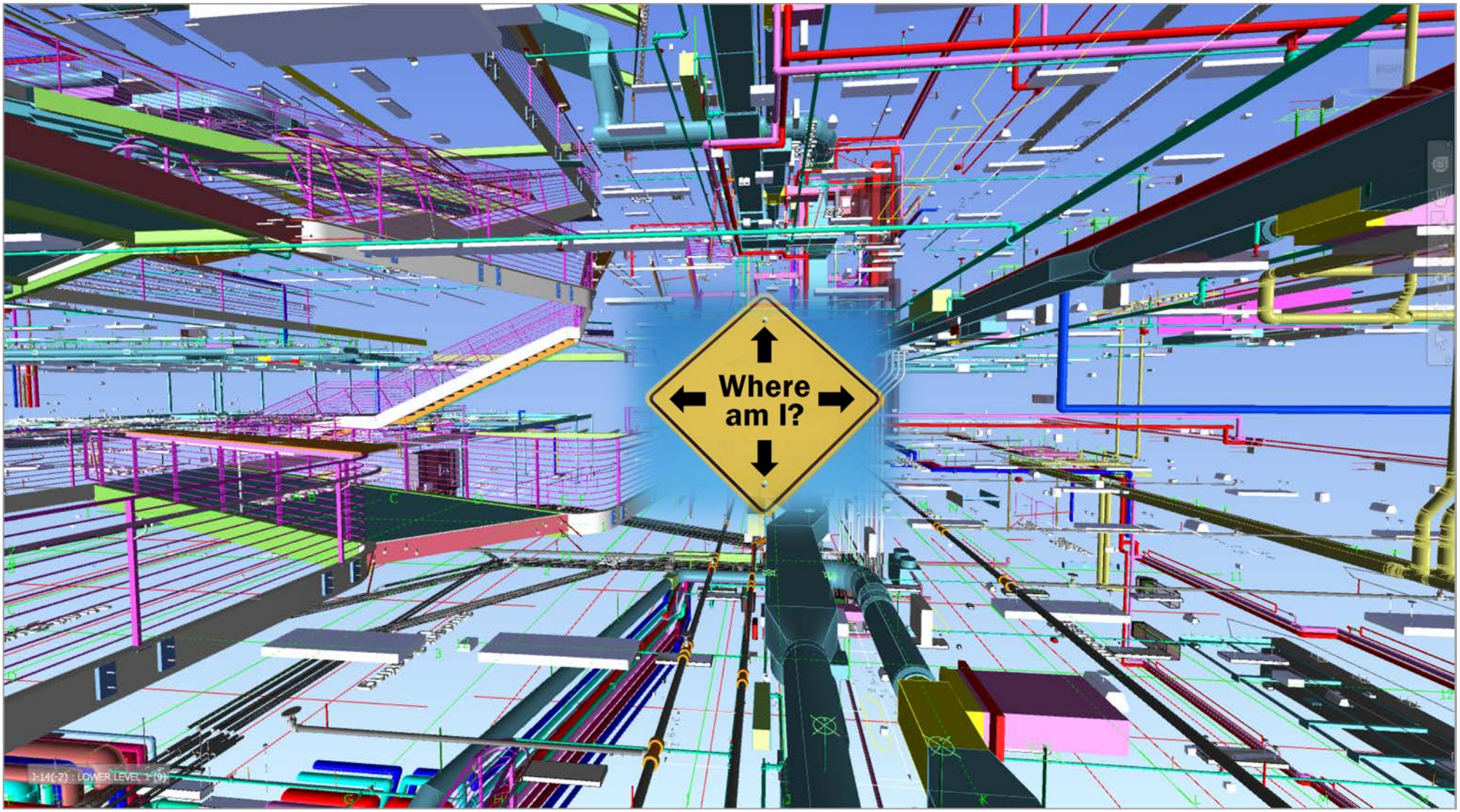
BEHNISCH ARCHITEKTEN

MITWIRKUNG
*MIT **BAUHERRN***

“Sie wollen die Datein, aber sie haben keine Fahigkeit, die zu benutzten”



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Design + Delivery

Operations + Management

PDF

AUTODESK REVIT 2021

TRNSYS Transient System Simulation Tool

AUTODESK AUTOCAD 2020

EnergyPlus

IBM maximo®

CORNERSTONE

ecodomus

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*MITWIRKUNG MIT **UNTERNEHMERN***

“Am Anfang gab es die Bedrohung, dass sie unser Arbeit übernehmen würden”

