Get to the Point! Cloud?

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Class summary

Are you thinking about taking that journey into clouds? Are you a bit cloudy regarding what to do with a point cloud once you get there? Learn how to get the most out of your data and software. Discover how to get the job done more efficiently by responding more quickly to data from the field and making improved design decisions using new workflows. Additionally, learn how to use point clouds for clash detection with your 3D design models, and avoid spending time generating unnecessary 3D models of as-builts that are constantly changing.

Presenters Summary

Jeanne Aarhus

Jeanne is known for keeping her training sessions fast moving and fun. She is a nationally known speaker and expert in CAD and presents seminars and workshops on CAD productivity for managers and users in both corporate and academic settings. She has over 30+ years' experience involving production drafting, user support, standards coordination, programming, and training in various CAD applications. She is an independent consultant offering training and implementation services and is certified in several Autodesk and Bentley products. She continues to be actively involved in international, national, and local CAD user groups and received the much coveted Top Ten Speaker award for her presentations at AU. She has been a popular speaker at AU for several years.

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Presenters Summary

Deepak Maini

Deepak is a Qualified Mechanical Engineer with more than 16 years' experience in the industry. Currently working as the National Technical Manager with Cadgroup Australia, he has authored more than 28 books on various CAD packages such as Autodesk Inventor, AutoCAD and the latest ones being on Autodesk Navisworks. He is one of the lead presenters showcasing the latest Autodesk technology at various events all around Australia and a regular speaker at Autodesk University in Las Vegas.

More information about him can be found on his website
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Key Learning Objectives

At the end of this class, you will have the answers to:

- **Why Use Point Cloud Data?**
  - Learn how to use the newest CAD data format available through point clouds
- **How to Use Point Cloud Data?**
  - Learn how point clouds can be used effectively in a manufacturing workflow
- **What are the Benefits of Using Point Cloud Data?**
  - Learn what software works effectively with point cloud data. Discover what you can gain using point cloud data

Overview

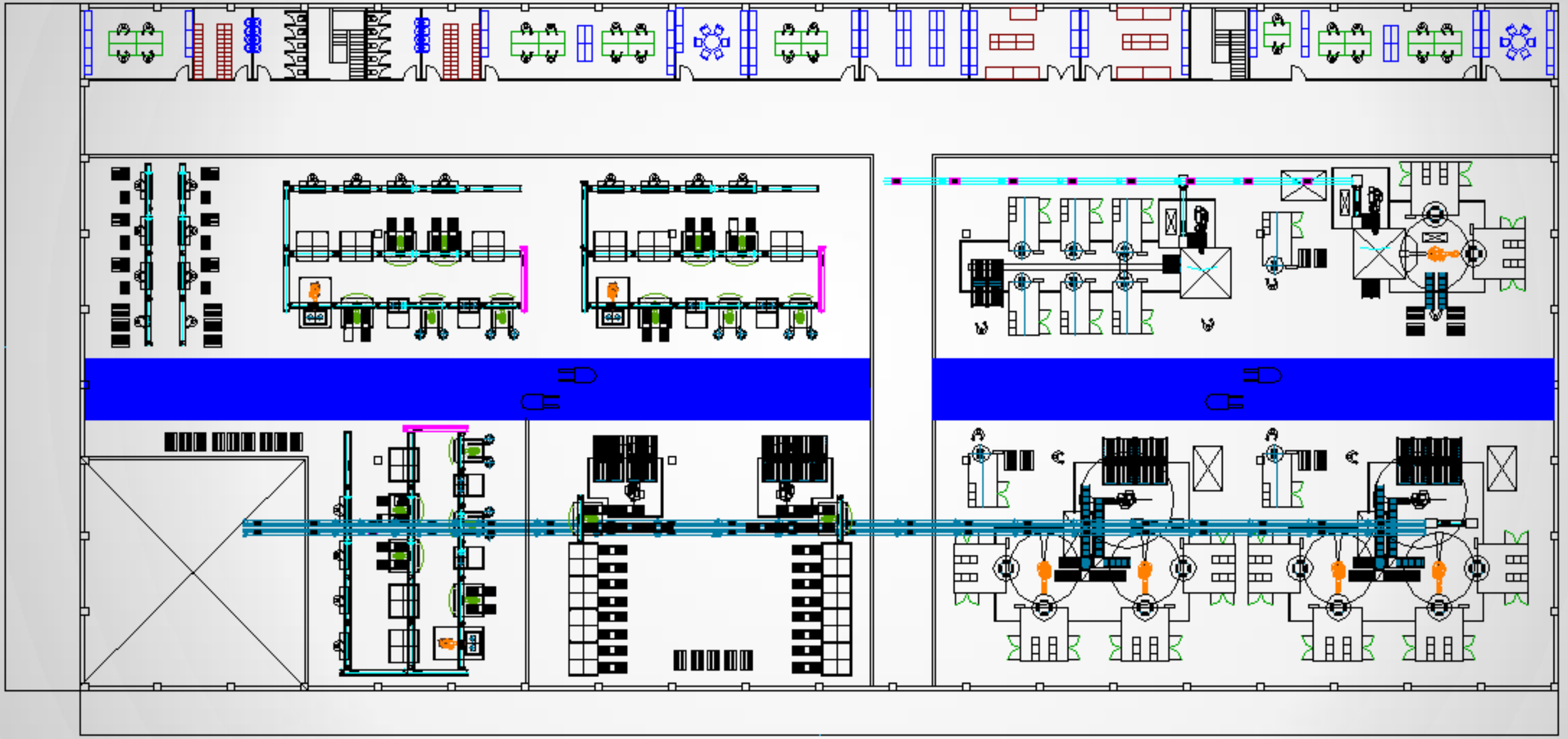
What Software are WE using Today?

