

IPHA Technical Seminar 2015

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BIM for Precast



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IPHA
INTERNATIONAL PRESTRESSED
HOLLOWCORE ASSOCIATION

in cooperation with
StruSoft

Introduction

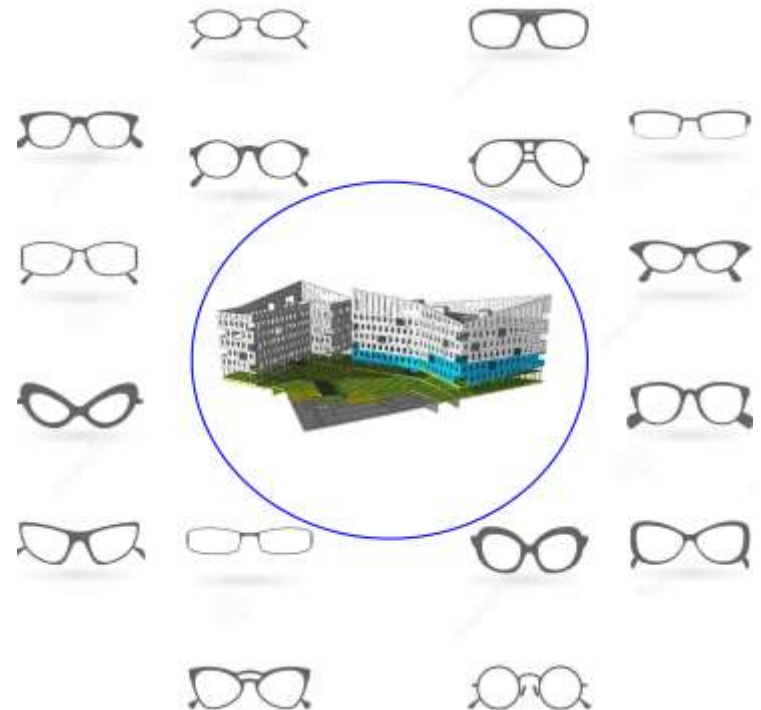
- **The BIM(M) word**
 - Building Information Modelling
 - Silent M for Management
 - Managing multi disciplinary processes (companies/people)

- **Focus BIM for Precast**
 - Key to successful implementation
 - Process
 - Design, Project and Production
 - Main process “On Site Project”
 - What’s in it for me?



What is BIM for StruSoft?

- **Sharing BIM data between Design, Production and Project**
 - Share the same data in real time
 - Makes it easier for all the categories to prioritize
 - Model in centre with different views(glasses)
 - All the involved people see the main goal the “on site project”
 - Doesn't require the same mindset



What is BIM for StruSoft?

- **BIM is a way of working not a software**
- **You need to rethink (change) processes**
- **Early 3D models**
 - The skeleton for the planning process
 - The backbone from tender to design, production and erection
 - First rough and later on add details
- **Reversing the process**
 - Start by planning site erection
 - Step backwards through the time for production and shop drawing delivery



What is BIM for StruSoft?

- **Information comes in many formats to a precast factory**
 - ArchiCAD, Revit and Tekla etc.
 - A big risk when taking it on high level is that it's not trustworthy
- **We see reading it from the source is needed**
 - Converting to native objects via IFC is not reliable enough
 - Plugins into the software the data is born is more reliable
 - We believe that the IFC shall be used as a reference



What is BIM for StruSoft?

- **Real time sharing is the base of BIM**
 - Data changes frequently
 - Weekly snapshots is not good enough
 - Common storing gives flexibility
- **The Precast process**
 - Is iterative
 - With manual snapshots you loose time and quality
 - Requires online data connections

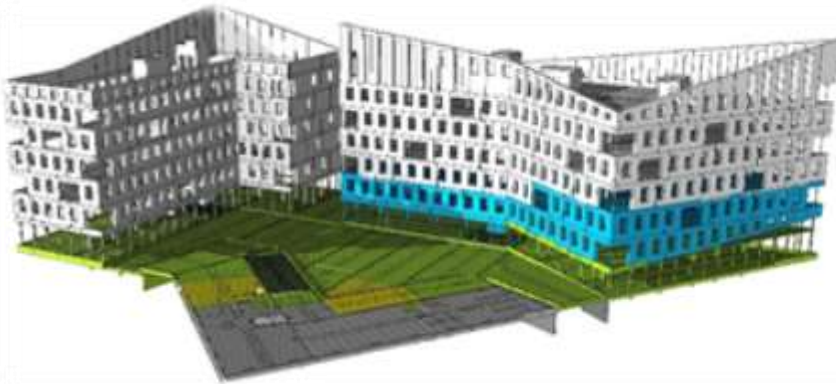




”Malmö Live” Snapshot April 5, 2013

What is BIM for StruSoft?

