

openBIM building project:

SKANSKA'S NEW HEADQUARTER IN HELSINKI, FINLAND

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Skanska Finland



Contents

- Skanska – Who are we?
- BIM Implementation in Skanska Globally
- openBIM in Finland – Example Skanska House, integrated design and construction
 - BIM auditing – basis for reliable quantities
 - 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
- A Fortune 500 company
- Member of UN Global Compact



Local presence – global strength



United States
Latin America

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





Construction

A photograph showing three construction workers in safety gear (hard hats, safety glasses, and high-visibility vests) on a construction site. One worker in the foreground is pointing towards a large cable-stayed bridge structure in the background.



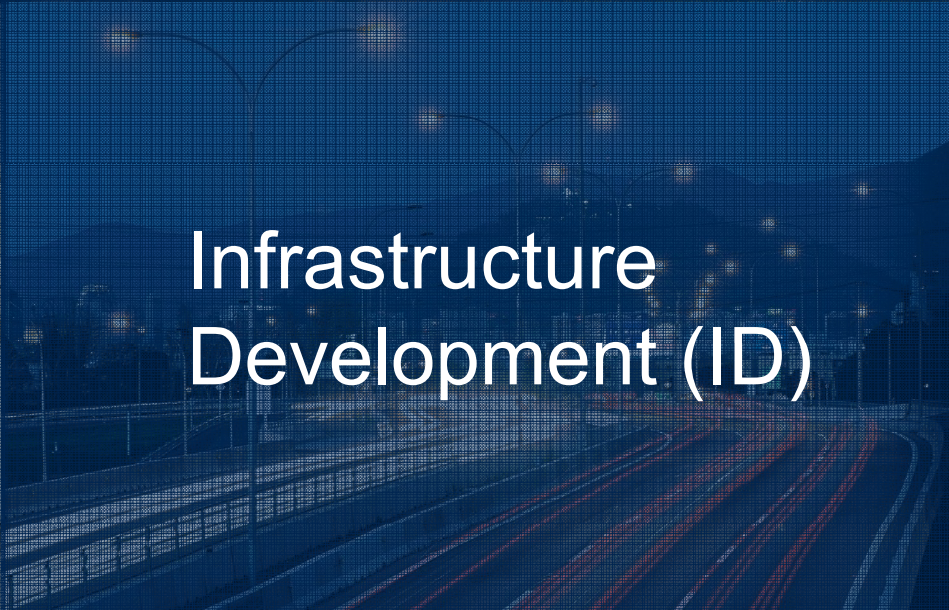
Residential
Development (RD)

A photograph of a modern multi-story residential building under construction. The building features a mix of brick and concrete facades. Scaffolding and construction equipment are visible on the upper floors.



Commercial
Development (CD)

A photograph of a modern commercial building with a glass and metal facade. The building has a distinctive architectural design with a curved roofline and large windows.



Infrastructure
Development (ID)

A photograph of a modern infrastructure project at night, showing a road with light trails from traffic and a bridge structure in the background. The scene is illuminated by streetlights, creating a dynamic and futuristic atmosphere.

Five zeros – values that matter



Loss-making projects

Environmental incidents

Accidents

Ethical breaches

Defects



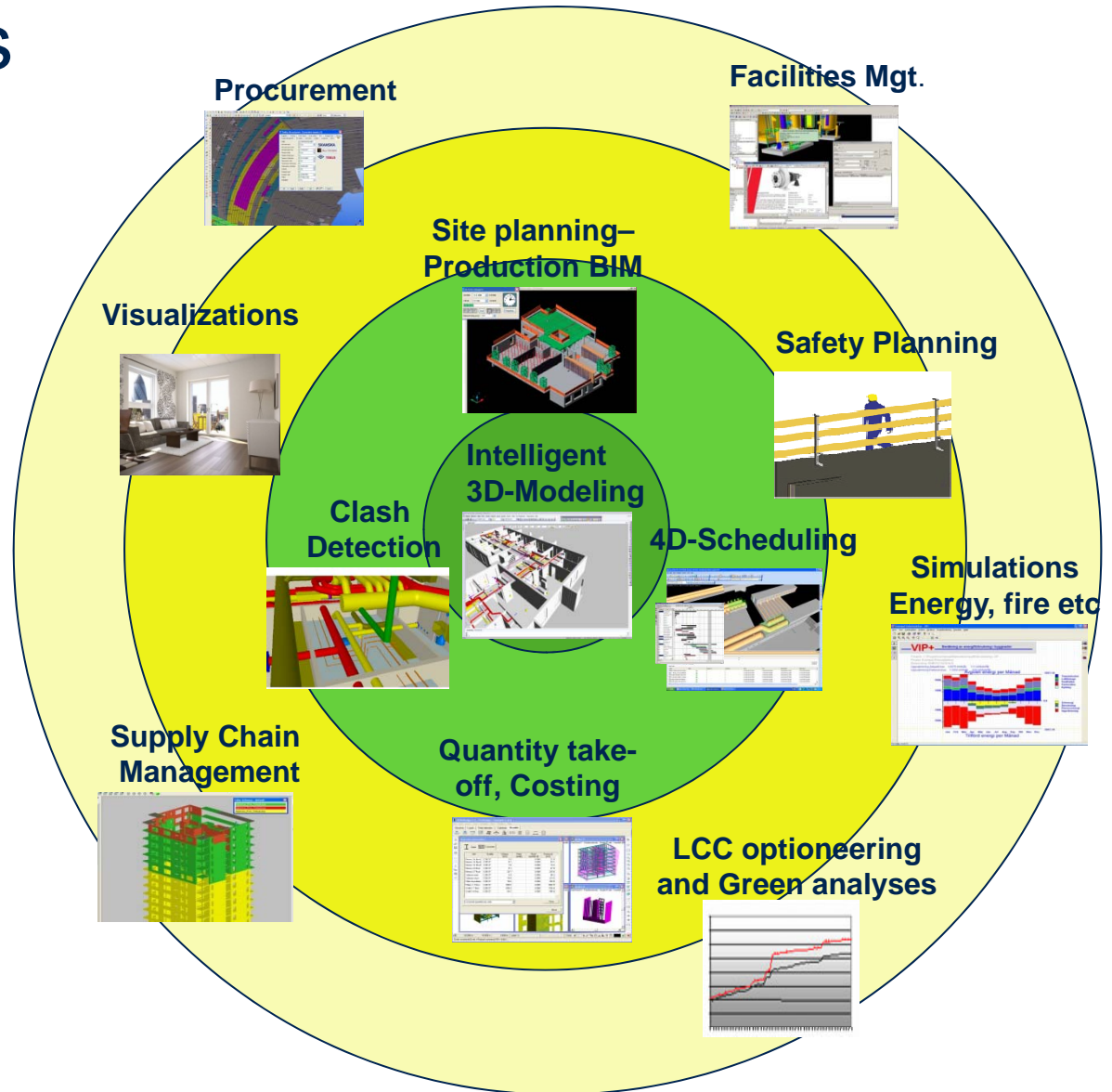
**”BIM in all
design/build
projects 2009”**

Johan Karlström, Management Meeting, Orlando, October 2008

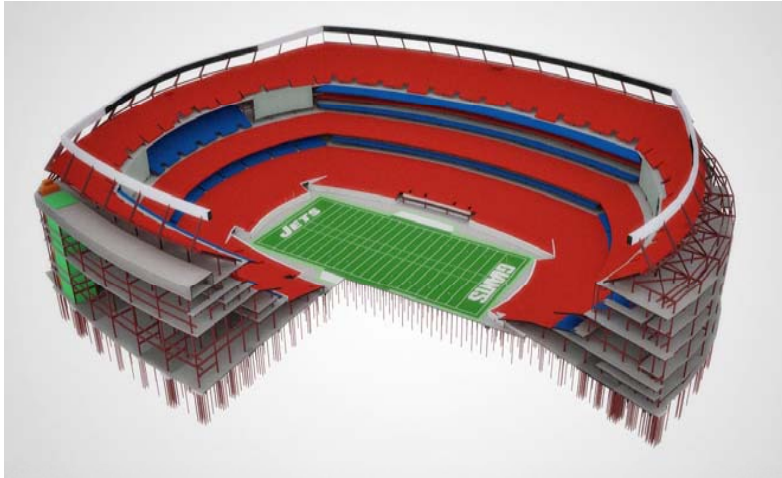
BIM applications

Support for implementing applications in Skanska

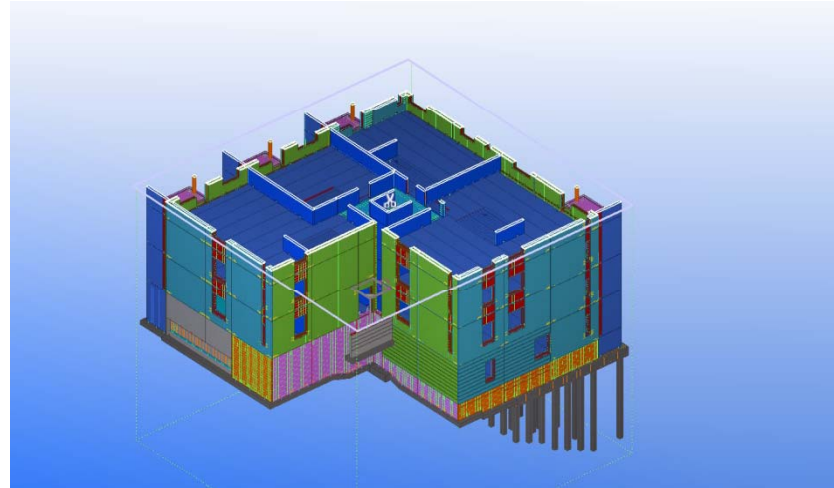
-  = level 1
-  = level 2
-  = level 3



Different expertise areas in Skanska Worldwide



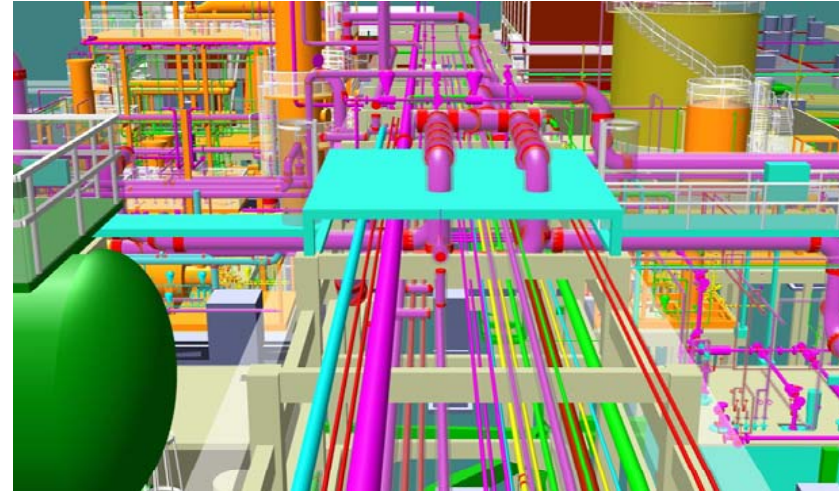
New Meadowlands Stadium, New Jersey, USA