- ReCap/ReCap Pro
- AutoCAD 2015
- AutoCAD Architecture 2015
- Factory Design/Assets
- Navisworks

What Software are YOU using Today?

- Are you using AutoCAD for layout work in Factory planning?
- How is production floor space managed and documented today? Any concerns about the accuracy of facilities documentation?
- Are you trying to become more space-efficient in your factories? How will you avoid space conflicts and ensure maintainability of equipment?
- Do you need to improve the design review process because 2D layouts are difficult to interpret for non-technical stakeholders?
- What methods are you using to optimize material flow and processes? How difficult is it to identify bottlenecks?

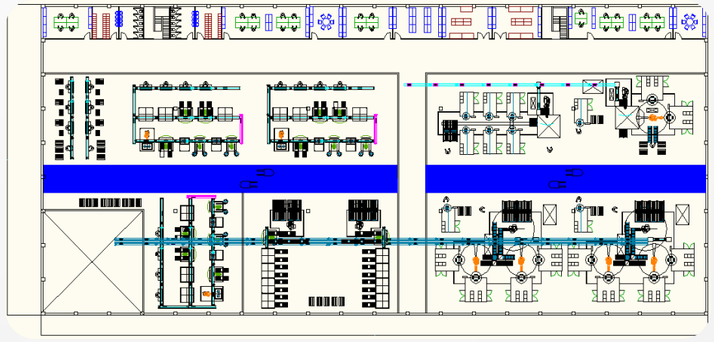
Today’s design process



Most production system or machine-line layout is done in AutoCAD.