- **Outsourcing of services**
 - Common language needed
 - 3D model is the structure in the language
 - Bind information to the model
 - Different countries is involved
 - Project in one country production in another
 - Common data storage needed



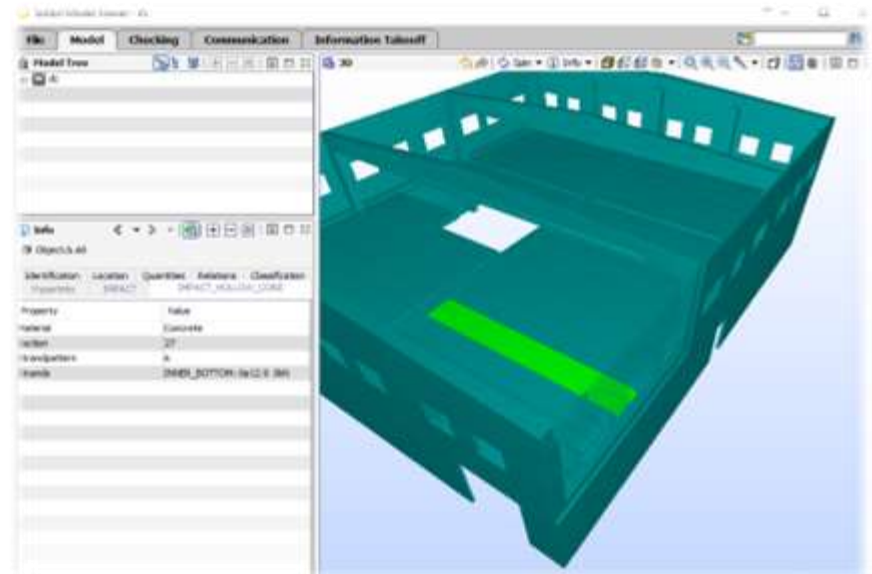
What is BIM for StruSoft?

- **Right information in right time**
 - Relevant for each person or category
 - Snapshots requires continuous updates
 - Work on real time data
 - Production picks their own Bill of Materials based on this weeks planned molds from the BIM database



How can StruSoft tools be used today?

- **In to the Precast process**
 - AutoCAD used as external references
 - Revit or Tekla models through native plugins
 - IFC files through Revit or Tekla interfaces
- **Inside the Precast company**
 - Interaction through our BIM database using different interfaces
- **Out to the main process**
 - IFC files for clash control
 - IFC files with property sets
 - Element information
 - Component information
 - Planning dates and status



How can StruSoft tools be used today?

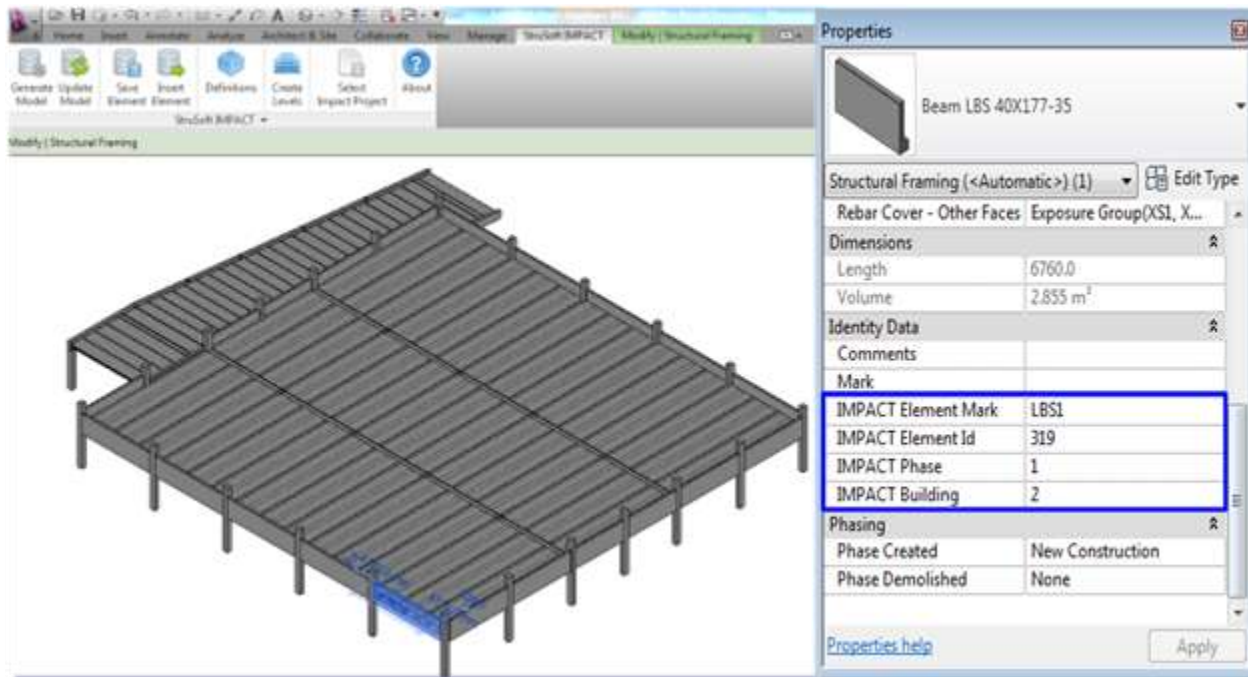
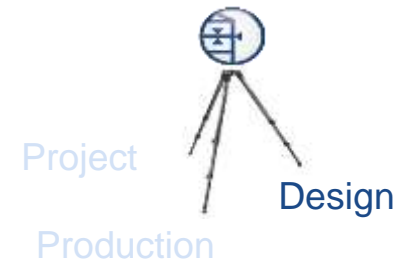
- **Design starts by making a rough 3D model**

- Rough?

