

SKANSKA BIM

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Skanska Finland

Contents

- Skanska – Who are we?
- BIM Implementation in Skanska Globally
- openBIM in Finland – Example Skanska HQ, integrated design and construction
 - Managing BIM based design process
 - BIM in production planning
- Why is openBIM important for Skanska?

Skanska in short

- Founded 1887 in Sweden
- International business since 1897
- Listed on the Stockholm Stock Exchange
- 2010 revenues: SEK 122 billion
- 2011 revenues: SEK 123 billion
- 10 000 ongoing projects
- 53,000 employees



• Älvsborgsbron, Gothenburg, Sweden

Local presence – global strength



United States
Latin America

Sweden
Norway
Finland
Denmark
United Kingdom
Estonia
Poland
Czech Republic
Slovakia
Hungary
Romania



A photograph of three construction workers wearing hard hats and high-visibility vests, standing on a bridge under construction. One worker is pointing towards the left. The background shows the bridge's cables and a crane.

Construction

A photograph of a modern, multi-story residential building with balconies and large windows. The building is surrounded by greenery.

Residential
Development (RD)

A photograph of a modern, multi-story commercial building with a glass facade and a prominent yellow vertical element. The building is surrounded by greenery.

Commercial
Development (CD)

A photograph of a highway at night with light trails from cars. The road is illuminated by streetlights, and mountains are visible in the background.

Infrastructure
Development (ID)

Five zeros – values that matter



Loss-making projects



Environmental incidents



Accidents



Ethical breaches



Defects



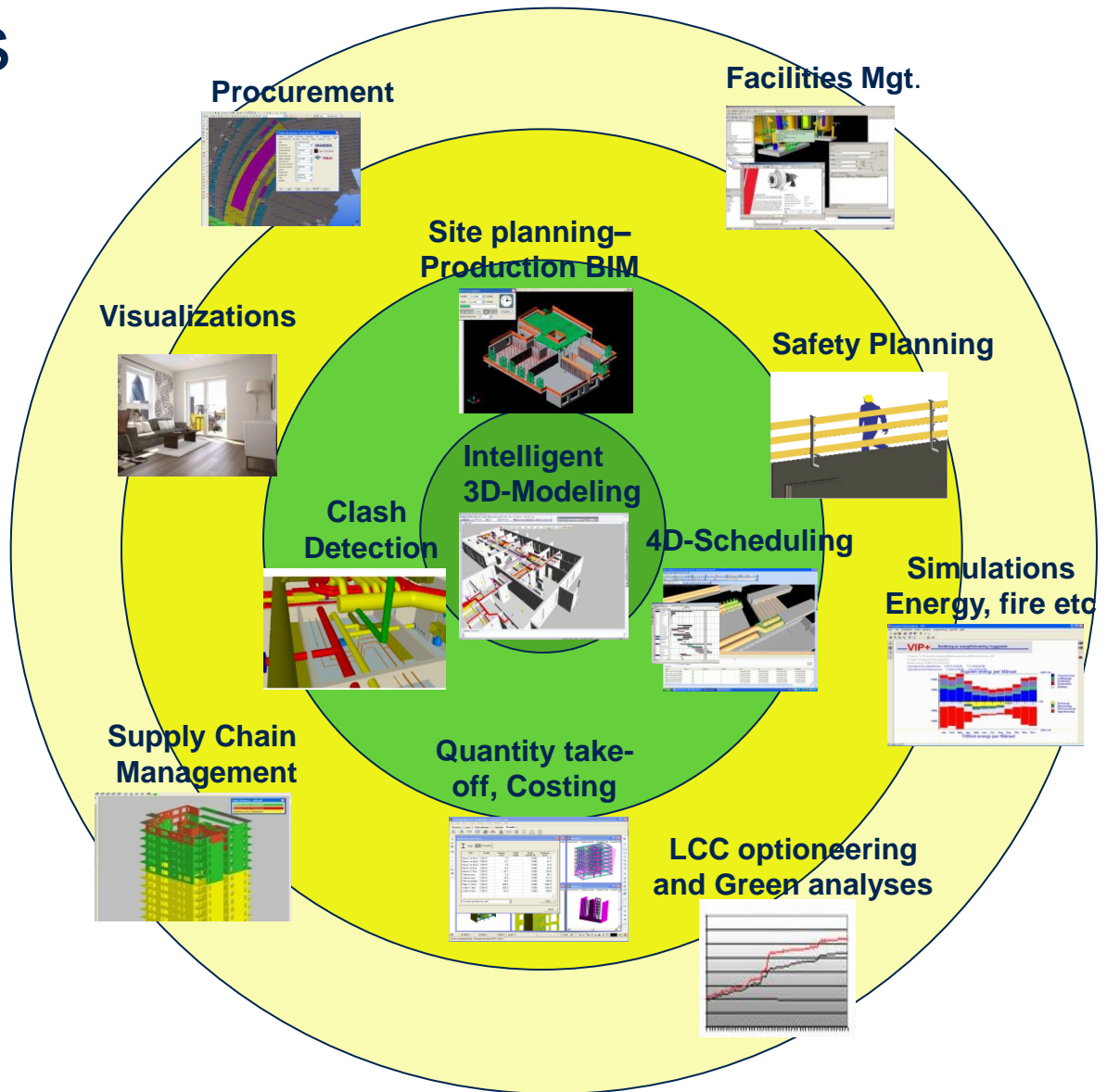
**"BIM in all
design/build
projects 2009"**