Business Challenge

- Unable to work easily with suppliers and partners who have their CAD data in a different design system.
- Not able to clearly communicate design concepts with internal and external teams.
- Spending too much time manually doing tape measurements to capture the “as-built” state of the facility, incurring high Change Order costs.
- Ensure the layout is free of collisions and not violating space constraints before the equipment is installed
- Losing bids with 2D proposals



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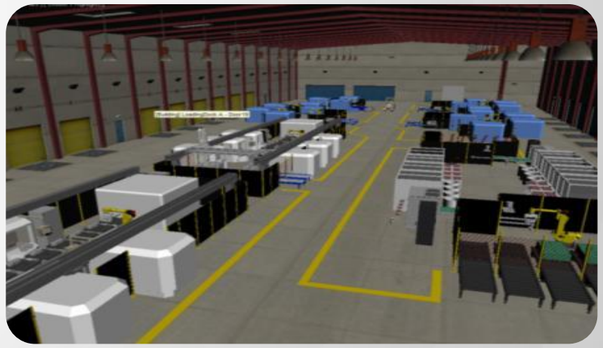


Let’s Talk about the Autodesk Solution

The next generation AutoCAD workflows for factory layout

- Familiar AutoCAD environment with automated workflows.
- Evaluate material flow.
- Improve communication with ACAD / 3D bidirectional workflow.

Extensive library with ability to quickly add new assets

- Immediate productivity by re-use existing AutoCAD block geometry.
- Conveyors, robots, safety fence, material-handling equipment; Smart factory objects that can be resized and edited.

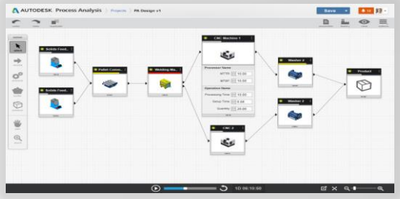
Clearly communicate design concepts

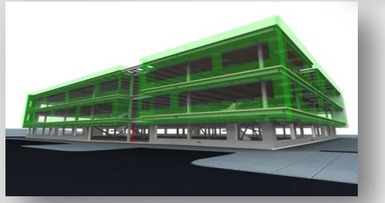
- Review installation with 2D drawings or 3D models of optimized digital factory.
- Include as-designed or as-is facility definition with BIM integration