- Not all element connections are solved
- No shop drawings are produced

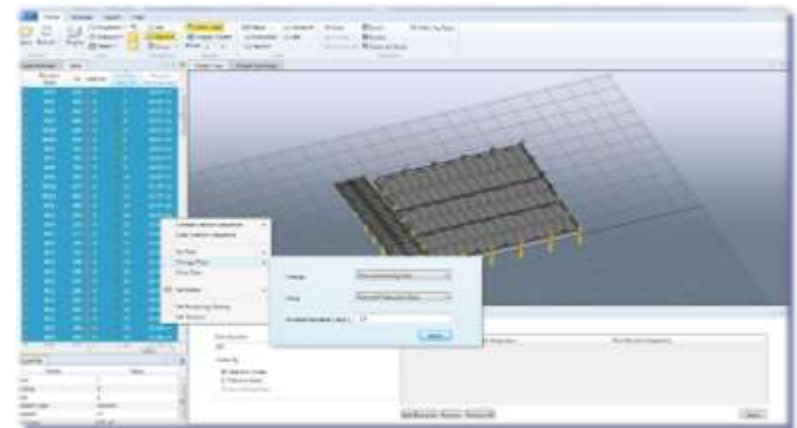
- Using the IMPACT base tools plugins into AutoCAD, Revit and Tekla

- All connected to the IMPACT BIM database



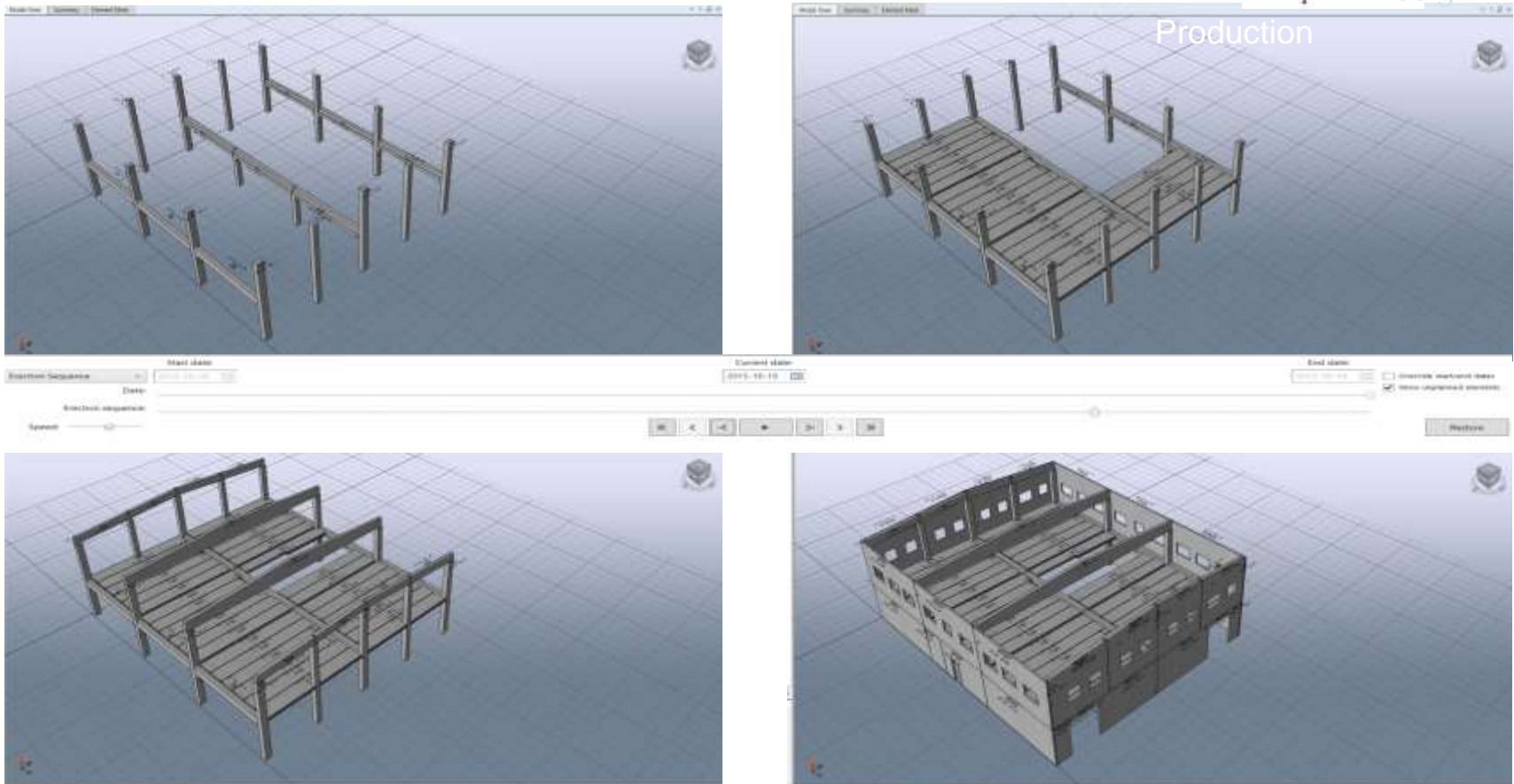
How can StruSoft tools be used today?

- **Project then continues to make the rough planning**
 - Use design rough 3D model
 - Start by planning the site erection
 - Steps backwards in time for delivery/transport, storage and production to planned drawing date
 - Use a model based software Project Manager that interacts directly with the IMPACT BIM database
 - Common platform for design, project and production
 - Simulates time and erection sequence
 - Check with project cranes to plan the erection



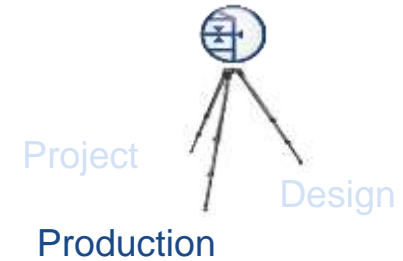
How can StruSoft tools be used today?