Johan Karlström, Management Meeting, Orlando, October 2008

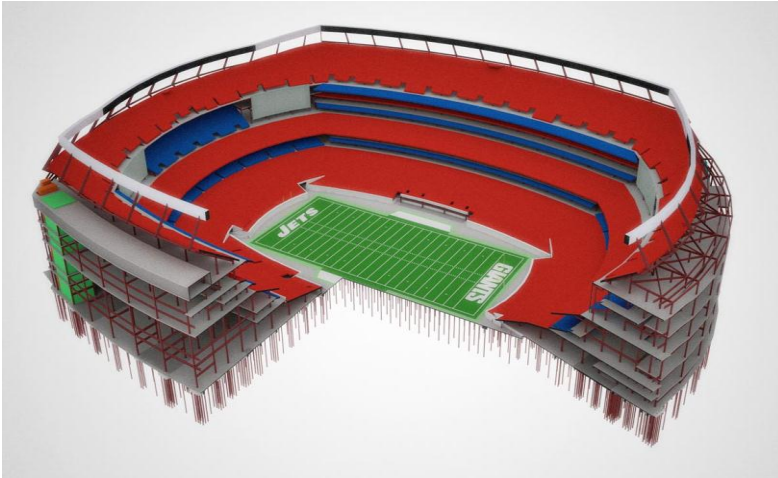
BIM applications

Support for implementing applications in Skanska

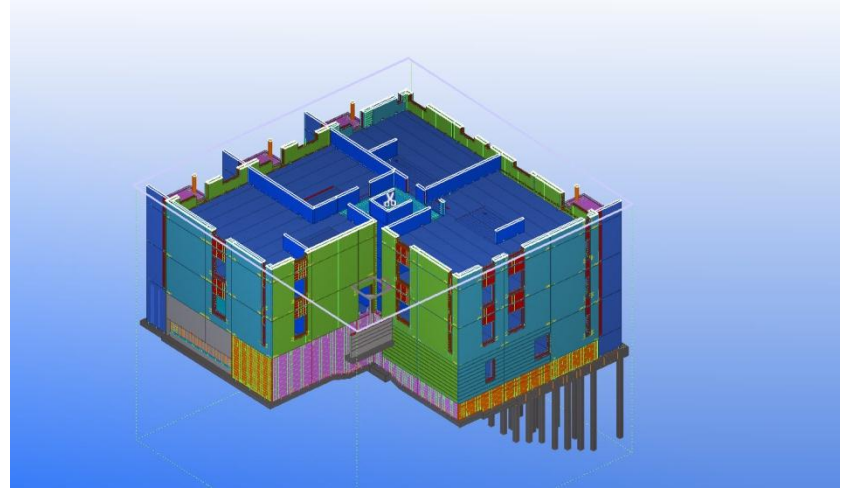
-  = level 1
-  = level 2
-  = level 3



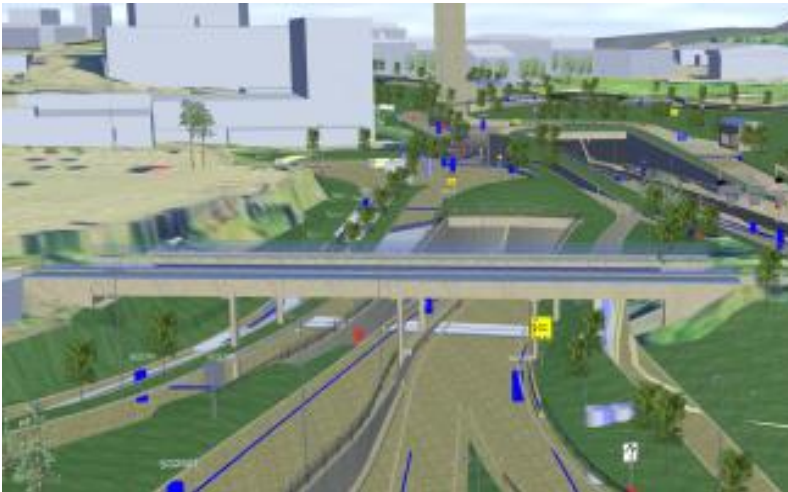
Different expertise areas in Skanska Worldwide



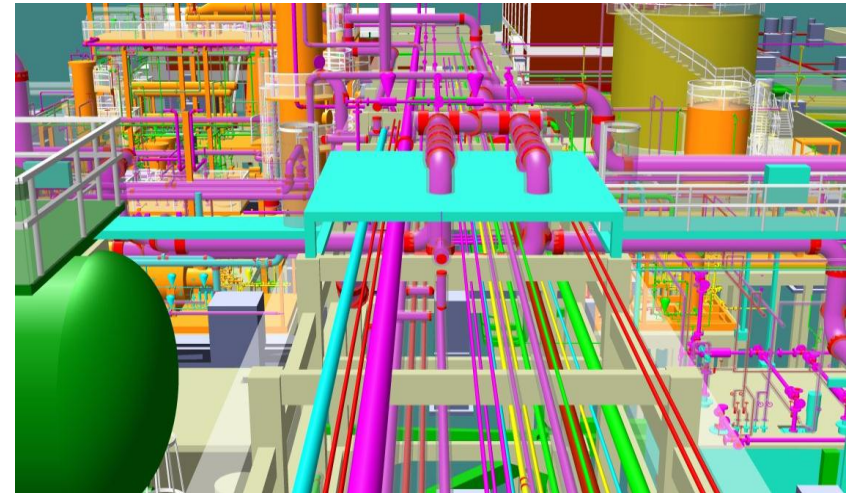
New Meadowlands Stadium, New Jersey, USA



Mäntylinna project, Finland



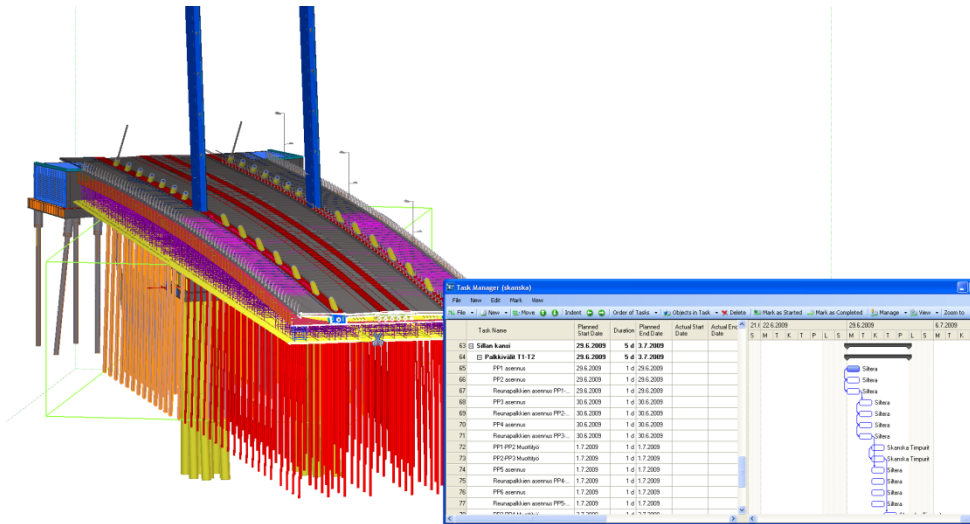
Marienborgtunnelen, Trondheim, Norway



Refap Sulfur Plant – Skanska LA

All DB projects use BIM in Finland

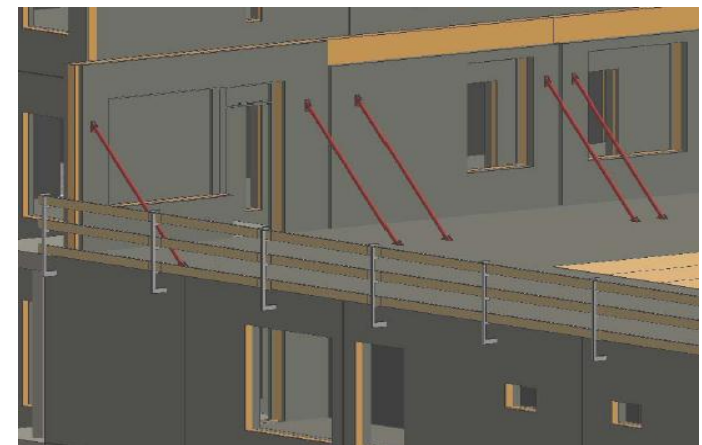
- All Skanska's DB-projects are modeled: architecture, structures, M&E, geotechnical
- Model information is utilized in many processes: quantity take-off, costing, construction, etc.
- More than 100 BIM projects



BIM at site: visualizations, scheduling (4D), details, quantities



Visualizations – New Skanska Building



Safety planning

BIM enables five zeros in construction process

0 errors in design



0 errors in quantity- and cost estimations
and scheduling



0 errors in procurement and logistics

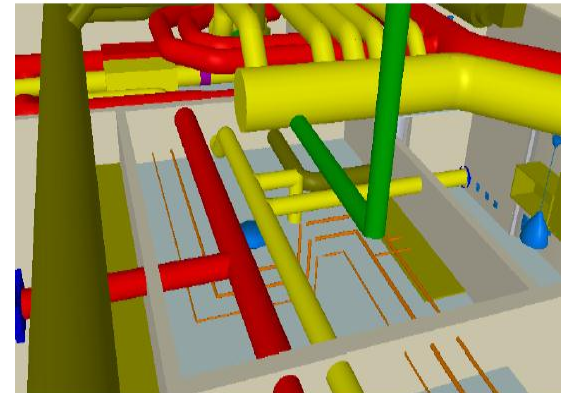
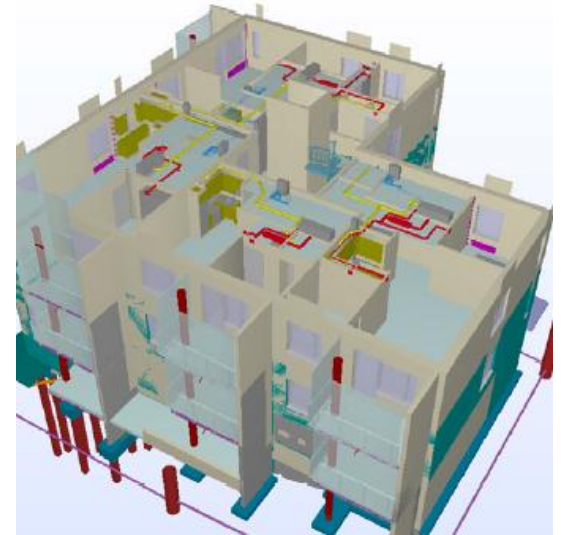