Autodesk digital factory solutions

Installation & commissioning

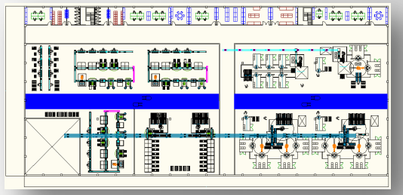
Process simulation

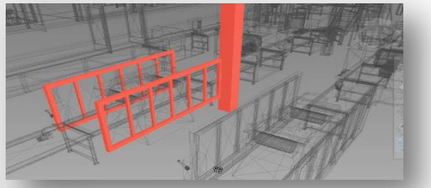




BIM – Building Information Modeling

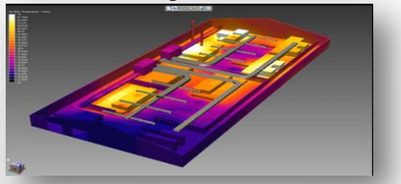
Factory layout





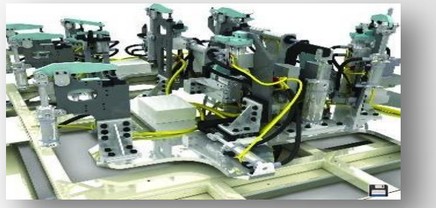
Clash & clearance analysis

Multi-CAD / Point cloud review



Ventilation / Emission / Energy efficiency CFD simulation

Work cell design



Tool & fixture design

Business Benefits

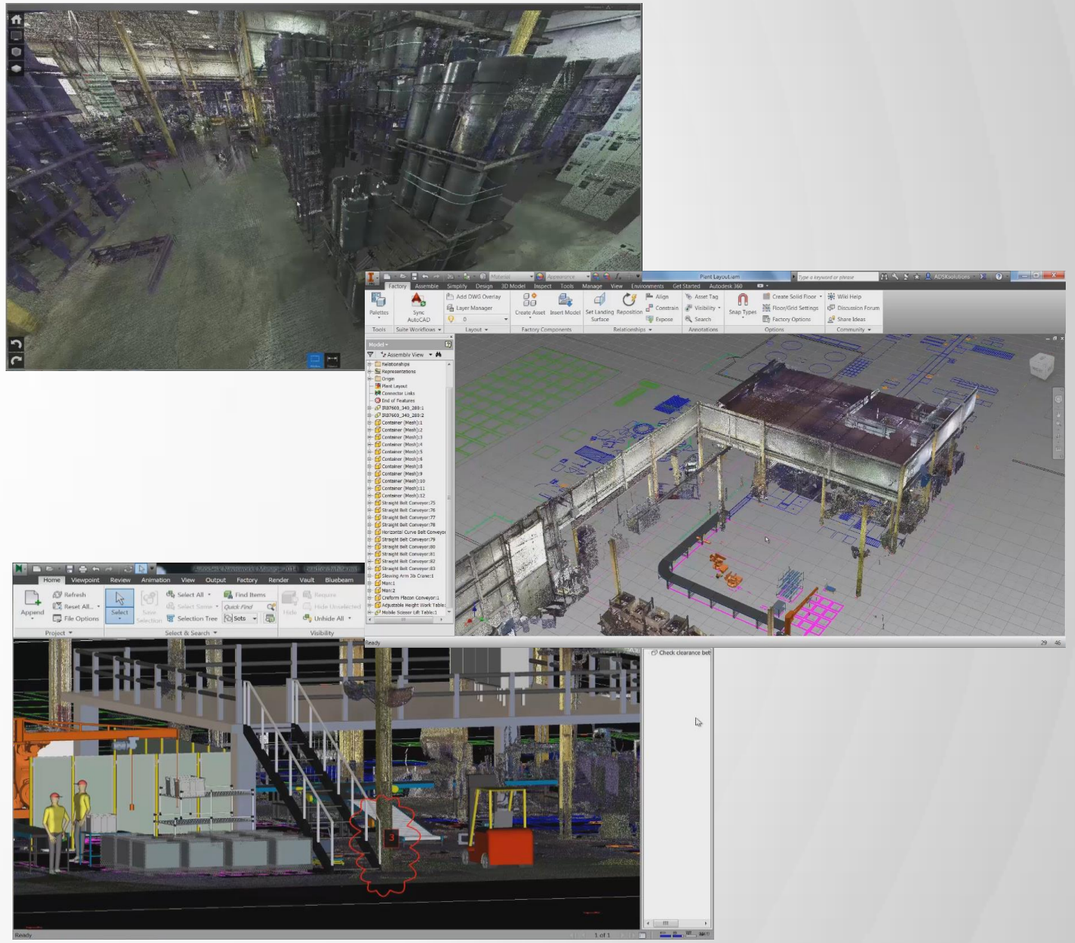
- Achieve higher productivity creating layouts with AutoCAD software
- Avoid common factory line change issues
- Improve the bidding process with better design presentation
- Communicate more effectively with customers and suppliers

Using Real-World Point Clouds

Integrate real-world point cloud laser scan data

Work in context of the actual, as-built state of the facility

- Integrate real-world point cloud laser scan data
- Drastically reduce time spent on manual measurement
- Reduce installation risks