- **Simulate and analyze in the planning stage**
 - See the problems virtually before the actual production

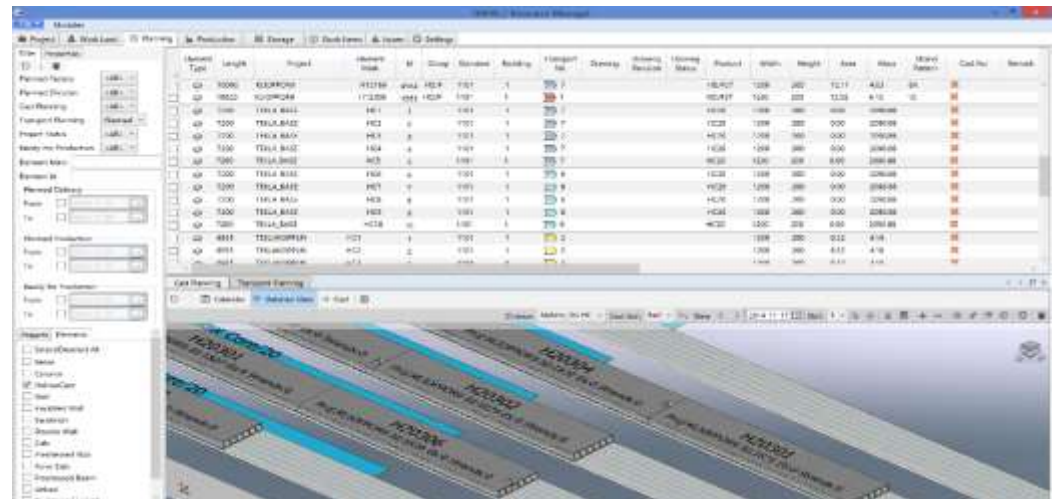


How can StruSoft tools be used today?

- **Production continues with the fine planning**
 - Use time frames from the rough planning
 - Simultaneously design work with detailed design
 - Plan their molds and beds to be as effective as possible
 - Coordinate with storage and transportation
 - Use a factory based software Resource Manager that interacts directly with the IMPACT BIM database
 - Use Element Tracker (mobile app) that interacts directly with the IMPACT BIM database

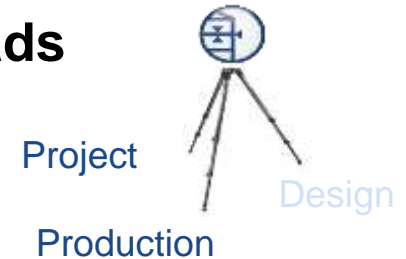


- To report storage location
- To set as loaded
- To Reject element



How can StruSoft tools be used today?

- **Plan your transports and visualize the truck loads**
- Get complete overview of the project
- Share with transport company
- See the corresponding item in the model

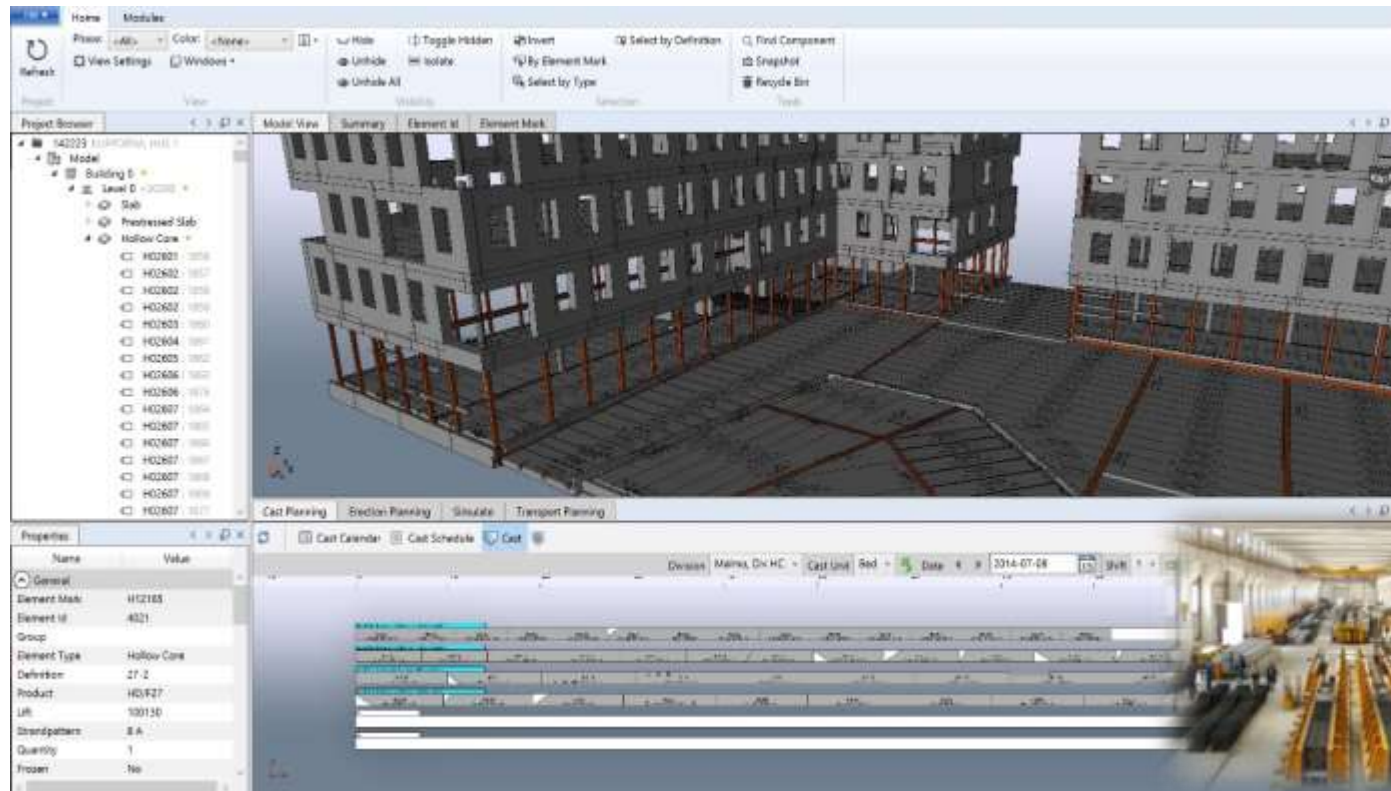
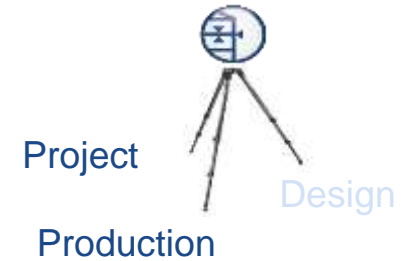