0 errors in production

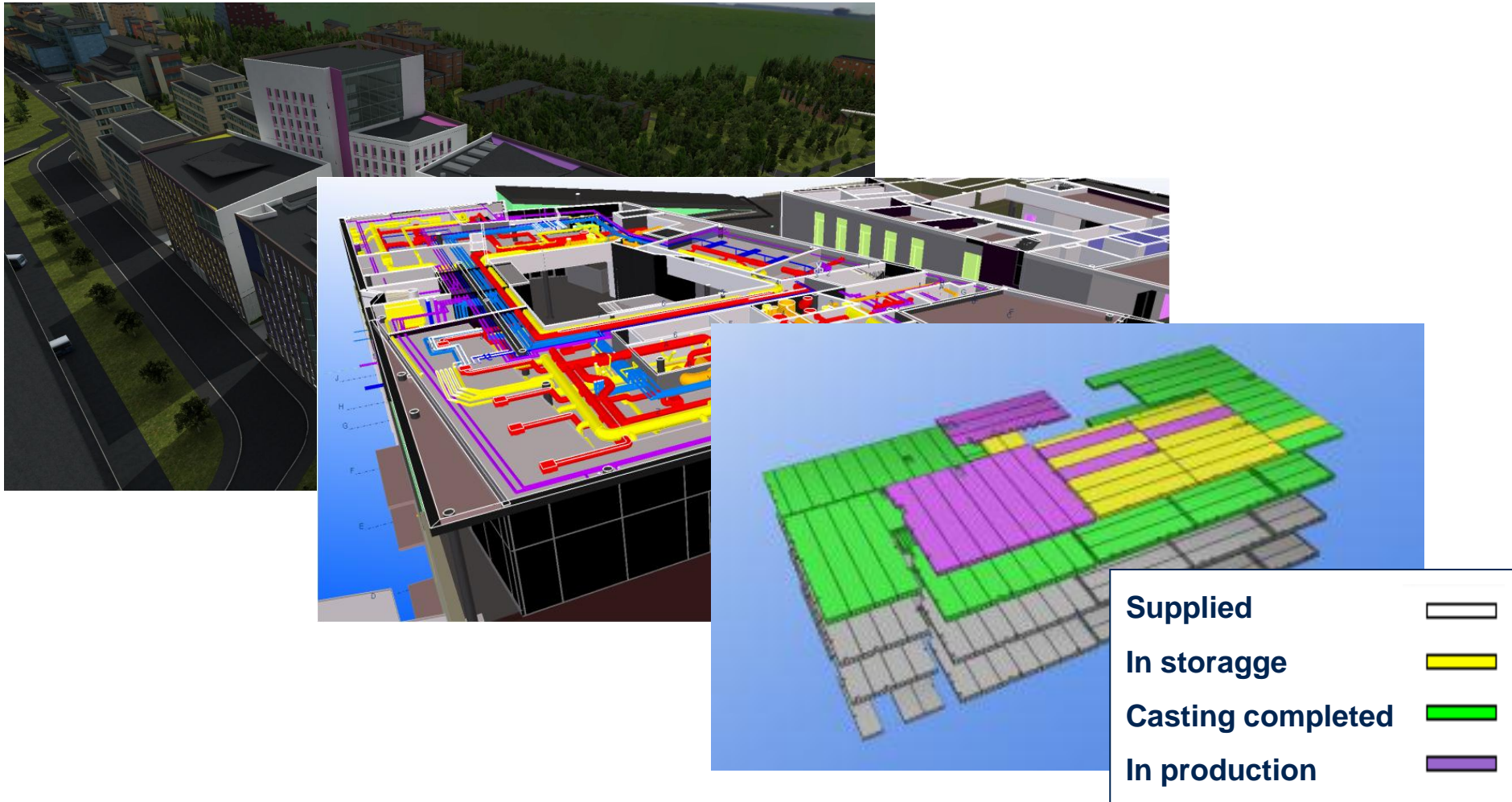


0 errors in hand-over

Results a better productivity!

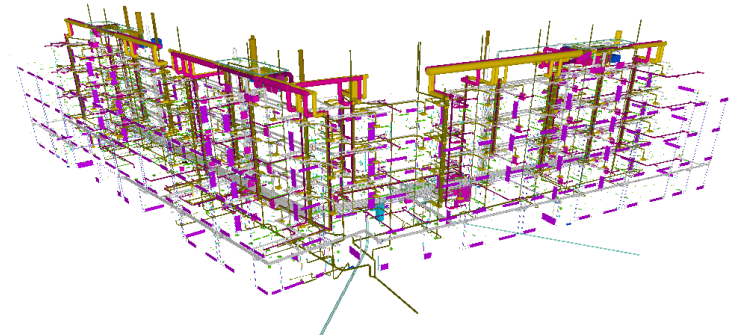
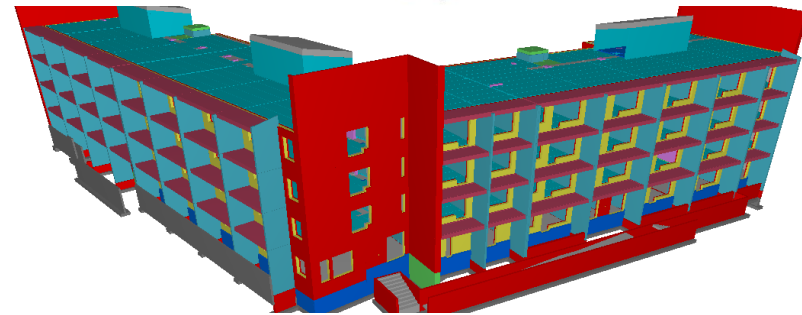
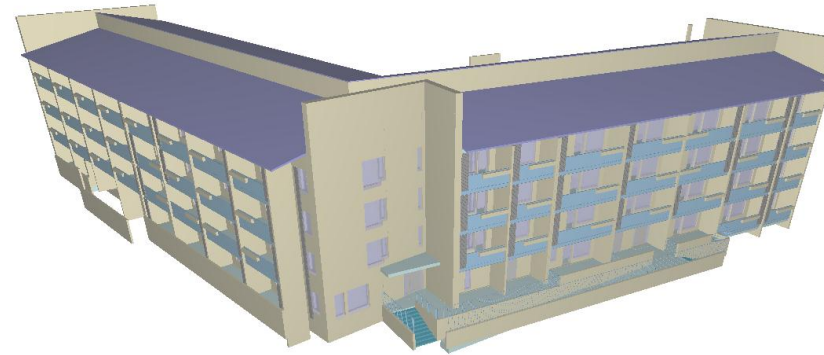