Mäntylinna project, Finland



Marienborgtunnelen, Trondheim, Norway



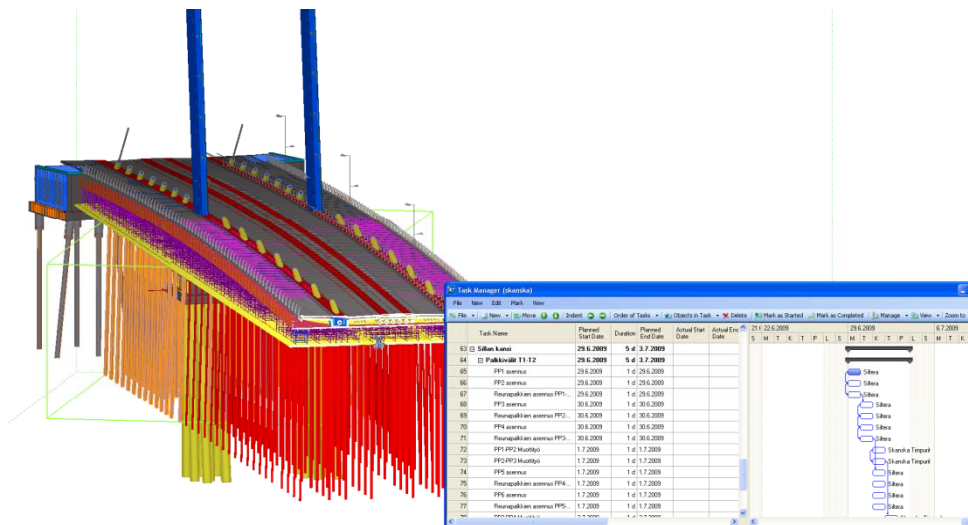
Refap Sulfur Plant – Skanska LA

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



Visualizations – New Skanska Building



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



Safety planning

BIM enables five zeros in construction process

0 errors in design



0 errors in quantity- and cost estimations
and scheduling



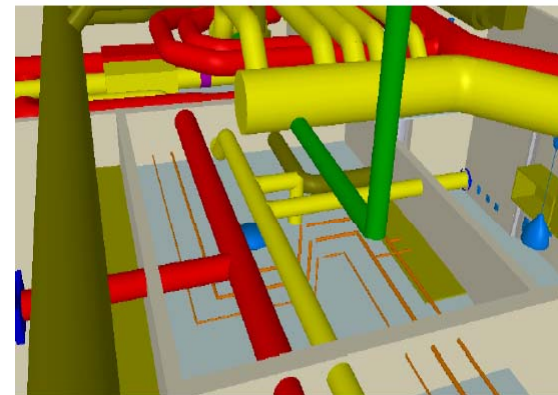
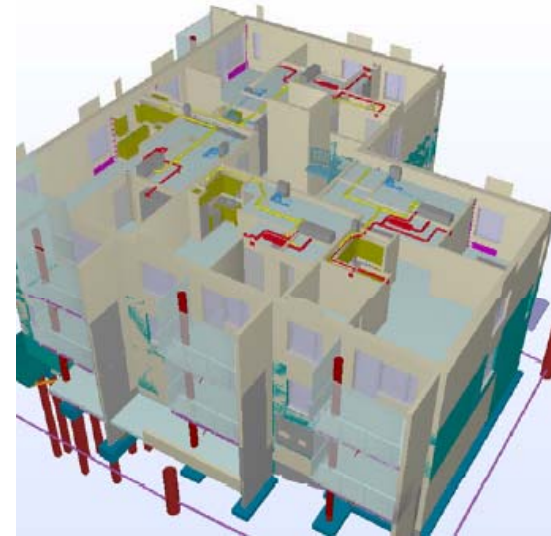
0 errors in procurement and logistics



0 errors in production

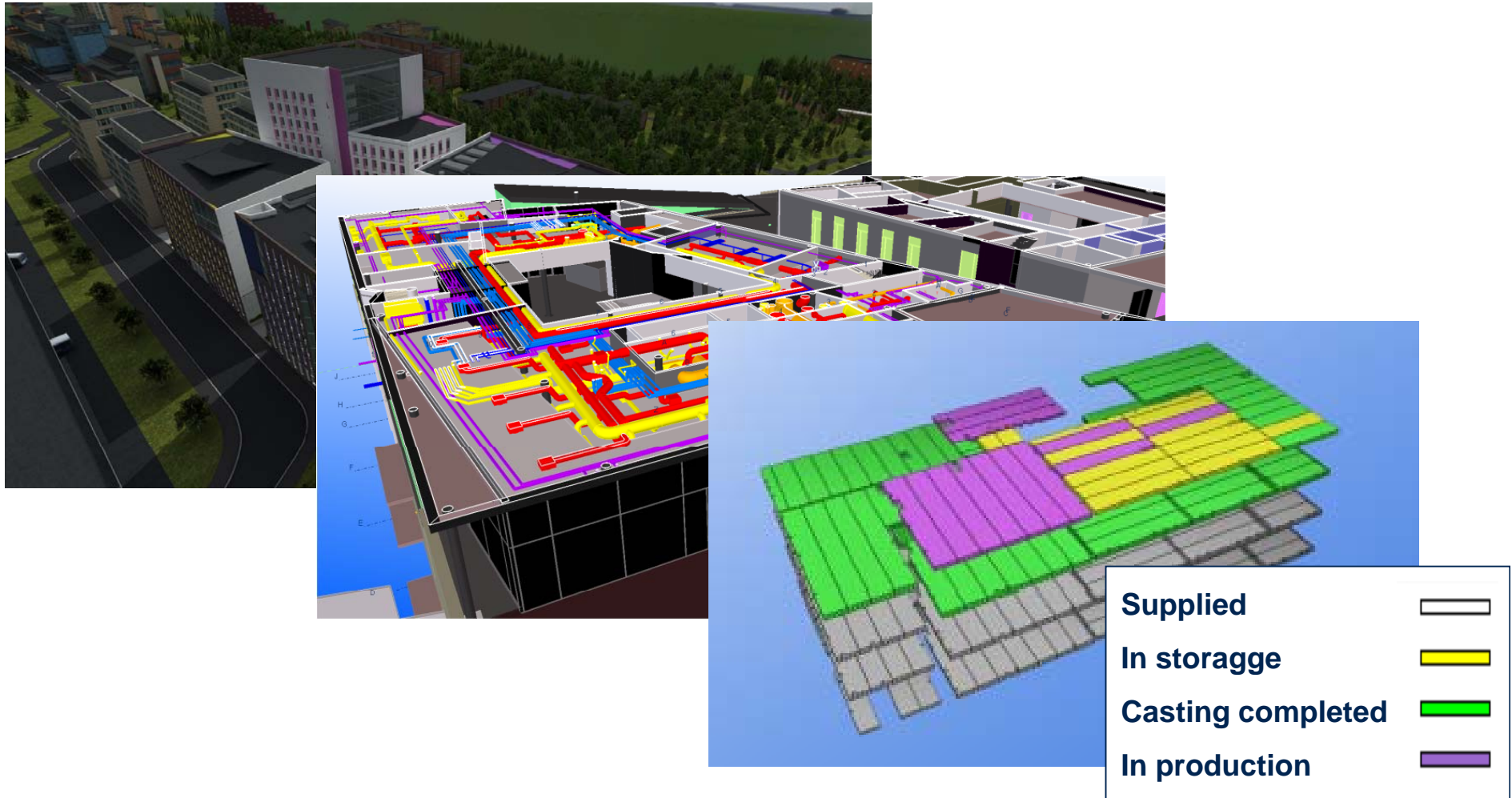


0 errors in hand-over

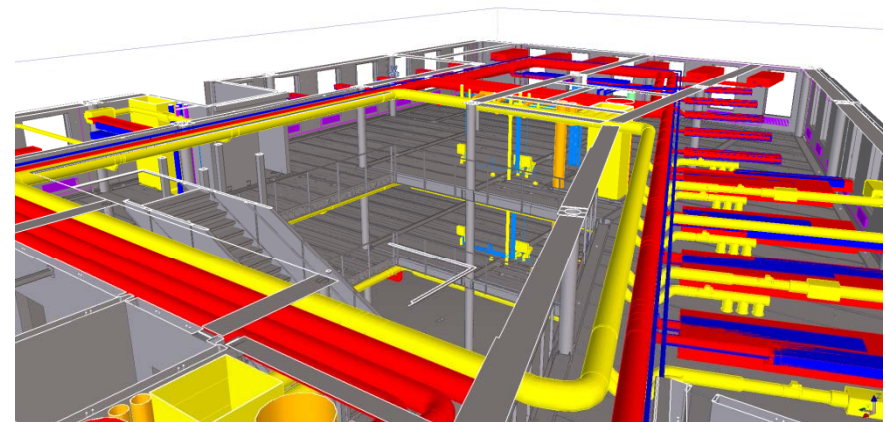
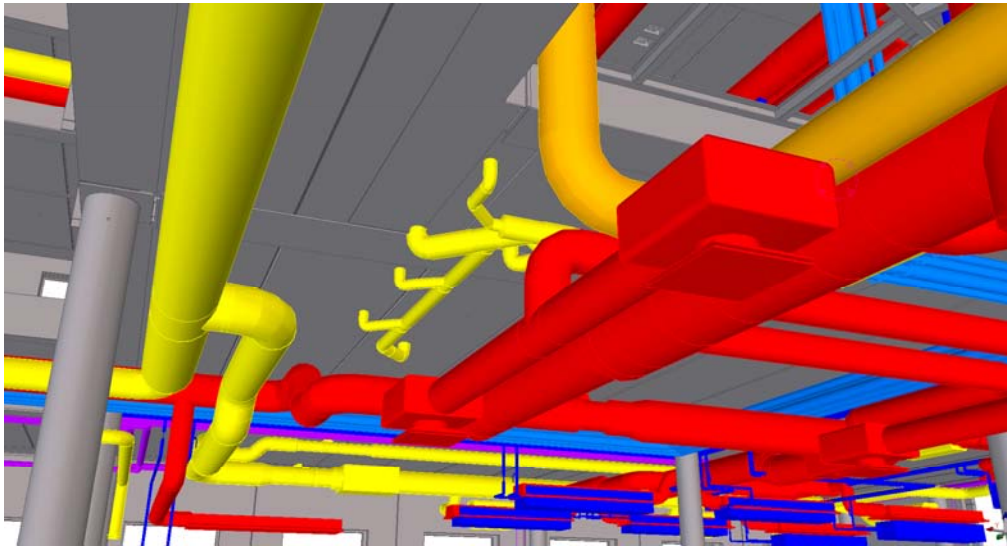


Results a better productivity!