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BIMTRACK™

NAVISWORKS

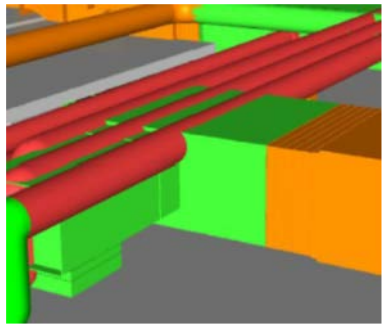
BIM Assure

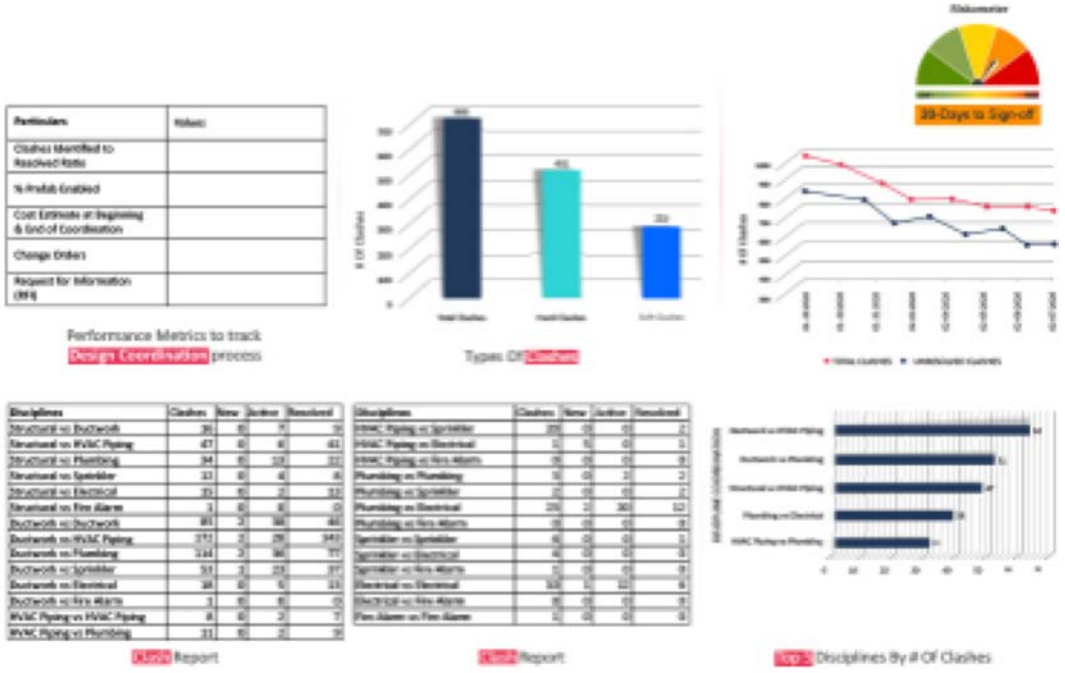
SCIA
A NEMETSCHEK COMPANY

BIMcollab®

SOLIBRI

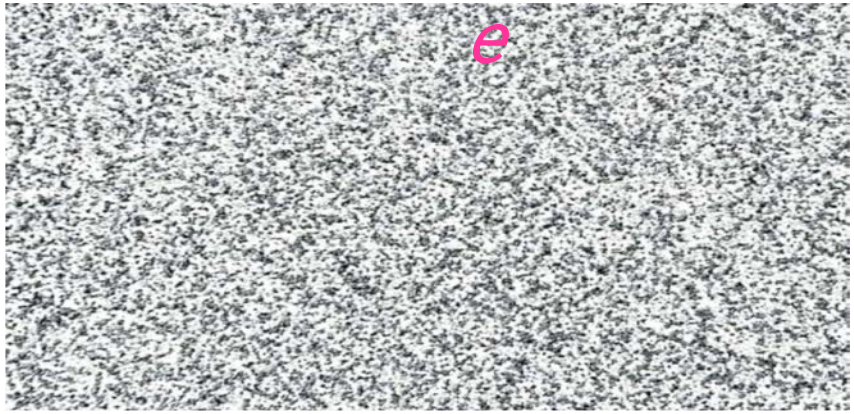
BIM 360





We can generate data!

Nois
e



Data

Information

People are still needed to solve problems

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MITWIRKUNG
*MIT **FACHPLANERN***

“Der Wunsch nach Integration”

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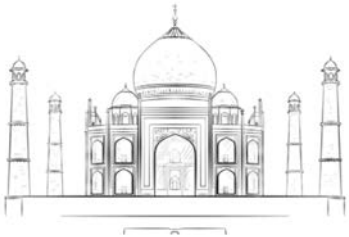
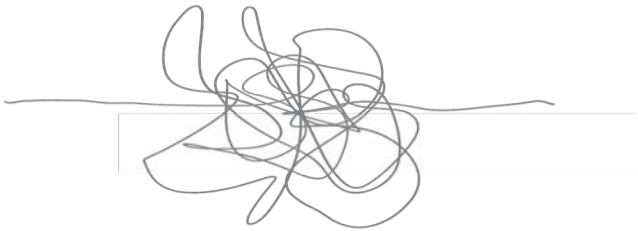
Design

Bid

Build





Integrated Project Delivery *(single purpose entity)*

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