Visualization facilitates decision making in all phases



BIM based design process

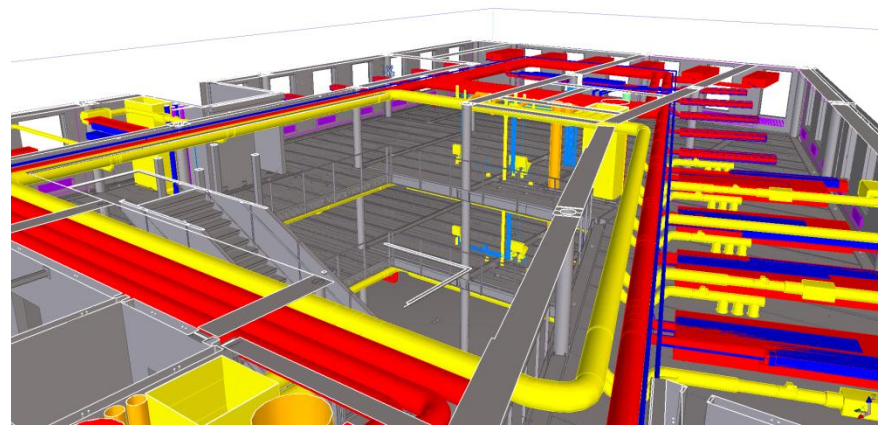
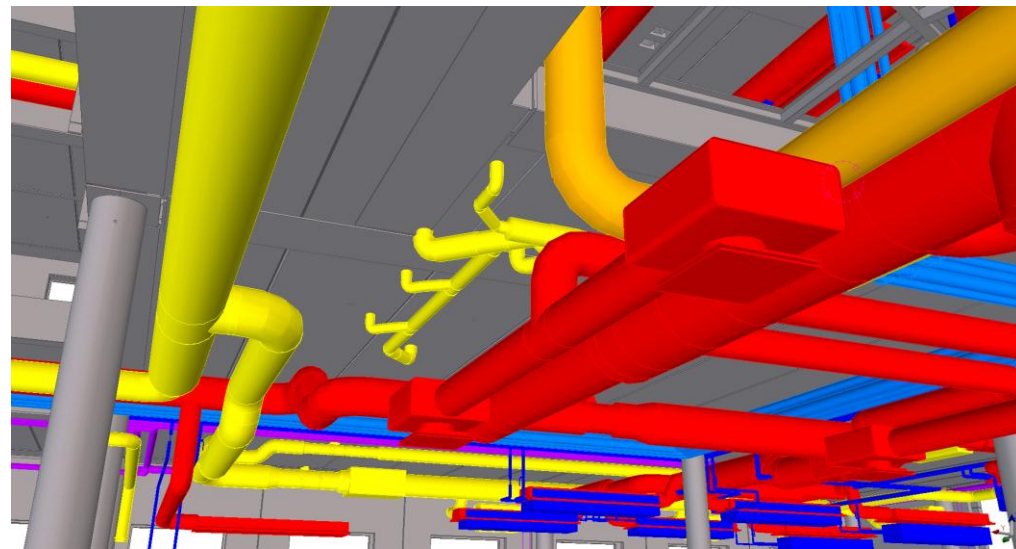
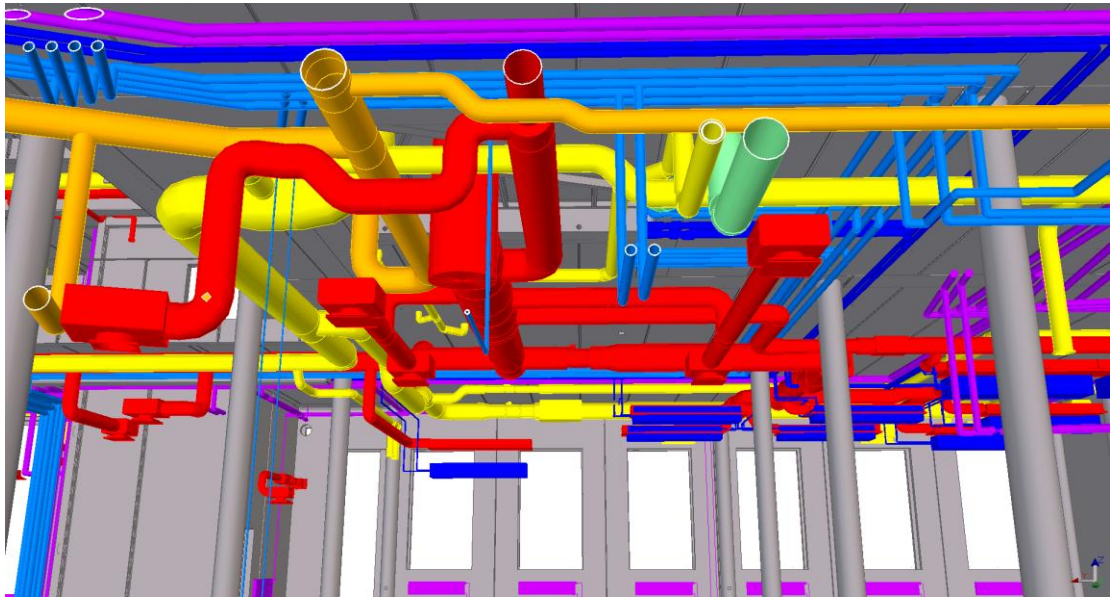
- Scope
- Content
- BIM milestones
- Quality control
- Model utilization



Integrated model is used in Design Meetings



Model auditing & clash detection of IFC-models are the basis for a successful BIM-project



BIM Auditing is used to...

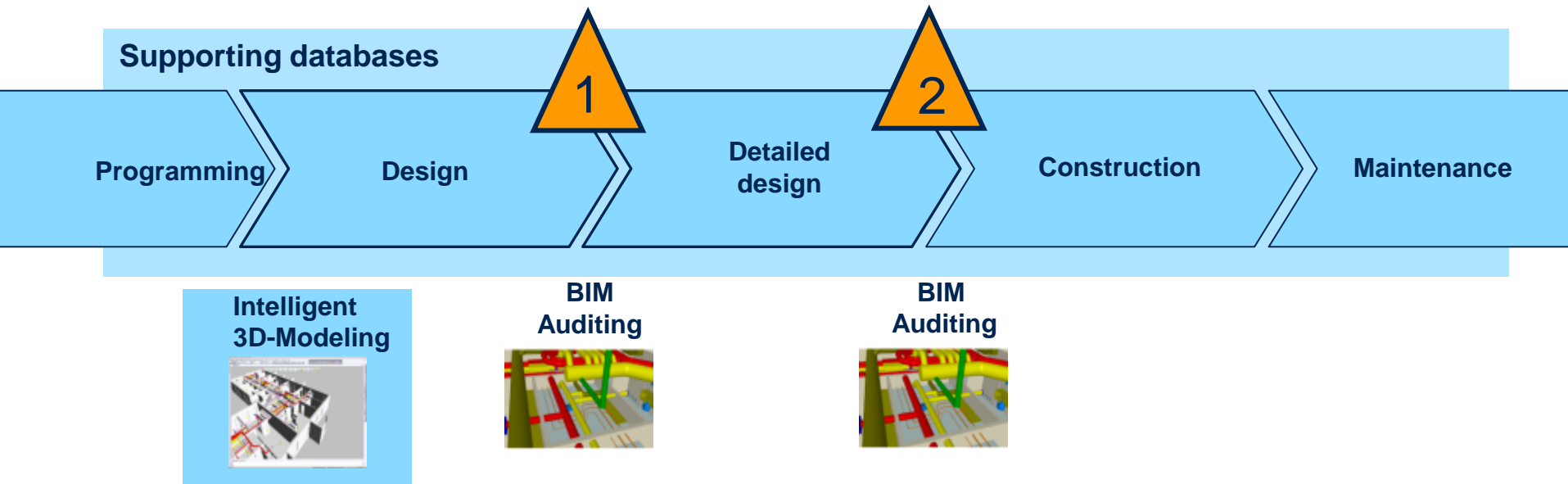
1. Check the compliance with the project's BIM Strategy