Visualization facilitates decision making in all phases



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

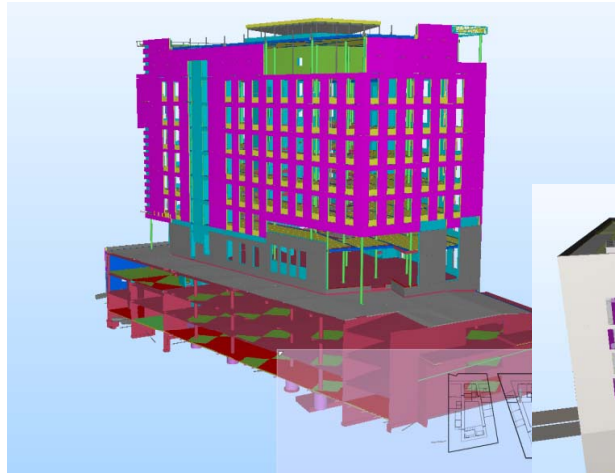


BIM Auditing is used to...

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



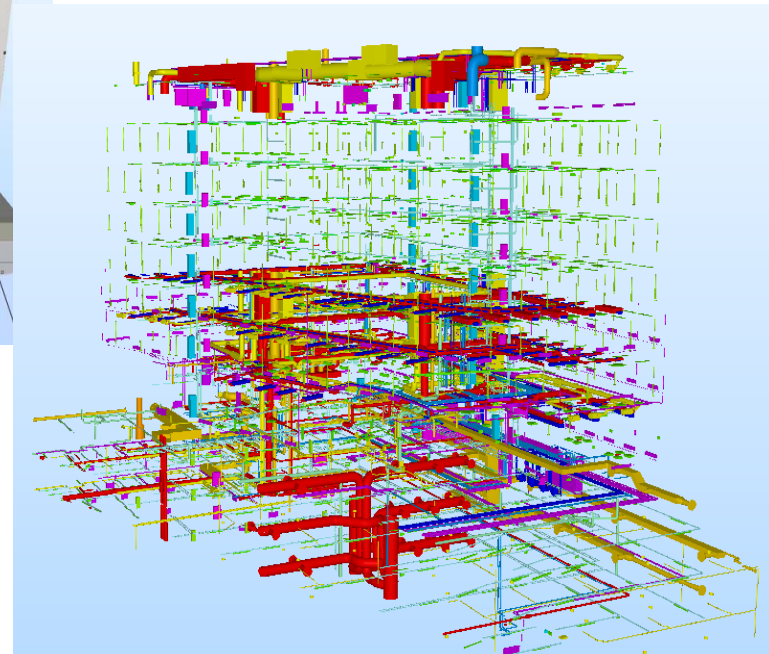
2. Checking all the individual models for clashes and modeling errors