The screenshot displays the StruSoft software interface. The top menu includes Home, Modules, Export, and Help. The main workspace shows a 3D model of a building with various colored blocks representing different transport paths. The left sidebar shows a Project Browser with a tree view of the model structure, including Building 1, Building 2, and various levels and components. The bottom panel features a 'Transports' table with columns for No, Delivery Date, Count, Mass (t), Usage (%), and Status. A 'Stack Sequence' table is also visible, listing items like 'Truck1 48,421' and '1000119 Stack1 24'. On the right, a 3D rendering shows a truck with a trailer carrying a large load, with a forklift nearby.

No	Delivery Date	Count	Mass (t)	Usage (%)	Status
7	2014-03-19 08:00	14	46.09	92	Planned
6	2014-03-19 08:00	13	28.48	95	Planned
5	2014-03-19 08:00	18	48.42	97	Planned
4	2014-03-19 08:00	11	23.41	98	Planned
3	2014-03-19 08:00	23	43.04	97	Planned
2	2014-03-19 08:00	14	28.20	91	Planned
1	2014-03-19 08:00	13	44.50	90	Planned

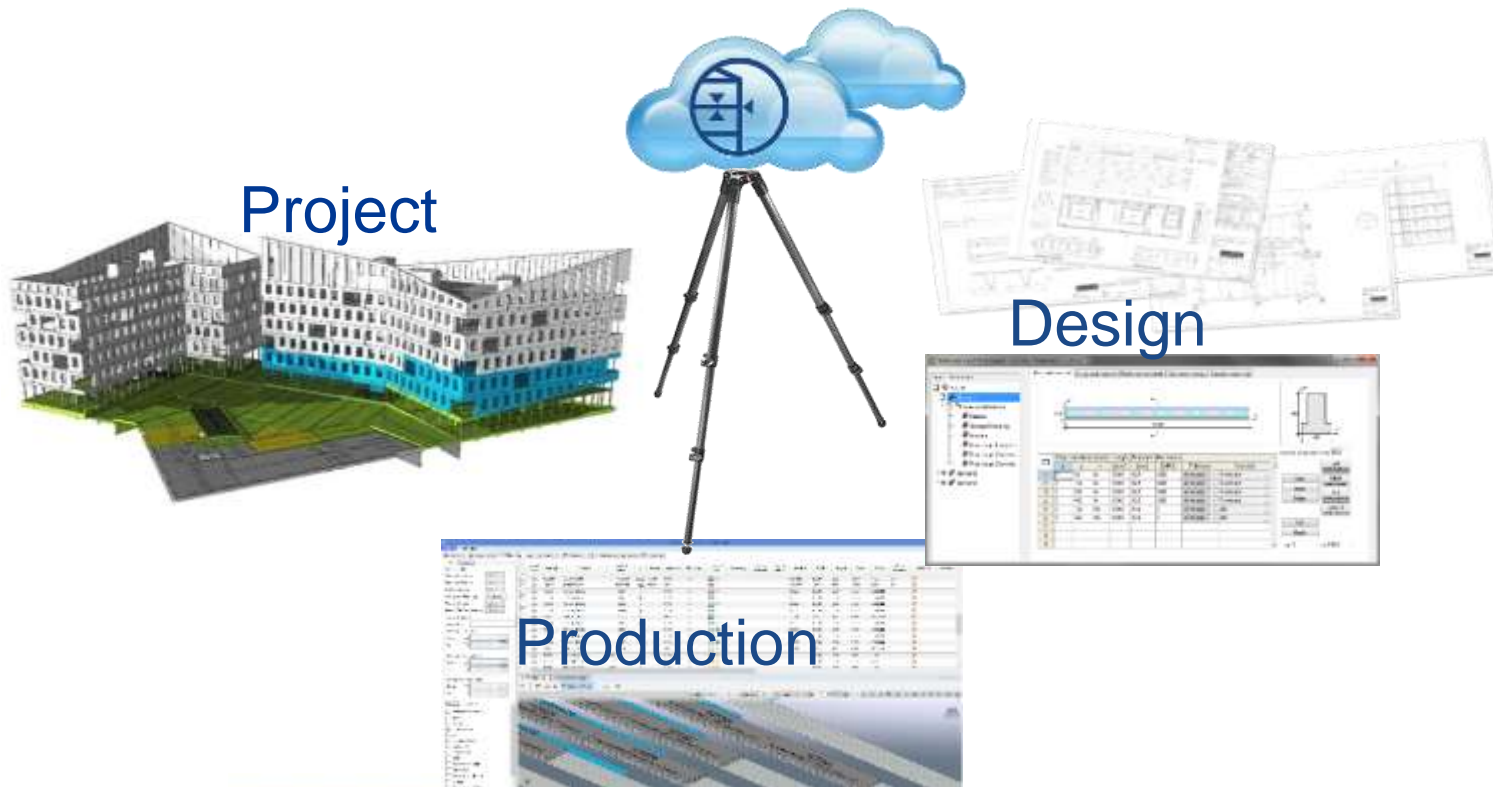
How can StruSoft tools be used today?