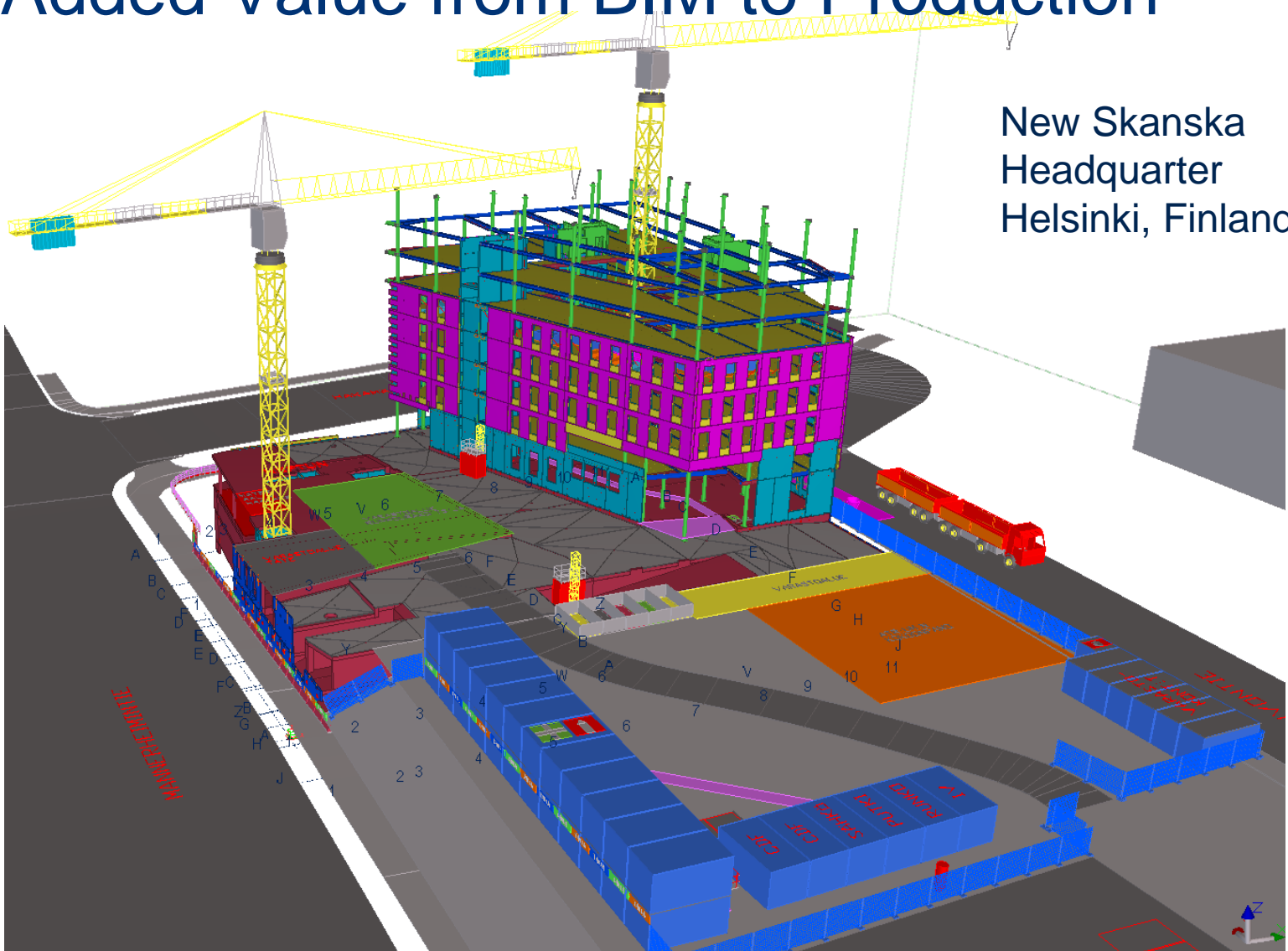
BIM Auditing in construction project

- Process is based on *checking rounds* before each checking point
- Checking points are design milestones, like applying for the building permit



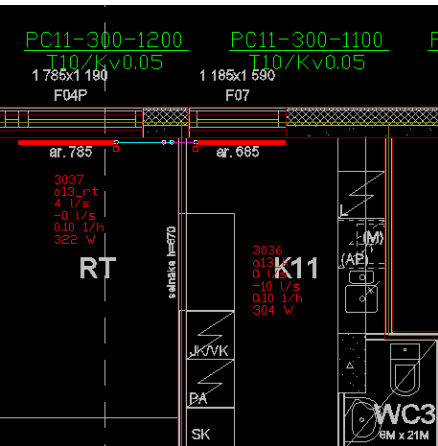
Added Value from BIM to Production

New Skanska
Headquarter
Helsinki, Finland

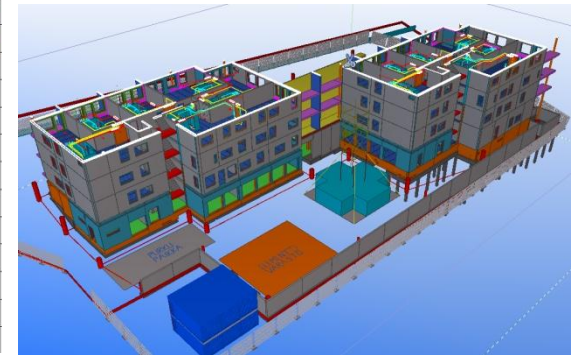
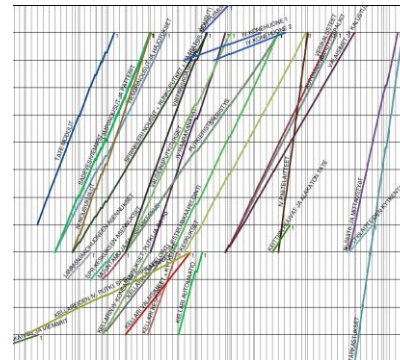


Example of BIM process: M&E

From a design to production phase



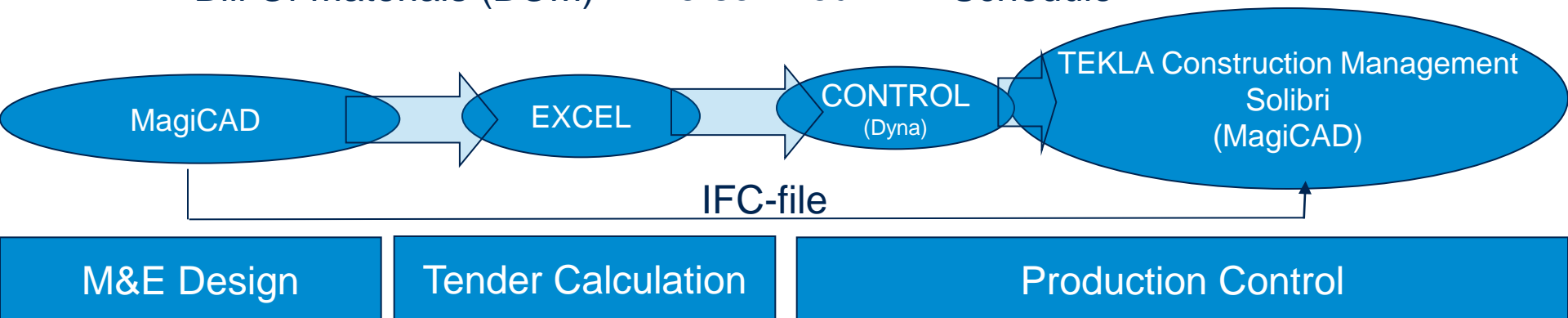
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2	Present	As	By	Project	Transmitter	None				
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Bill Of Materials (BOM)

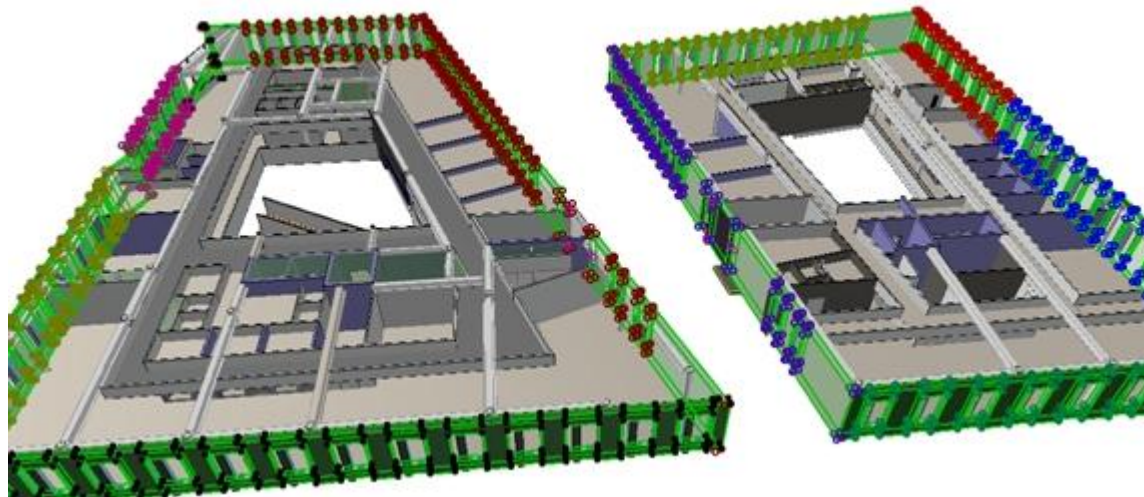
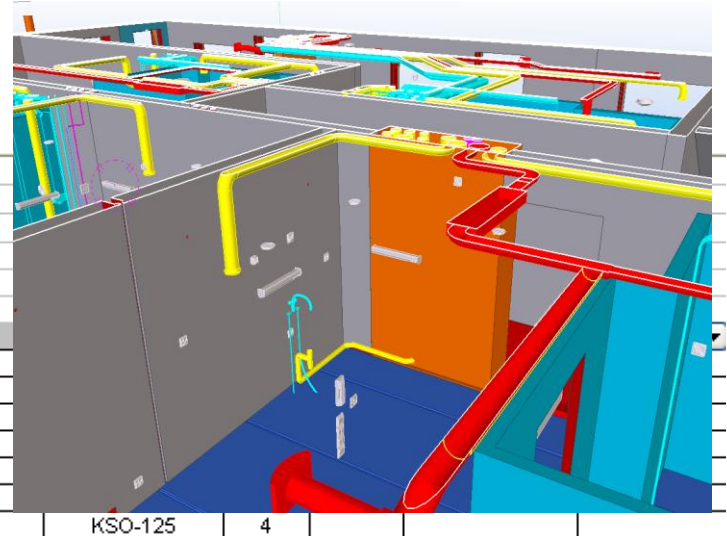
Person-hour