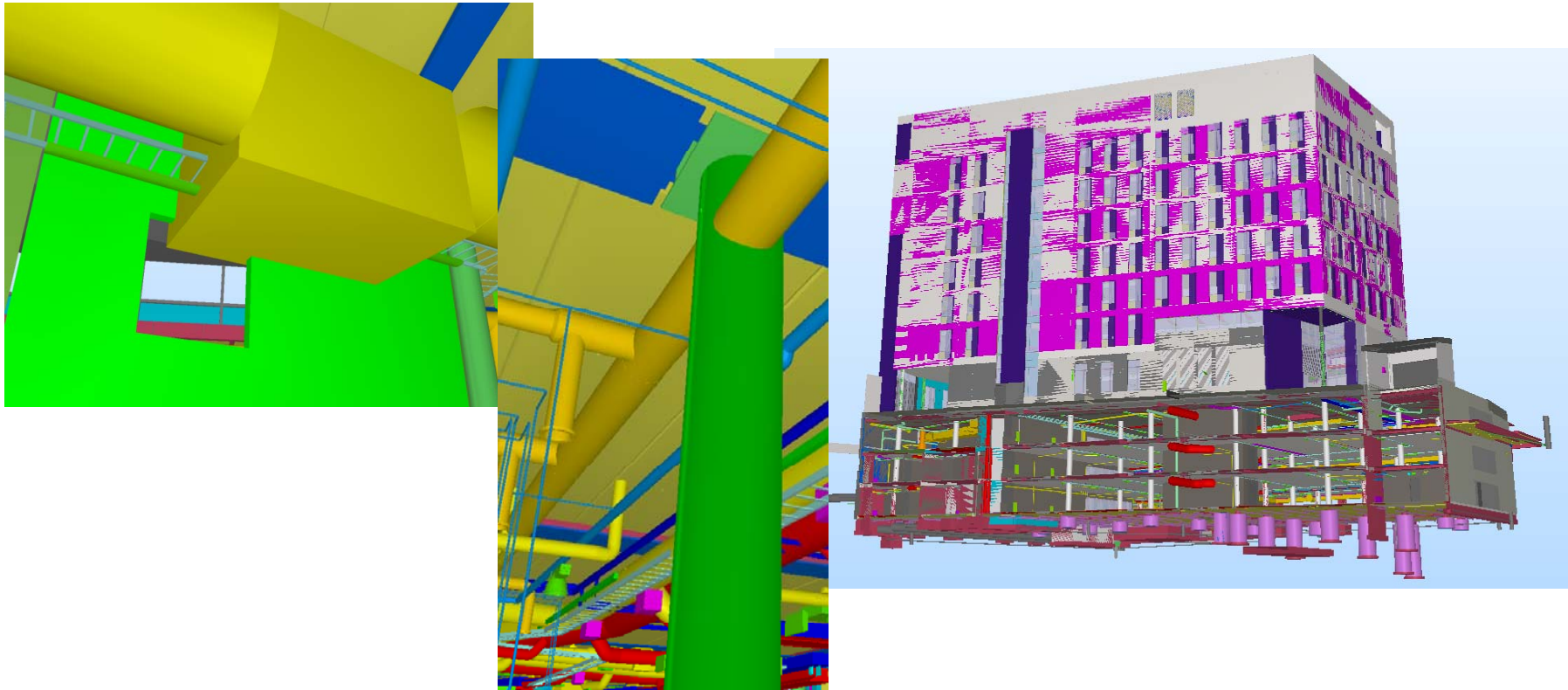
intersections between components



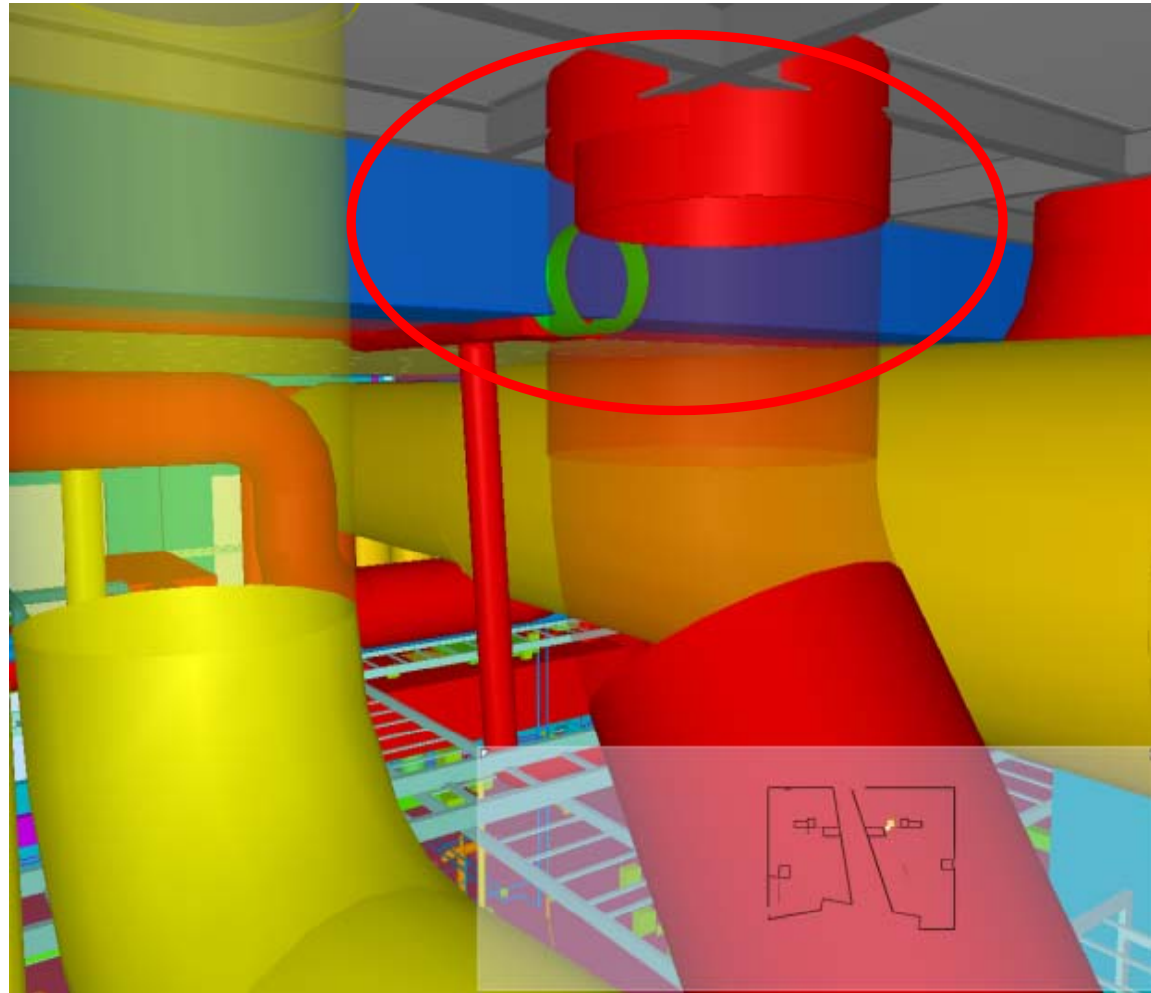
double components

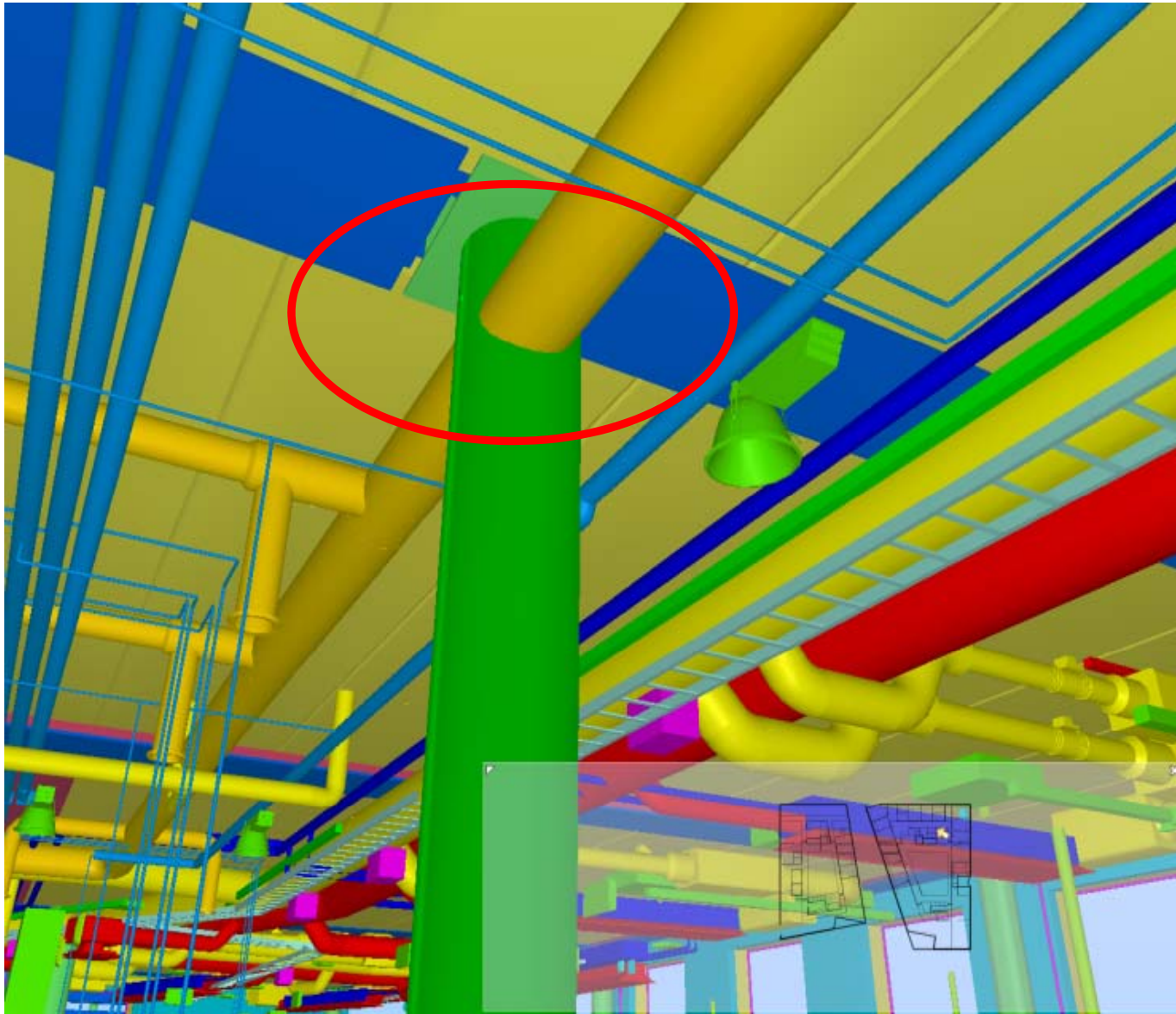


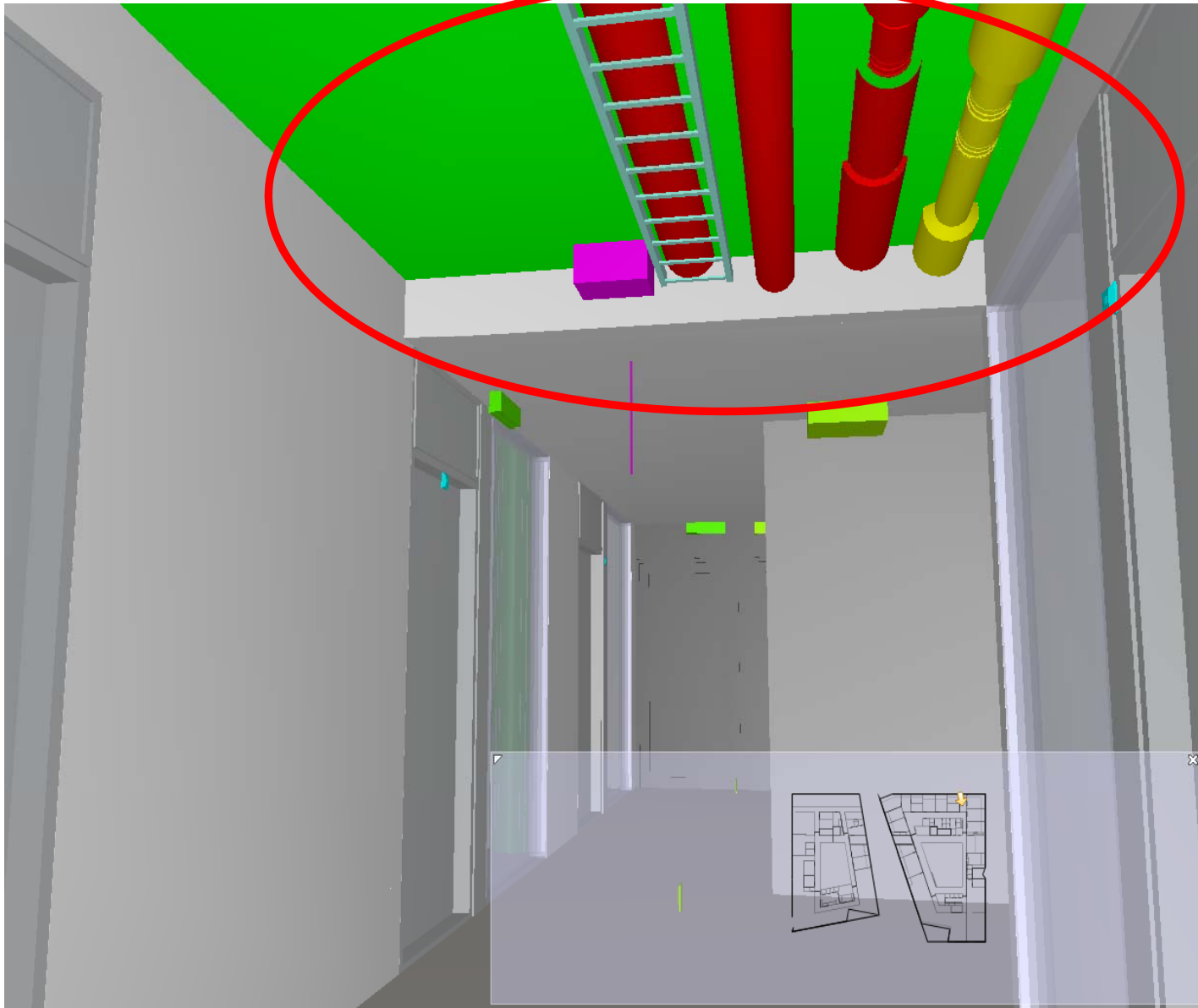
3. Comparing the **architectural** model with the **structural** model.
4. **Comparing MEP** models with **architectural** and **structural** models (Integrated model)