- **Plan your cast and visualize your production**
- See the corresponding item in the model



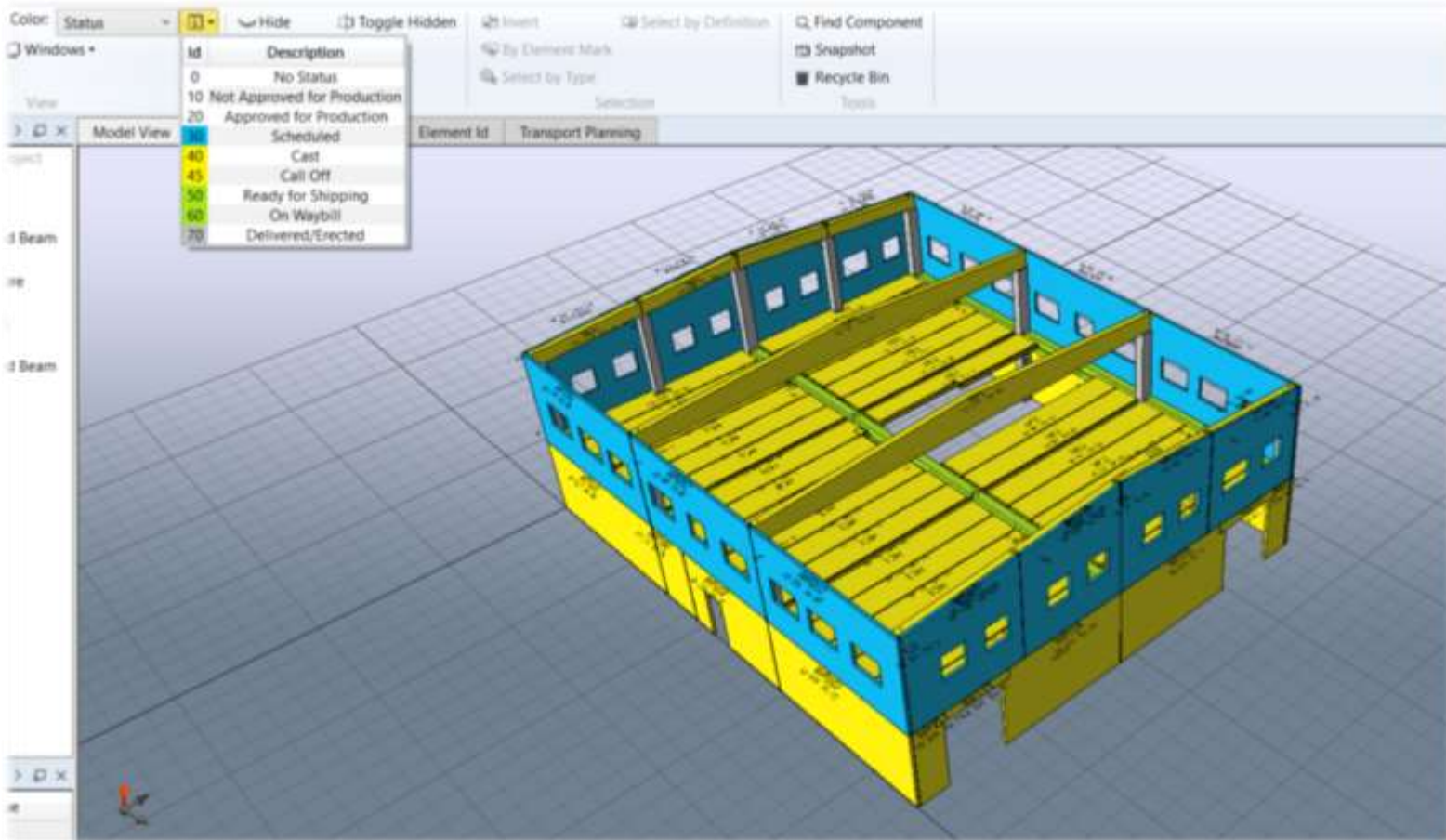
How can StruSoft tools be used today?

- **All involved can follow the main process**
 - Using the Project Manager
 - Follow on status
 - Exception reporting against planned delivery



How can StruSoft tools be used today?