Schedule

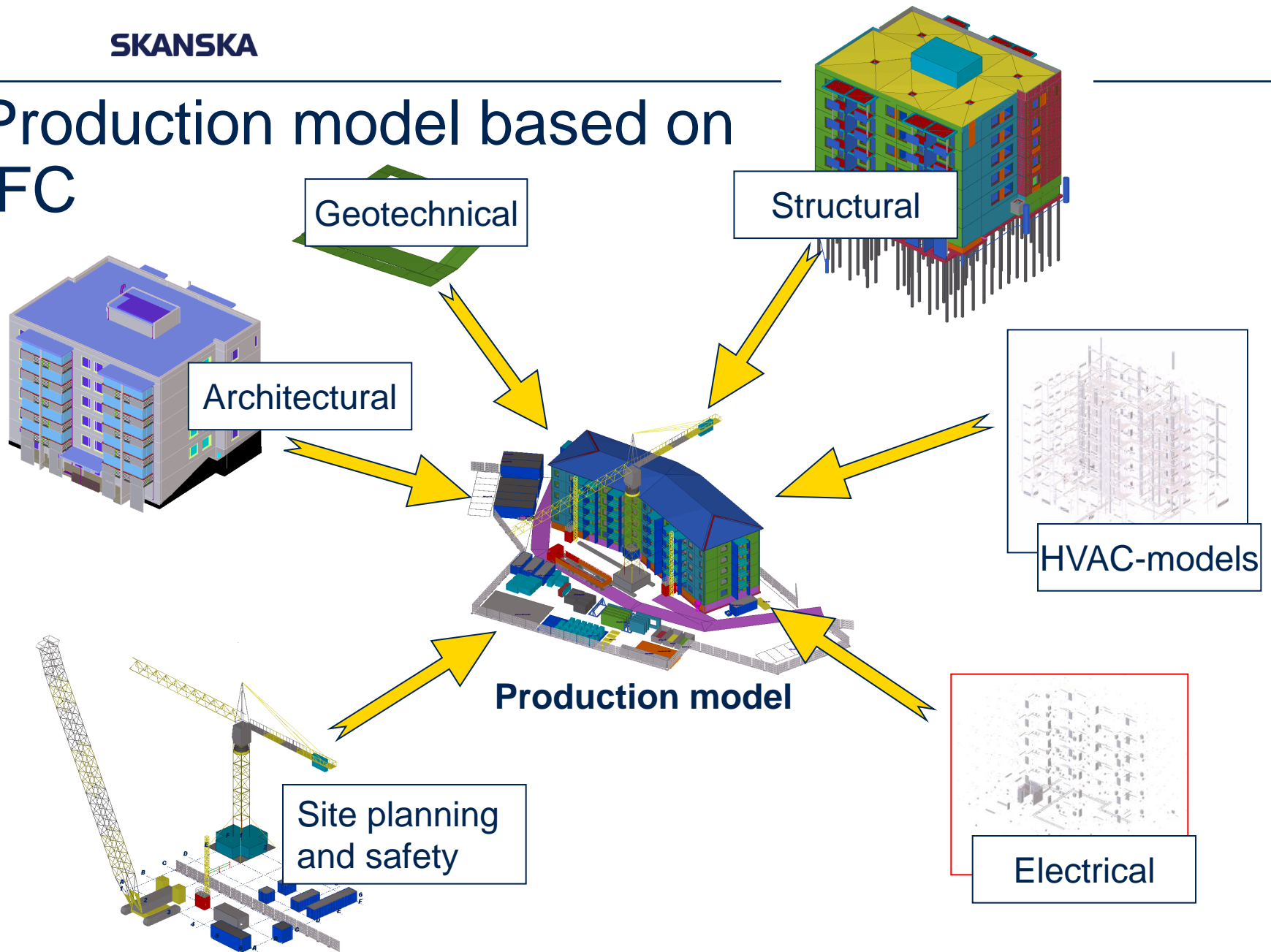


Quantity take off by locations

MagiCAD HPV - Bill of materials					
Project: As Oy Espoon Tuomarilan Rinne					
Date: 07.01.2010					
Sisältö: Ilmanvaihtojärjestelmä (huom. Autohalli ja vesikatto puuttuu)					
Kerros	A/B	Room/Name	Class	Size	Series
0.kerros	A	4at A	Duct	125	pyre
0.kerros	A	4at A	Duct	160	pyre
0.kerros	A	4at A	Bend-20	160	pyre
0.kerros	A	4at A	T-branch-90	125/125	pyre
0.kerros	A	4at A	T-branch-90	160/125	pyre
0.kerros	A	4at A	Reduction	160/125	pyre
0.kerros	A	4at A	Extract air device	125	P1

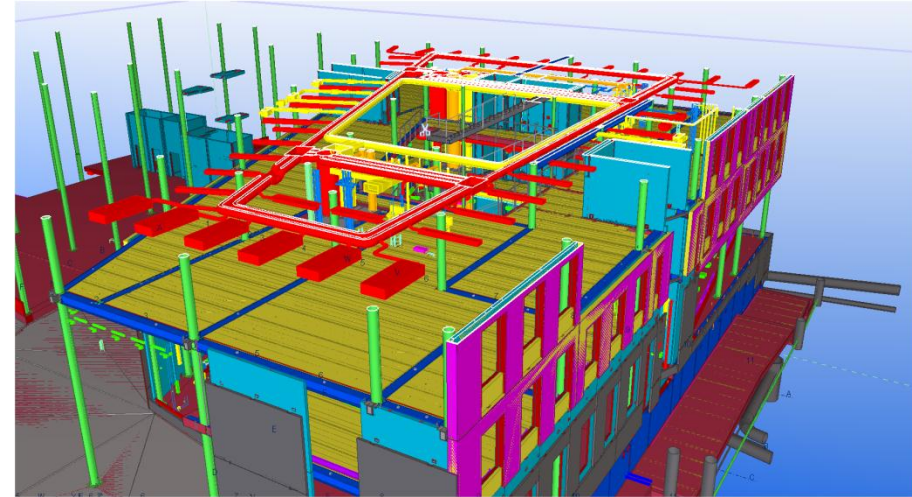


Production model based on IFC

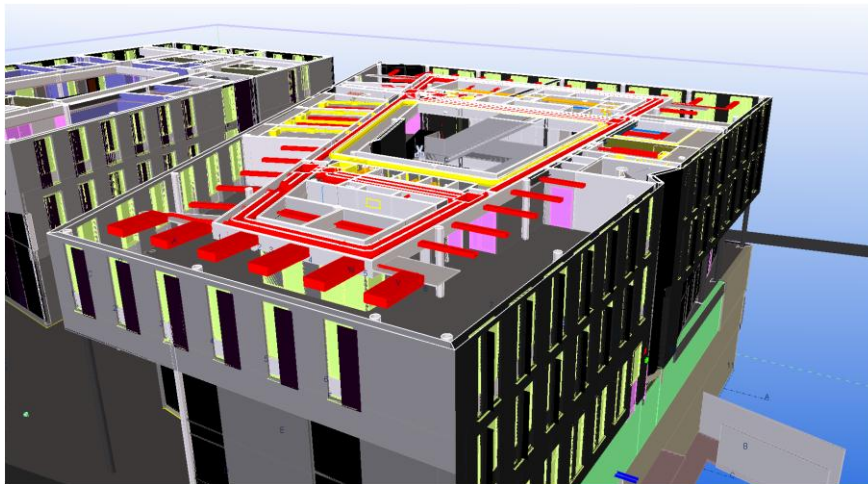


Different model combinations are used on site

Struc + M&E (Tekla CM)