Examples of clashes found during the design of the new Skanska headquarers

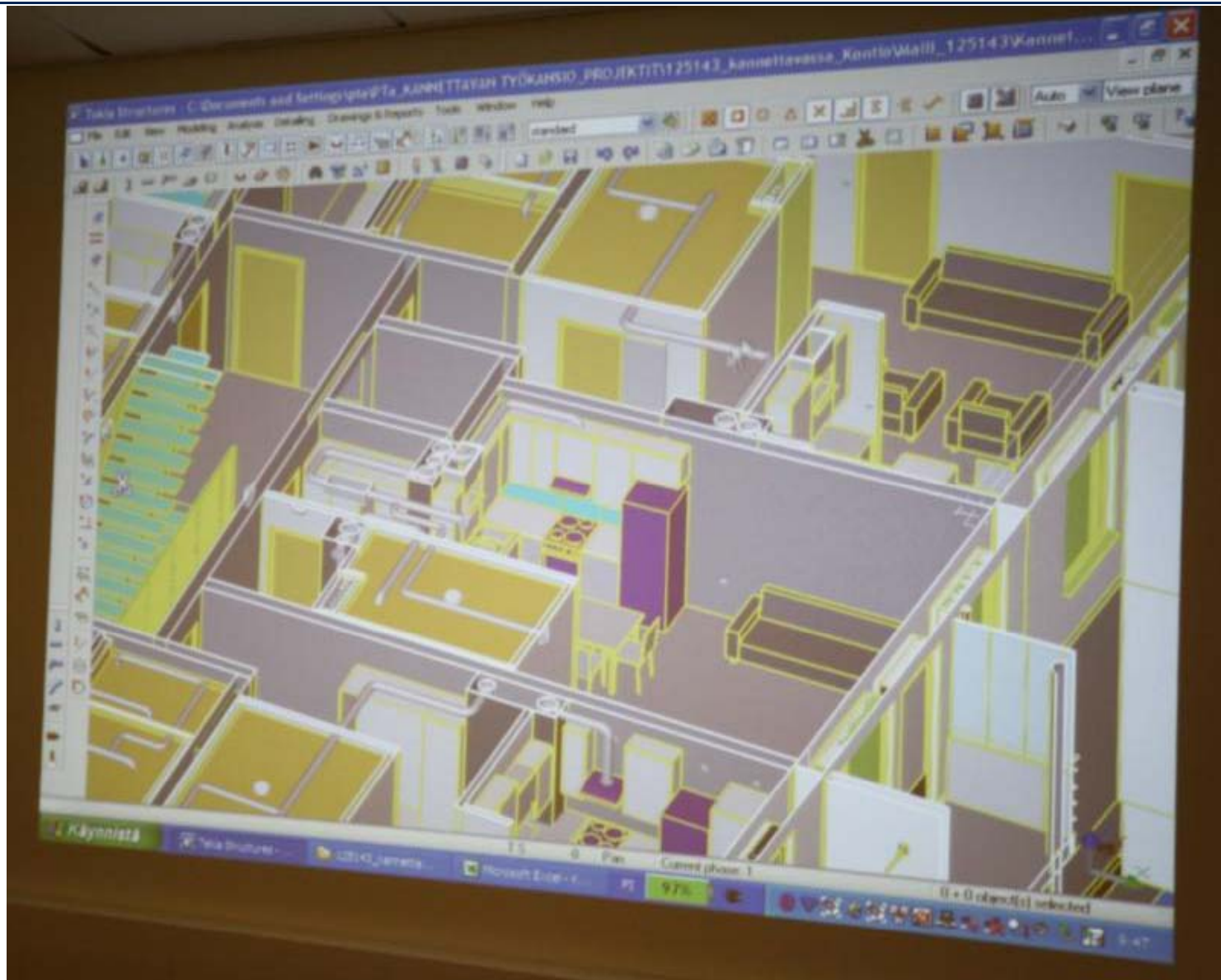


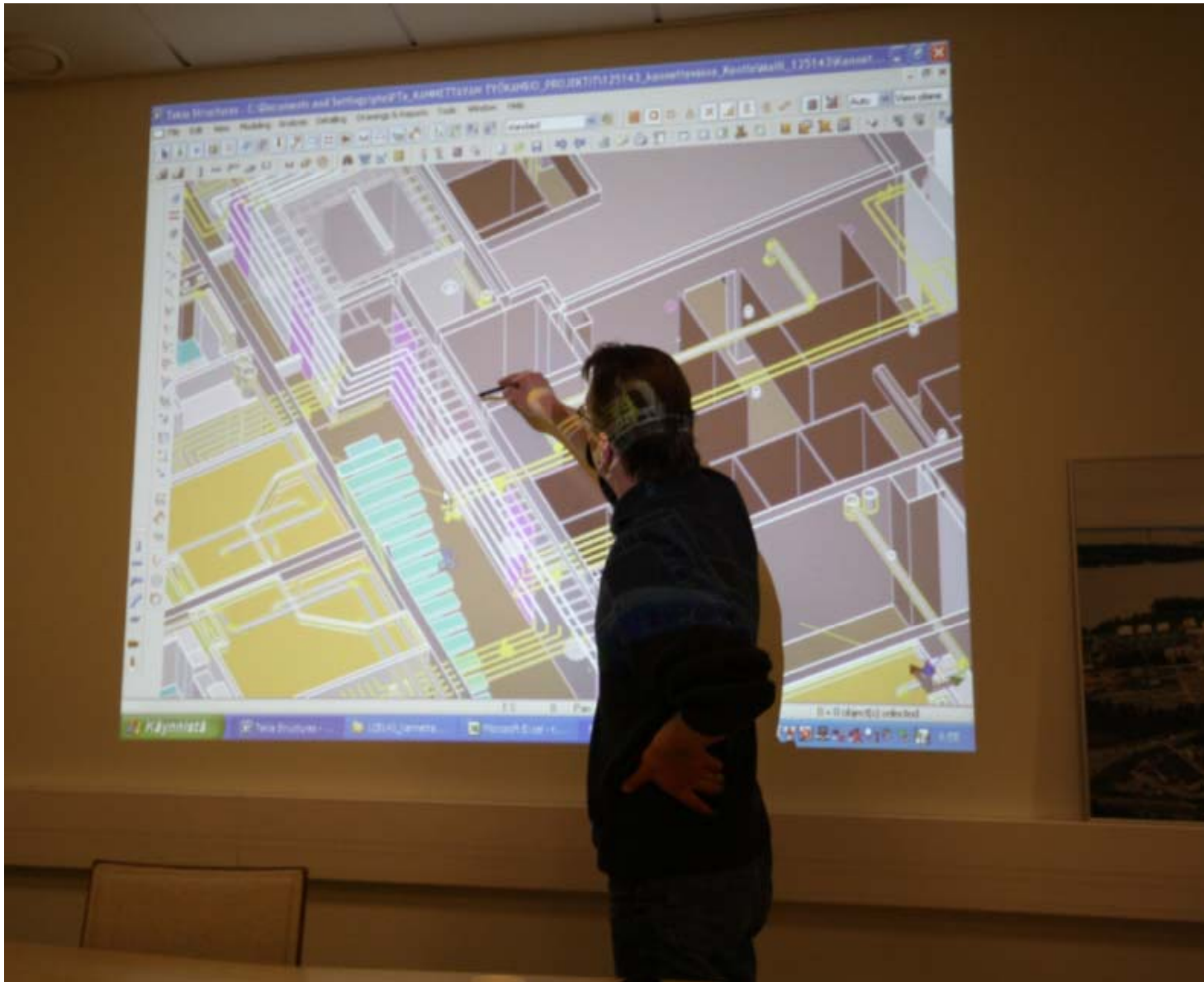




Integrated model is used in Design Meetings

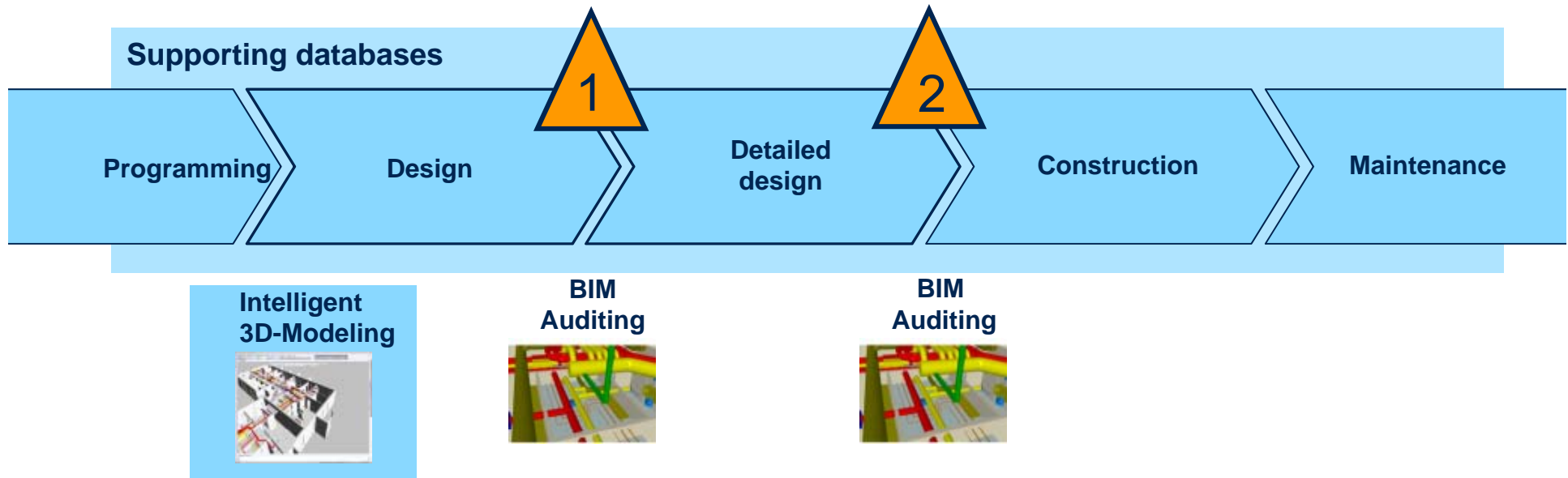




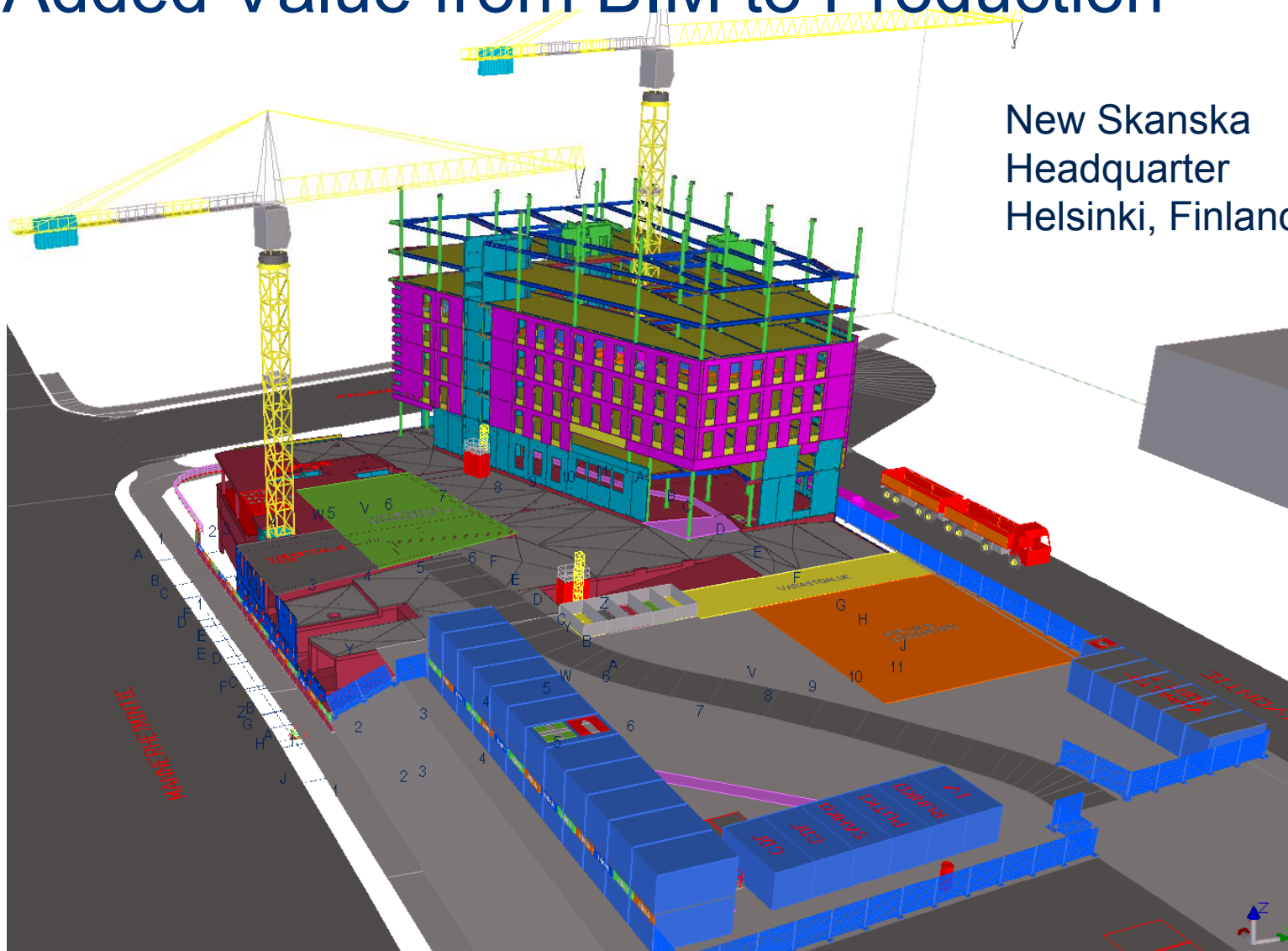


BIM Auditing in construction project

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

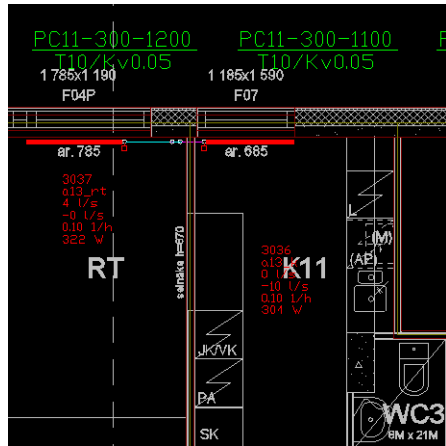


Added Value from BIM to Production

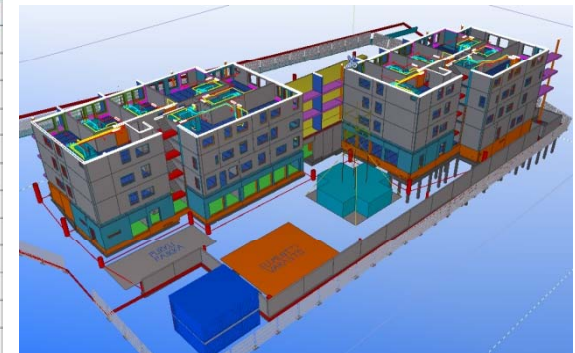