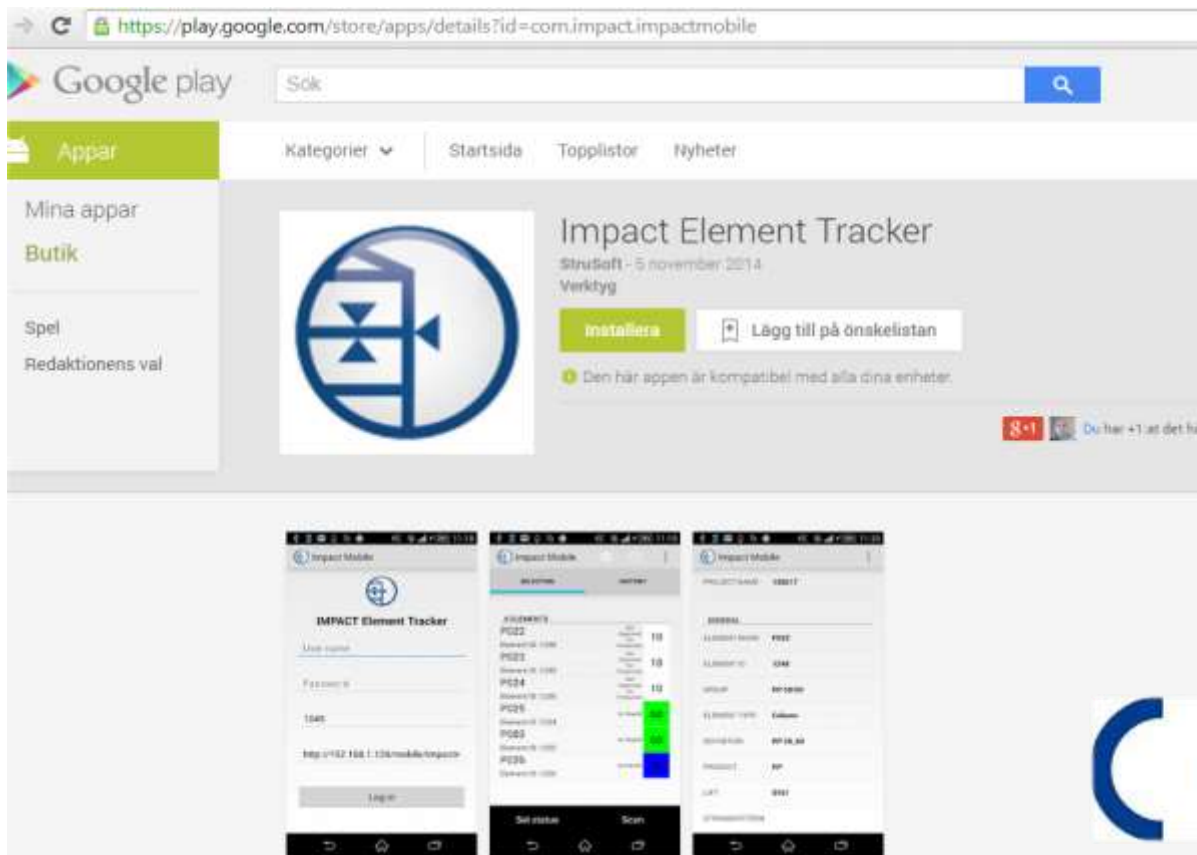
- **Instant visible feedback**
 - for all the stakeholders in the project of the current situation



How can StruSoft tools be used today?

- **IMPACT Element Tracker**

- Traceability that is required for the CE marking
- Works with QR code and Android device with mobile internet



The screenshot shows the Google Play Store page for the "Impact Element Tracker" app by StruSoft. The app is categorized as a "Verktøy" (Tool) and was released on November 5, 2014. It is compatible with all devices. Below the app description, three mobile phone screens are displayed, showing the app's interface. The first screen shows the login screen with fields for "User name" and "Password". The second screen shows a list of elements with columns for "ELEMENT", "STATUS", and "TIME". The third screen shows a detailed view of an element with a table of data.

ELEMENT	STATUS	TIME
PC22	10	
PC23	10	
PC24	10	
PC25	10	
PC26	10	
PC27	10	
PC28	10	
PC29	10	
PC30	10	

The CE marking logo is visible in the bottom right corner of the image.

What is the future of BIM as StruSoft sees it?

- **A plurality of different applications**
 - Cloud connectivity and
 - Open programmable interfaces
 - Creates a fertile ground for a plethora of applications
 - Which provides more benefit to the user
- **Apps joined together with multilinked cloud databases**
 - “The Internet of Precast” if you like



What is the future of BIM as StruSoft sees it?