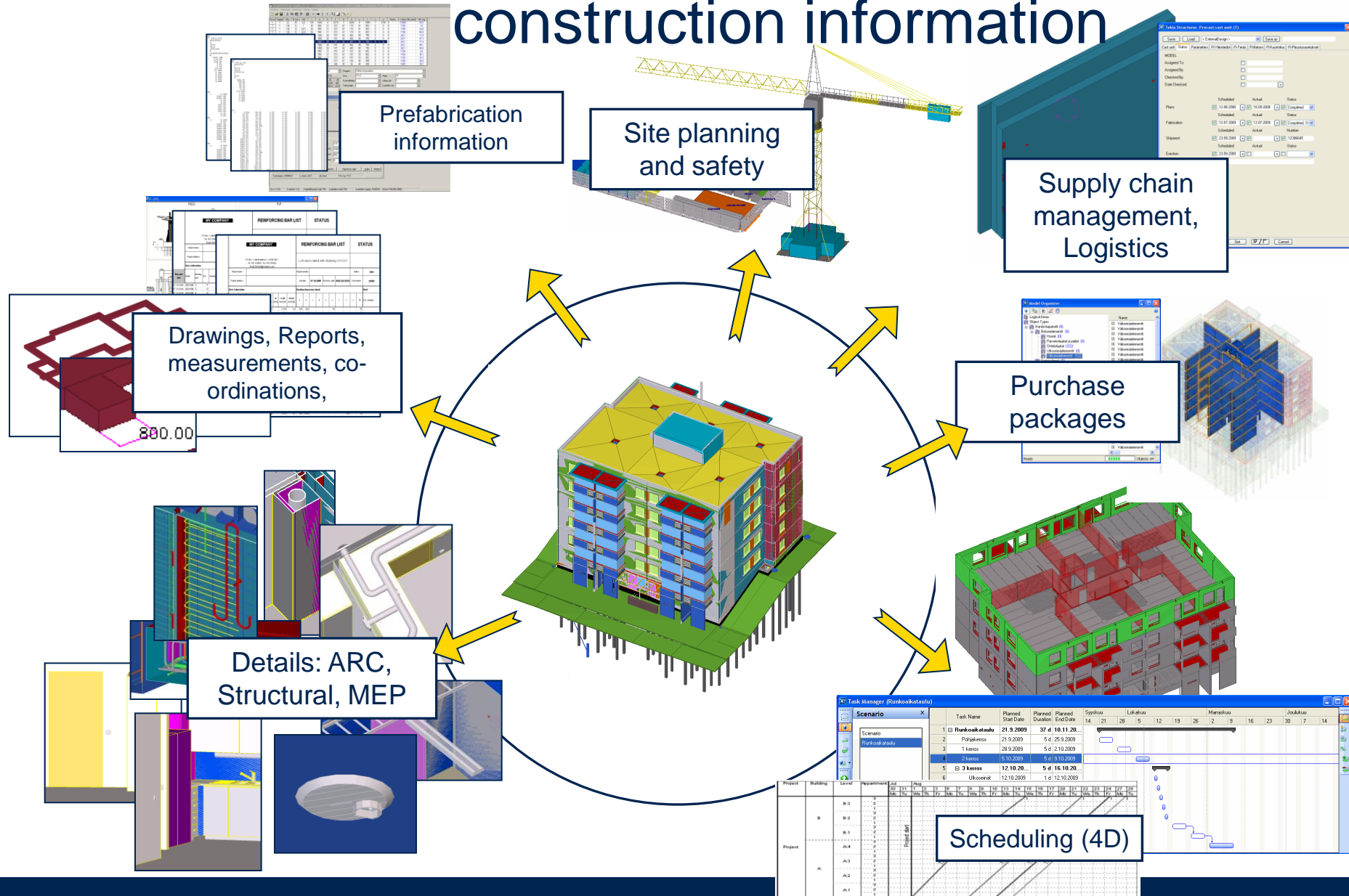
Arch + M&E (Tekla CM)

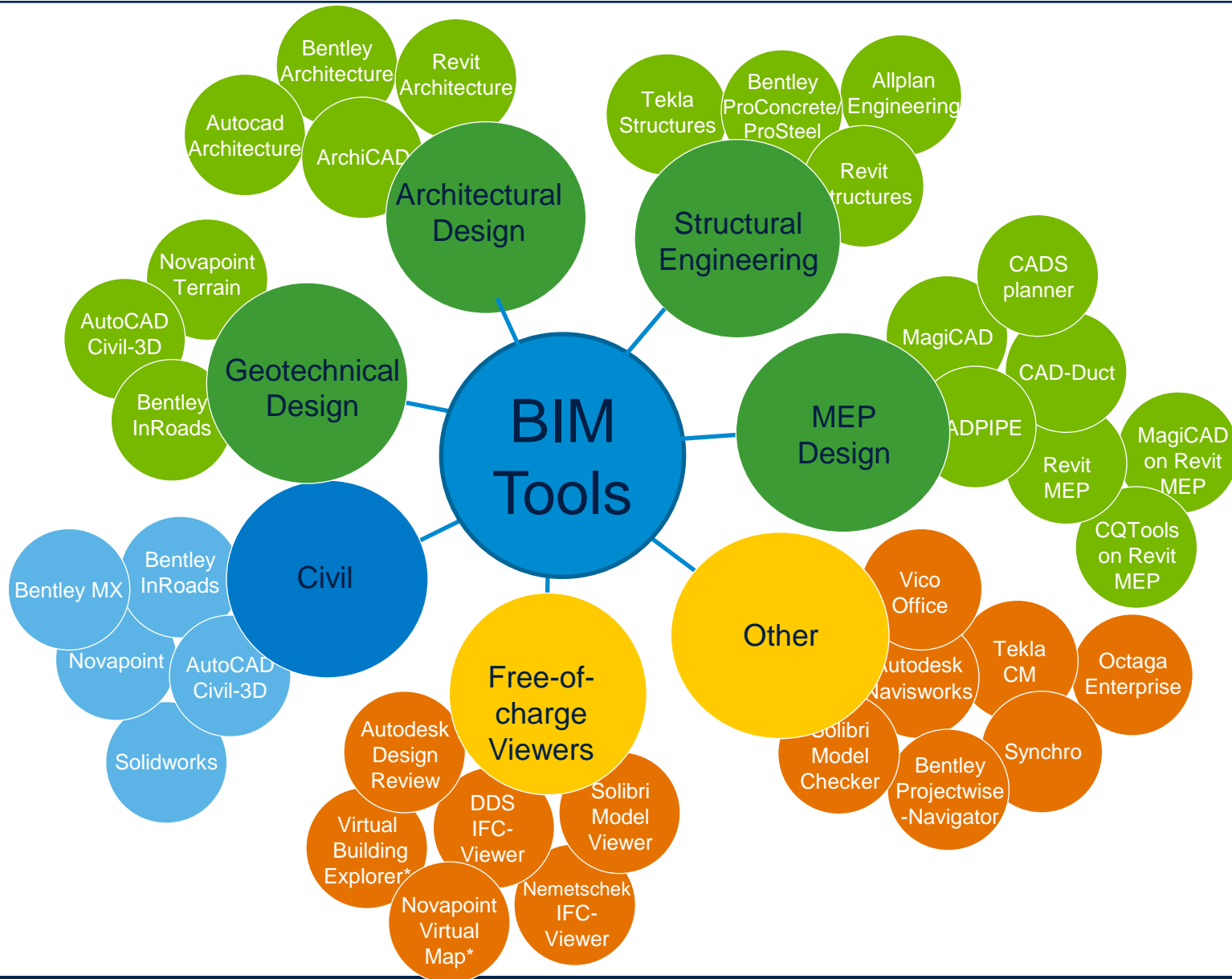


Model Checker (Solibri)