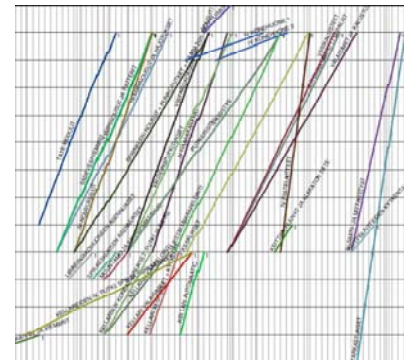


Example of BIM process: M&E

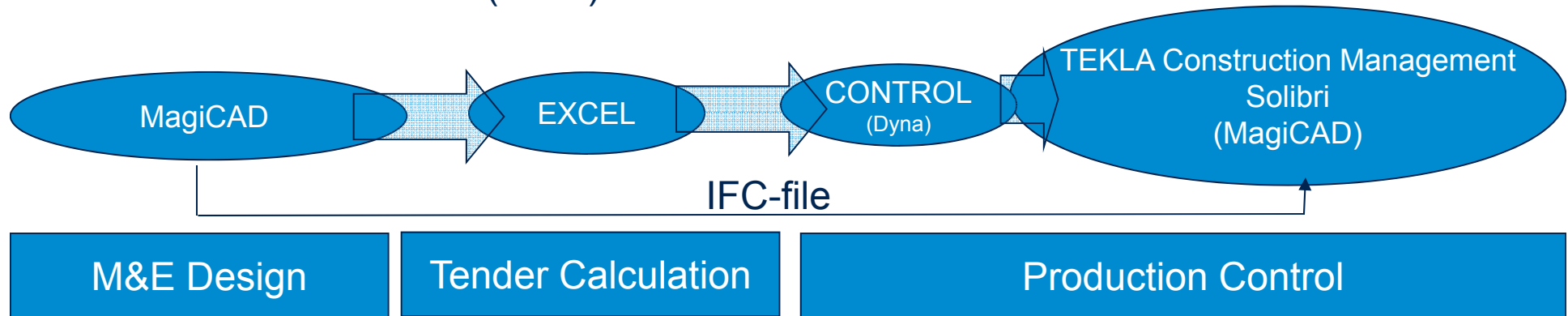
From a design to production phase



Item	Quantity	Unit	Description	Material	Person-hours	Cost
...
...
...



Bill Of Materials (BOM) Person-hour Schedule

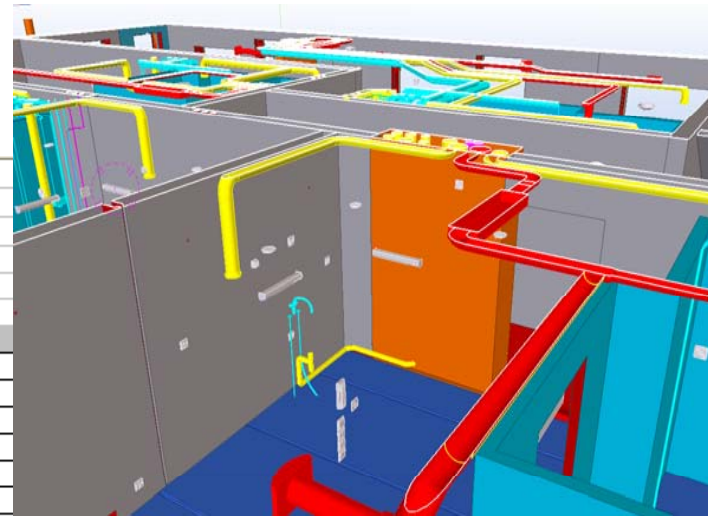


Quantity take off by locations

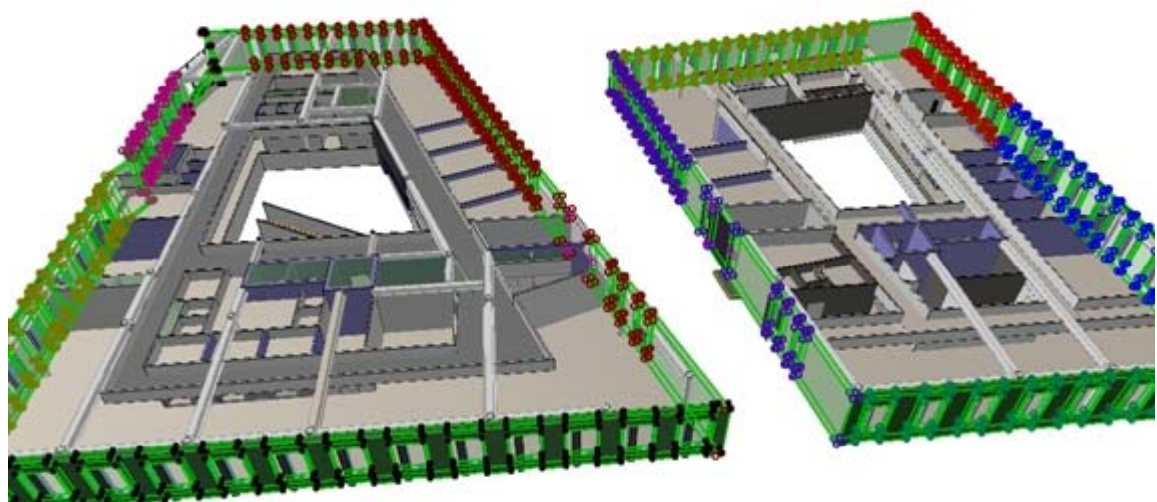
MagiCAD HPV - Bill of materials

Project: As Oy Espoon Tuomarilan Rinne
 Date: 07.01.2010
 Sisältö: Ilmanvaihtojärjestelmä (huom. Autohalli ja vesikatto puuttuu)