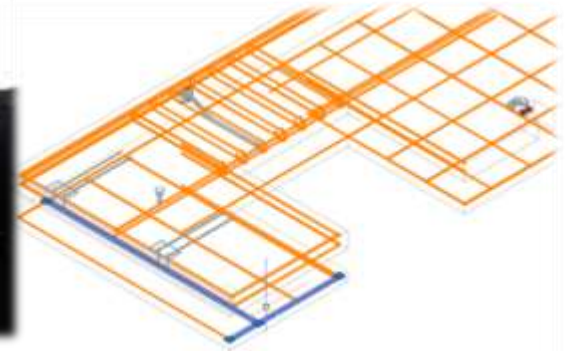
- **Online functionality to the machinery of the production**
 - For instance a designer connects with the interface of the mesh machinery
 - Check the producibility for the reinforcement
 - In real time receive the response in his 3D model for correction
 - Get calculated production time
 - Designer could sit on the other side of the globe



ONLINE

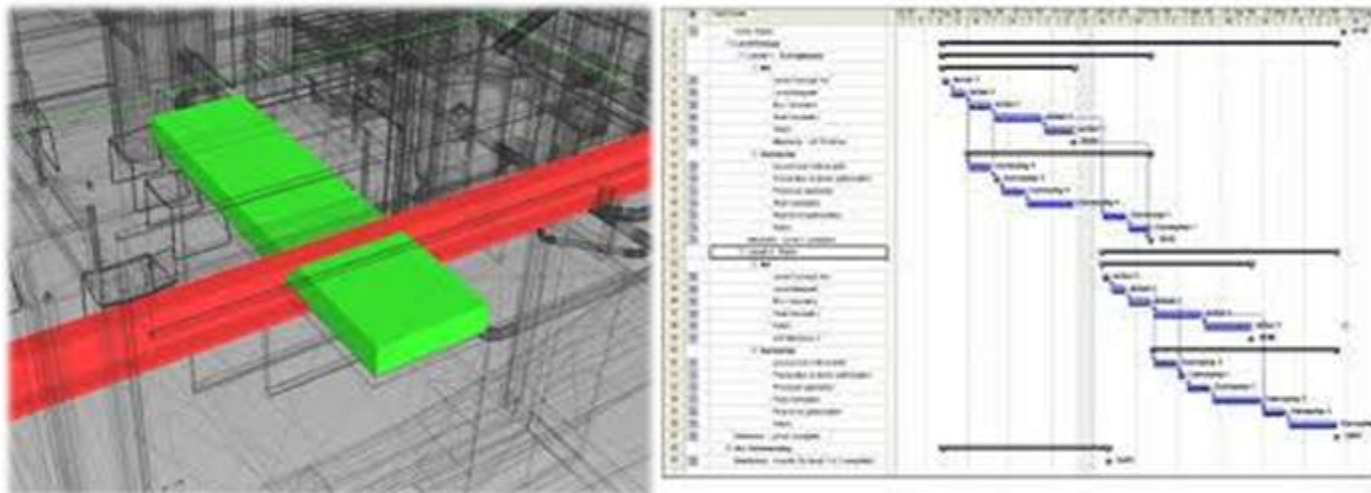


OFFLINE



What is the future of BIM as StruSoft sees it?

- **Today BIM is used to detect clashes in space**
- **Future is to use BIM too see clashes in time as well**
 - Share time information between different systems
 - Setup transports and enables just in time delivery and production
- **The data is online**
 - The precast process
 - Is reliable for planning for hourly precision of production and delivery
 - communicates with real time interface to the main process time schedule



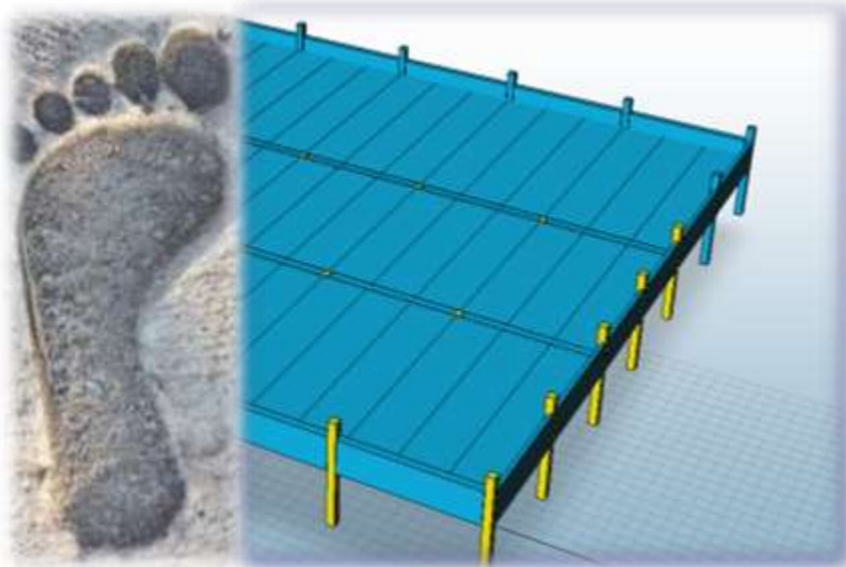
What is the future of BIM as StruSoft sees it?

- **Use it to support outsourcing**
 - Let your consultants connect directly
 - You control the environment in the cloud
 - Instant delivery
 - You can check the progress
 - Share the data needed so that they can make the right decisions for you



What is the future of BIM as StruSoft sees it?

- **Use it with project life-cycle management information (6D BIM)**
 - Environmental footprint of the precast concrete structure
 - Visible for all in the project
 - Don't wait until your customer demands it "be one step ahead"
 - Invite your customer to see your progress and increase your sales
 - Creates awareness among all involved



What is the future of BIM as StruSoft sees it?

- **Use it to buy from your suppliers with greater precision**
 - Ask the vendors for price through the vendors cloud based system
 - Communicate using your high level data directly from your BIM database
 - Let the vendors system respond with price and delivery time
 - Let the vendors system check producibility
 - If the vendor fulfils your expectations, accept and place the order directly
 - Get competitive tendering without long response times





**The future is in the cloud.
Be sure you are ready for it when it comes.**