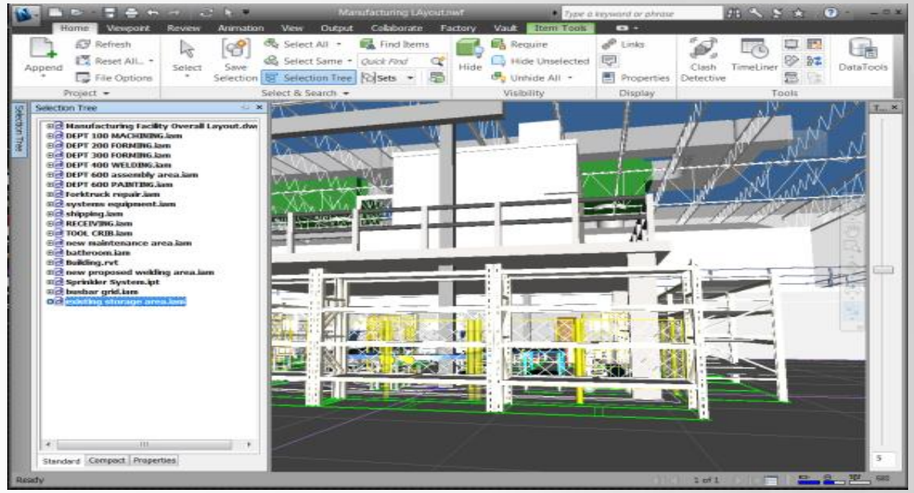


Images courtesy of Bradford White

Engineering Review & Analysis

Effective communication of design principles

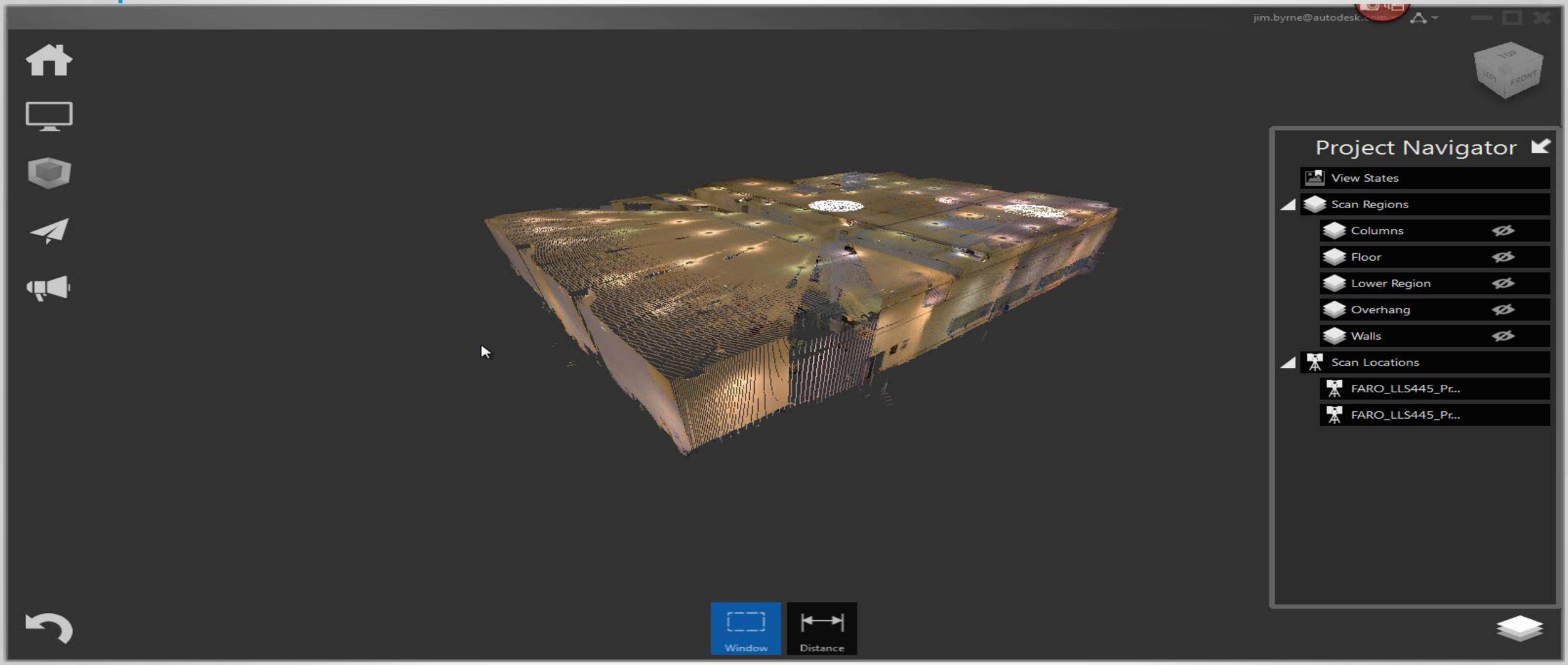
- **Multi-CAD** & point cloud support
- **Communicate design intent** with Visual fly-through and walk-through
- **Clash detection** and **clearance** analysis
- 4D simulation of factory floor equipment **installation sequence**
- **Collaboration** tools for stakeholders without CAD software