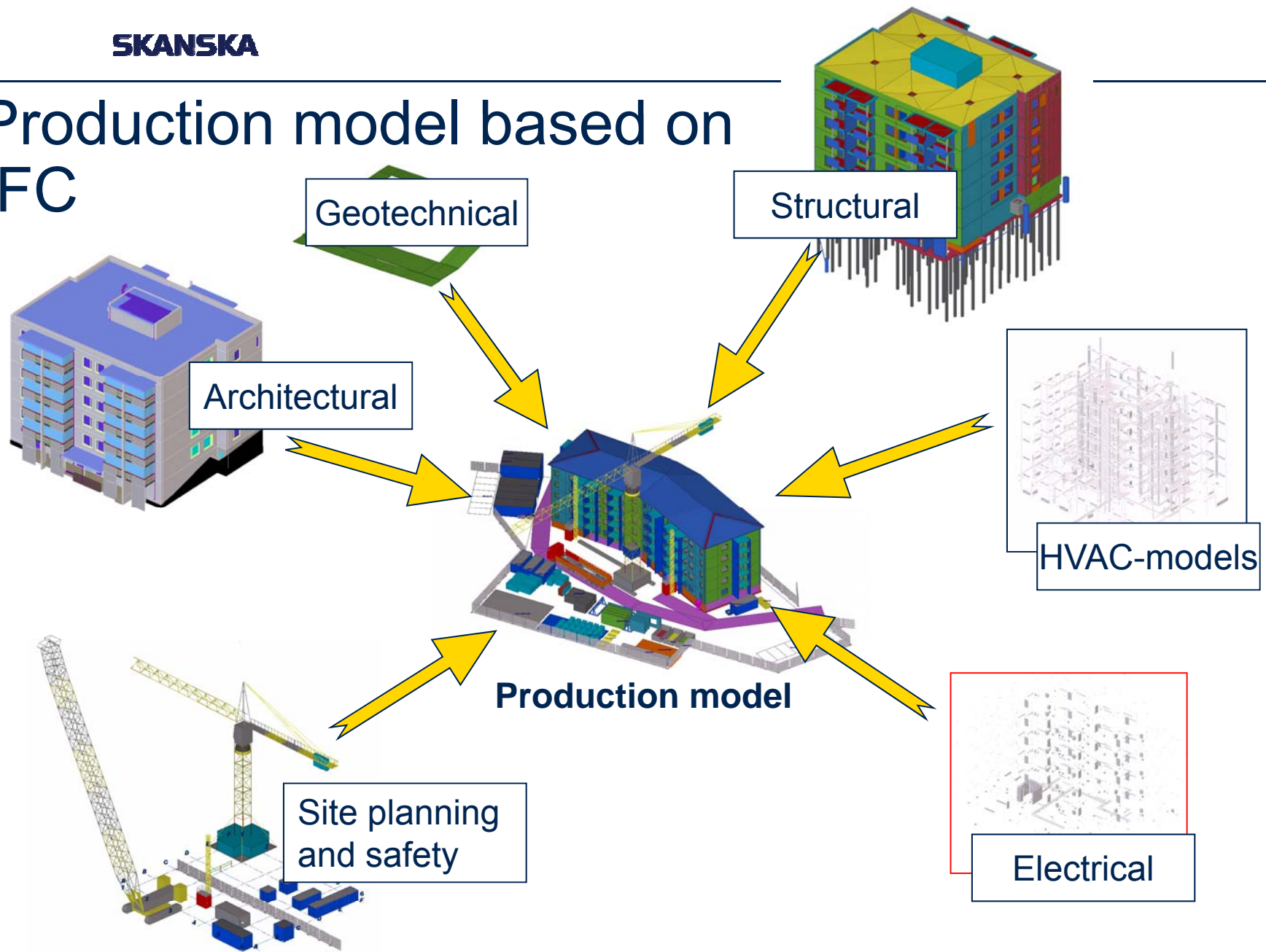
Kerros	A/B	RoomName	Class	Size	Series
0.kerros	A	4at A	Duct	125	pyre
0.kerros	A	4at A	Duct	160	pyre
0.kerros	A	4at A	Bend-20	160	pyre
0.kerros	A	4at A	T-branch-90	125/125	pyre
0.kerros	A	4at A	T-branch-90	160/125	pyre
0.kerros	A	4at A	Reduction	160/125	pyre
0.kerros	A	4at A	Extract air device	125	P1



KSO-125 | 4 | | |

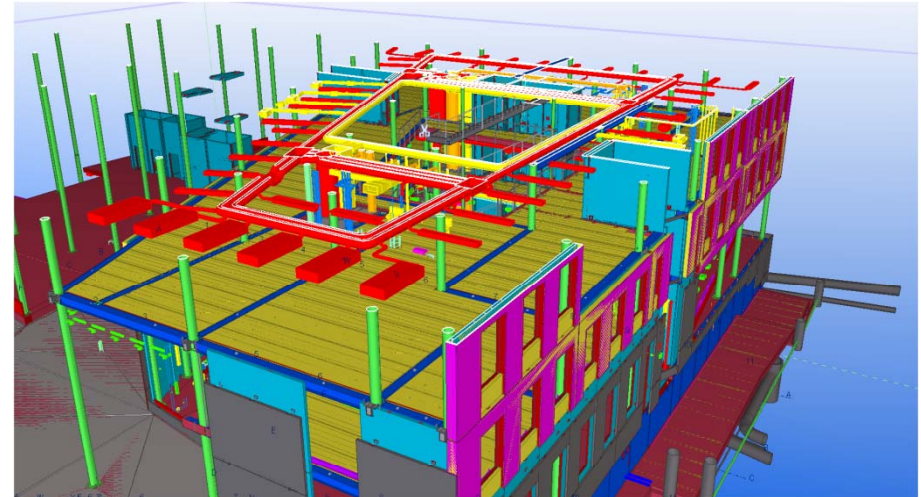


Production model based on IFC

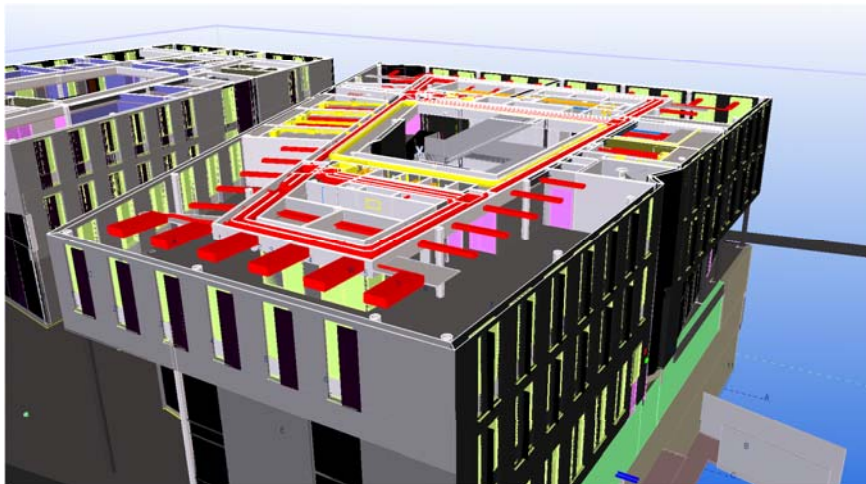


Different model combinations are used on site

Struc + M&E (Tekla CM)



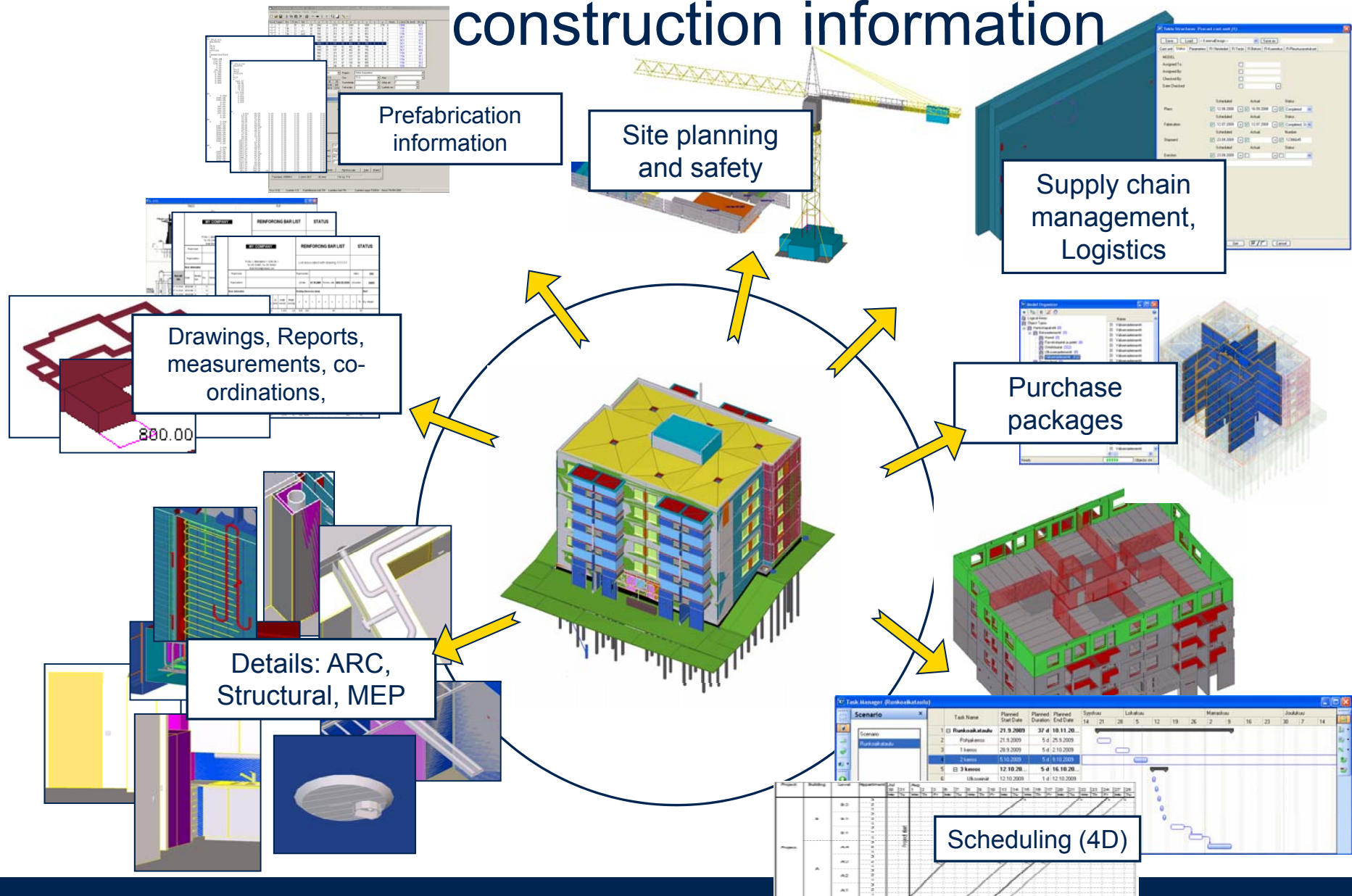
Arch + M&E (Tekla CM)