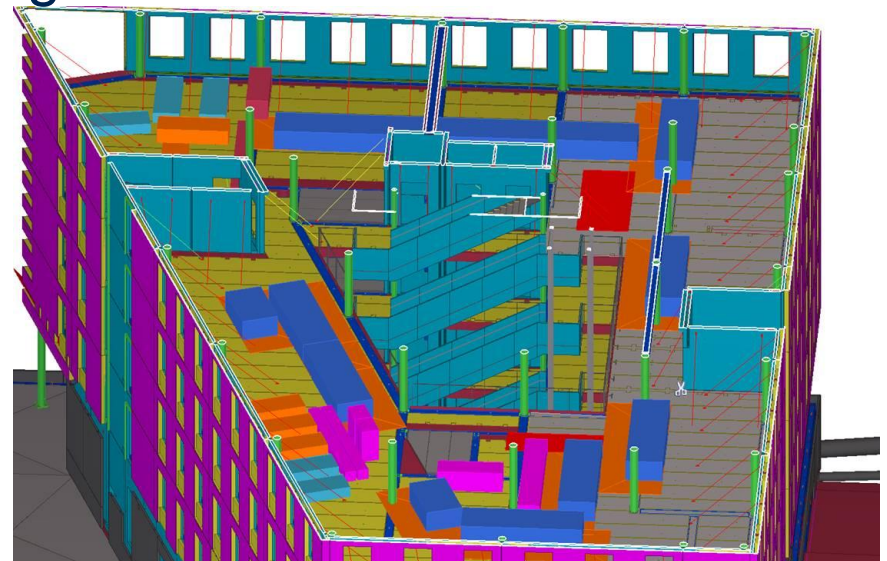
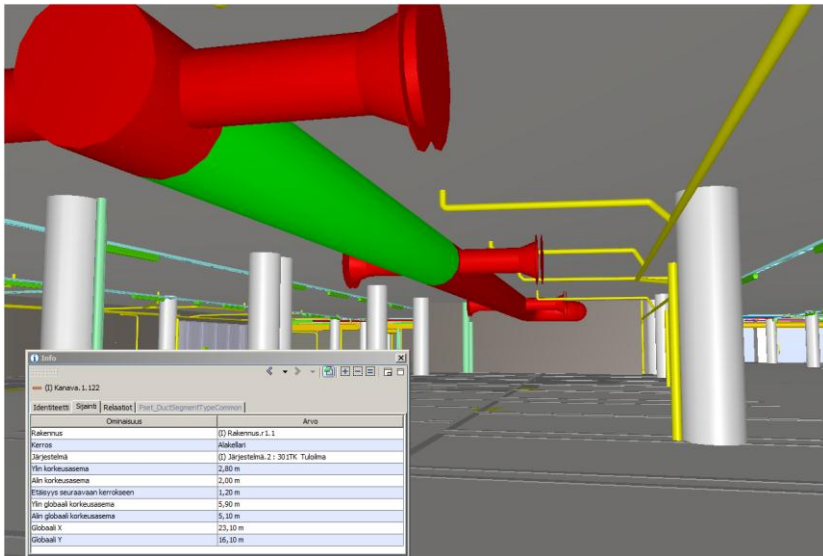
Production model – source of construction information





BIM is used at the sites daily

- Checking quantities
- Reviewing designs
- Visualizing the forthcoming tasks
- Visualizing dependencies between different tasks
- Synchronizing tasks
- Planning deliveries and logistics



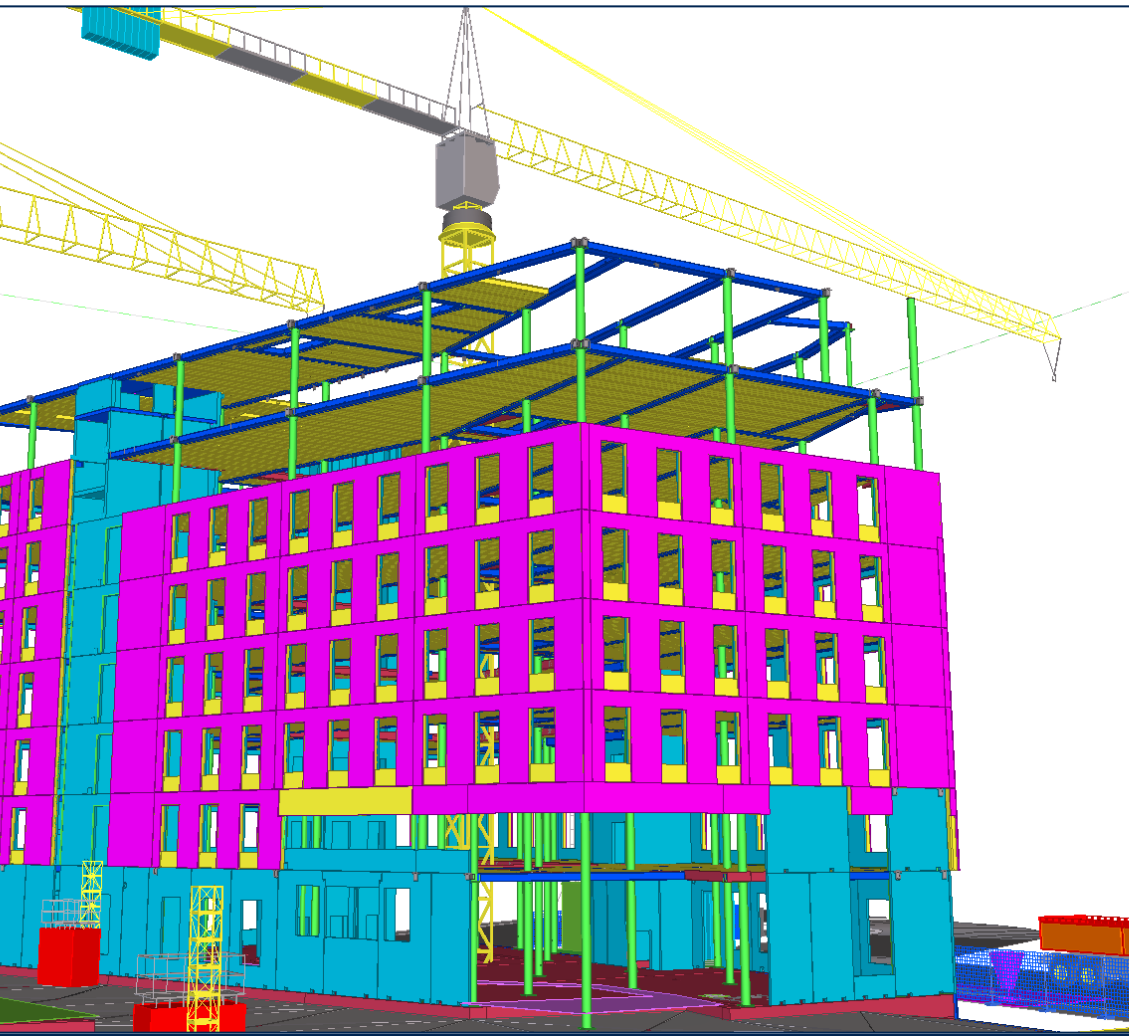
The biggest chance is not the new technology, but the new way of working

- Drawings are always produced from models
- Models are correct, not only for visualizations
- Transparency of the design, no shortcuts possible

The new way of working improves the process

- Less data loss from design to production
- The design can really be checked for errors in 3D
- The design is clear for everyone – everybody understands things similarly

Build it first virtually!



Thank you!