How to Use Point Cloud Data?

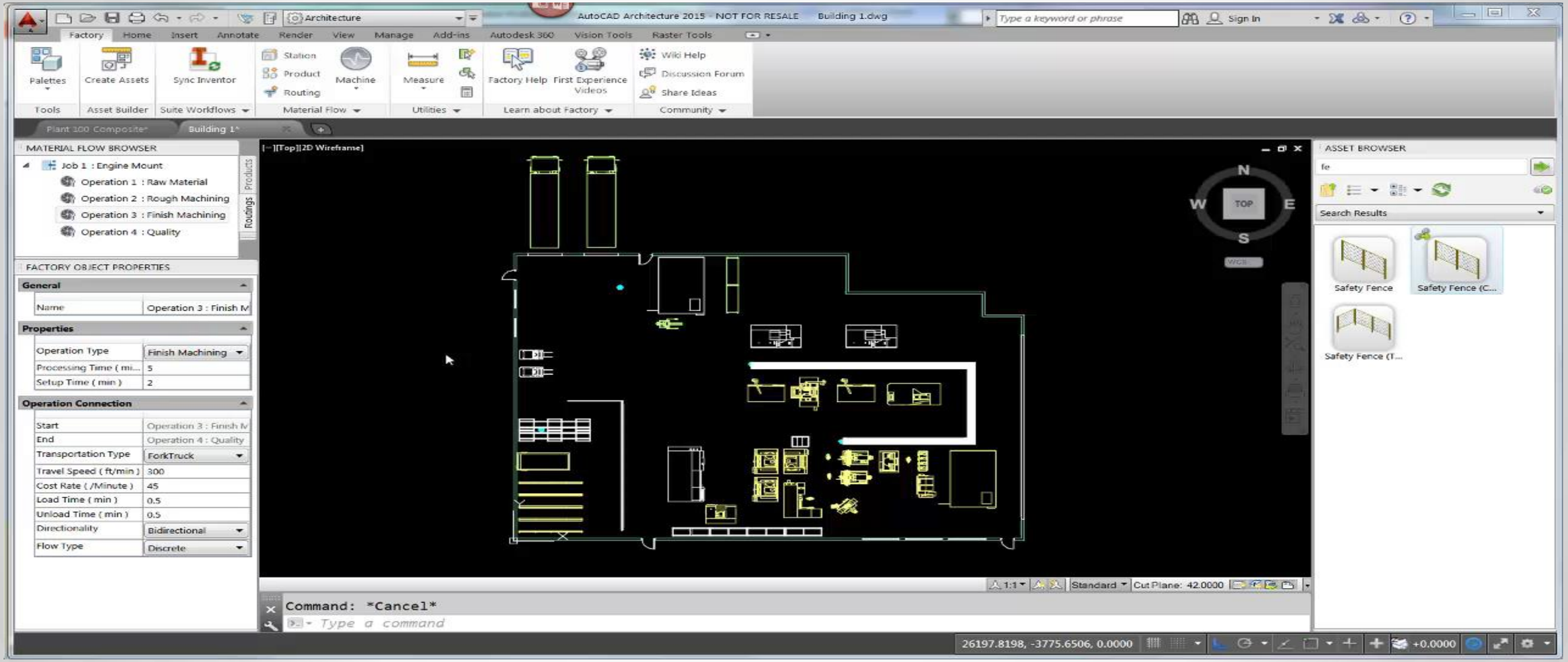
Using Recap/Recap Pro

Capture, visualize, and edit laser scan data



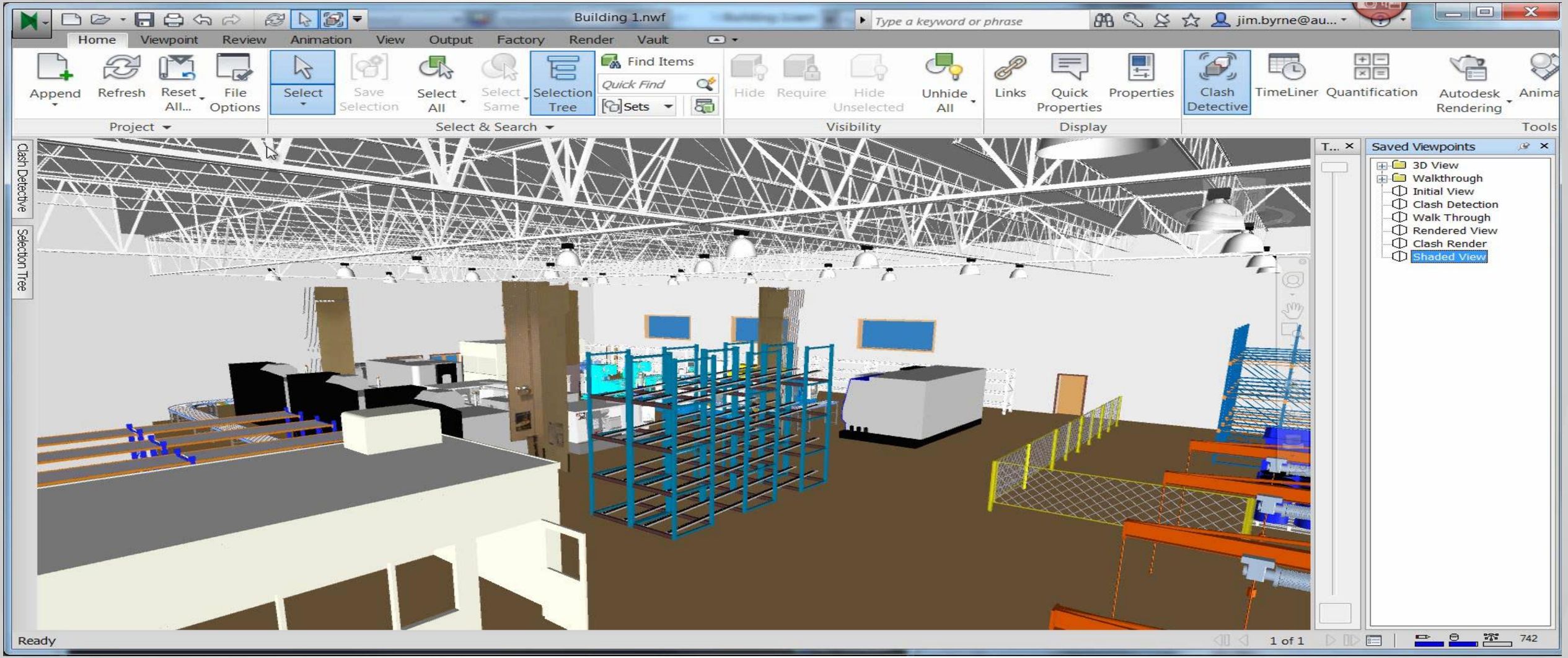
Using AutoCAD/AutoCAD Architecture:

Convert 2D layouts into 3D with a single click



Using Navisworks

Identify collision issues before installation



Questions?

AUTODESK®

Thank You for Attending!

Don’t forget to fill out your Survey….it matters!

We Hope you ENJOYED this trip through

Get to the Point Cloud!