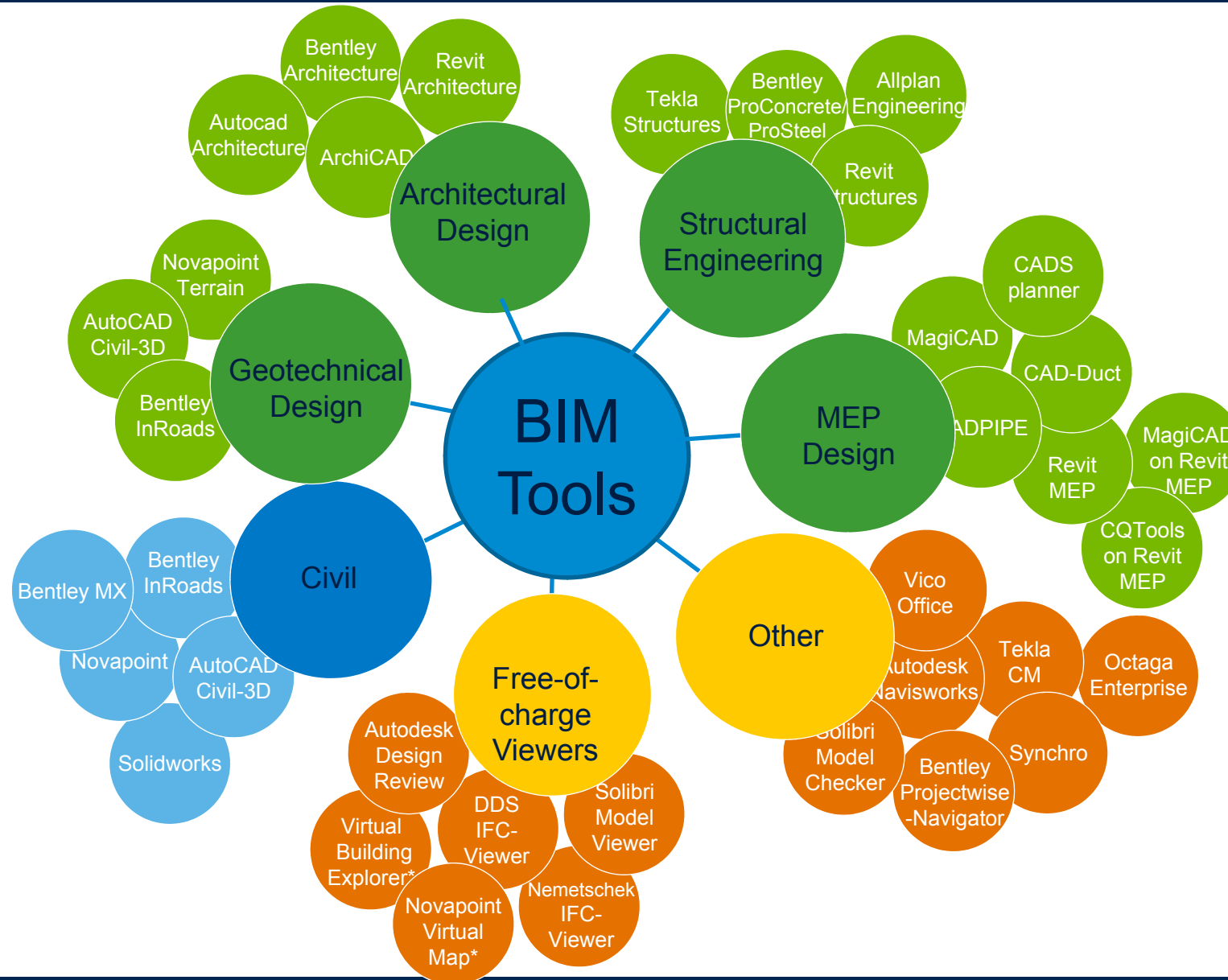


Model Checker (Solibri)



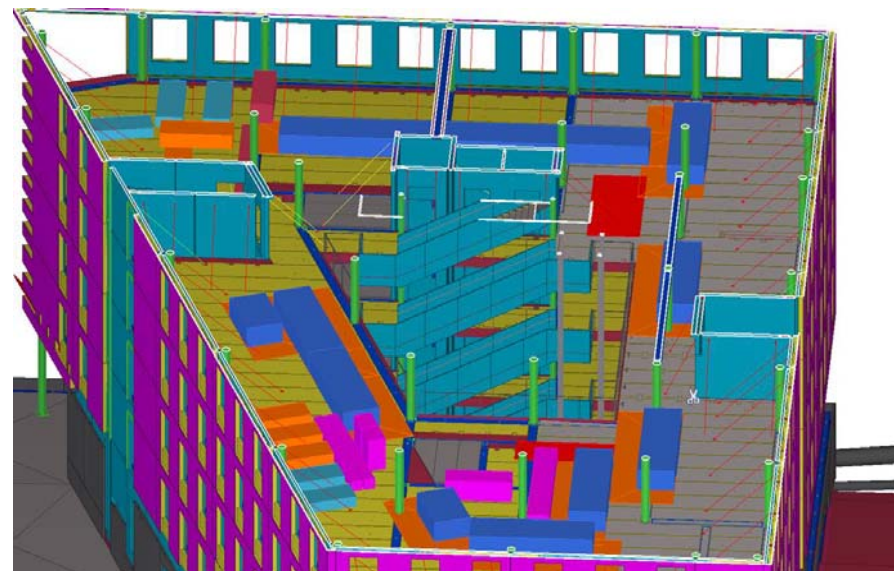
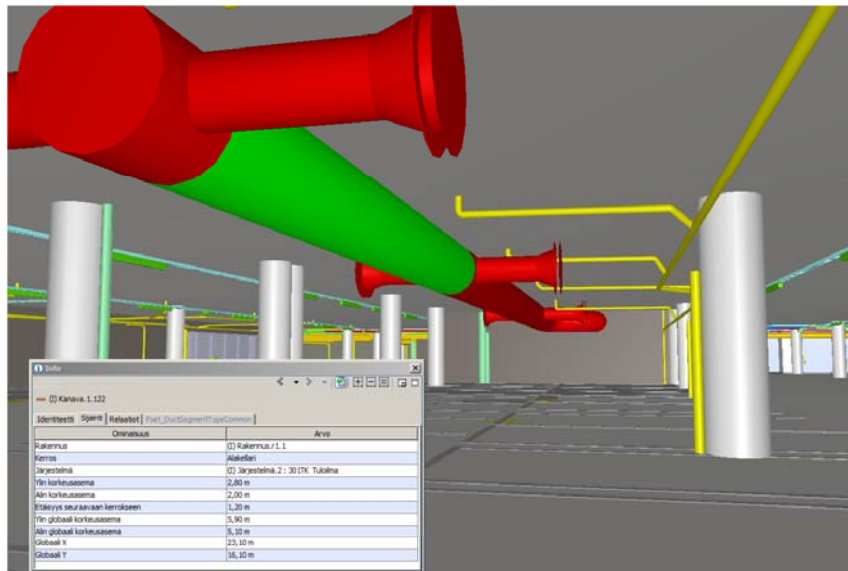
Production model – source of construction information





BIM is used at the sites daily

- BIM can be used in production meeting for:
 - Visualizing the forthcoming tasks
 - Visualizing dependence between different tasks
 - Synchronizing tasks
 - Planning accurate deliveries to the site



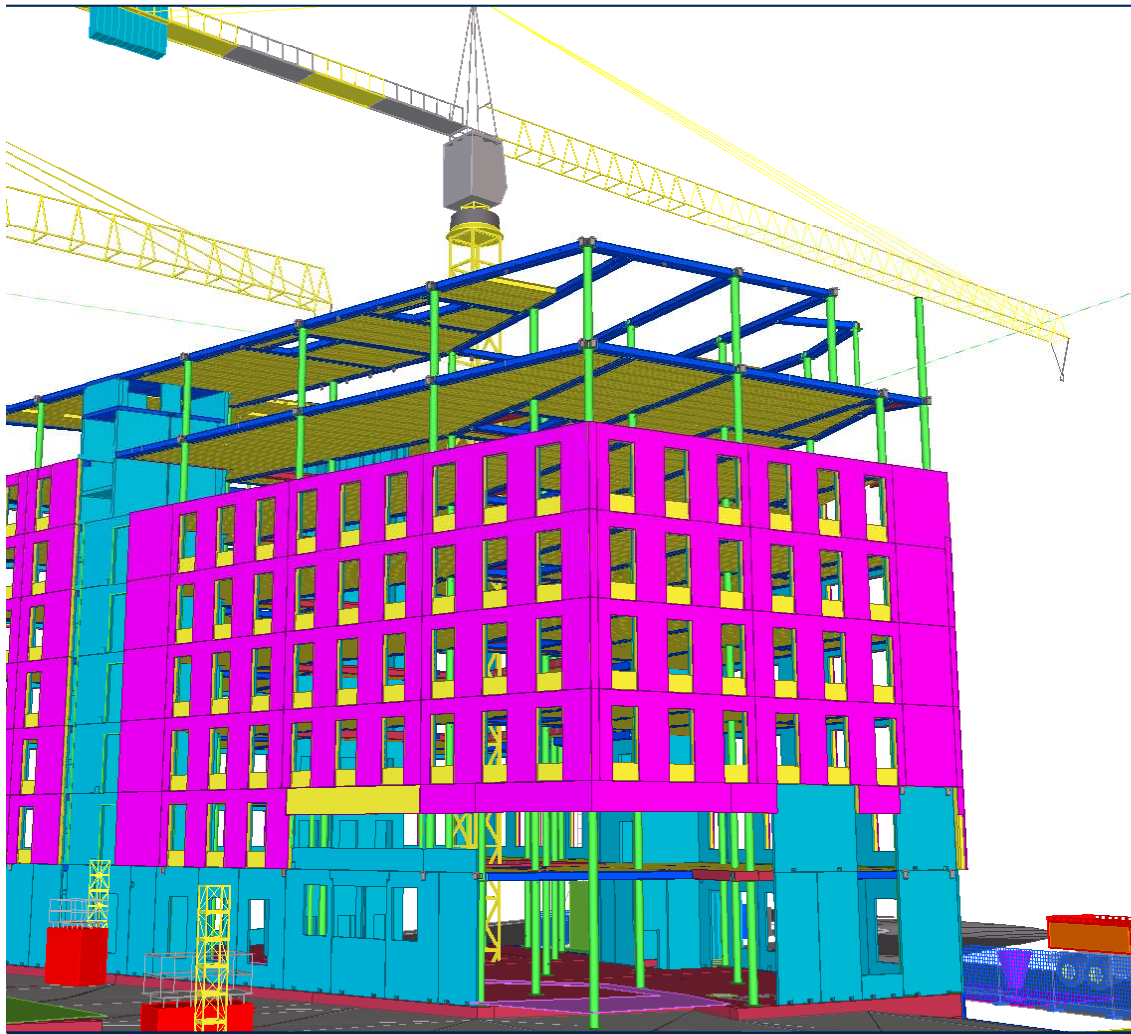
The biggest chance is not the new technology, but the new way of working

- 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!