Scan and Layout: Autodesk Paris Office Retrofit with BIM 360 Solutions

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BIM Tech. Sales Specialist - Autodesk
Blog : http://villagebim.typepad.com/

About speakers

- Works as **Civil Engineer** in steel, concrete and timber design,
- Over **19 years of experience** in structural design (8 years in Autodesk),
- My task: engage clients with **BIM** solutions, workflows integrations and developing best practices in 3D visualizations, clash/collision detection and 5D construction simulations,
- French blog writer : Village BIM

About speakers

- Electrical engineer with **20 years experience** in the building, engineering, and construction industry,
- **Involved** in Autodesk's MEP product adoption for 9 years, and he's been in charge of the MEP Fabrication Solutions since Autodesk's first MEP fabrication product release.,
- French blog writer : Village BIM

Class summary

Retrofit the Autodesk Paris office : we will show you how we applied interesting workflows involving some softwares / services and Leica materials.
We will stake out data into the field with a robotic total station and compare as built conditions.

Key learning objectives

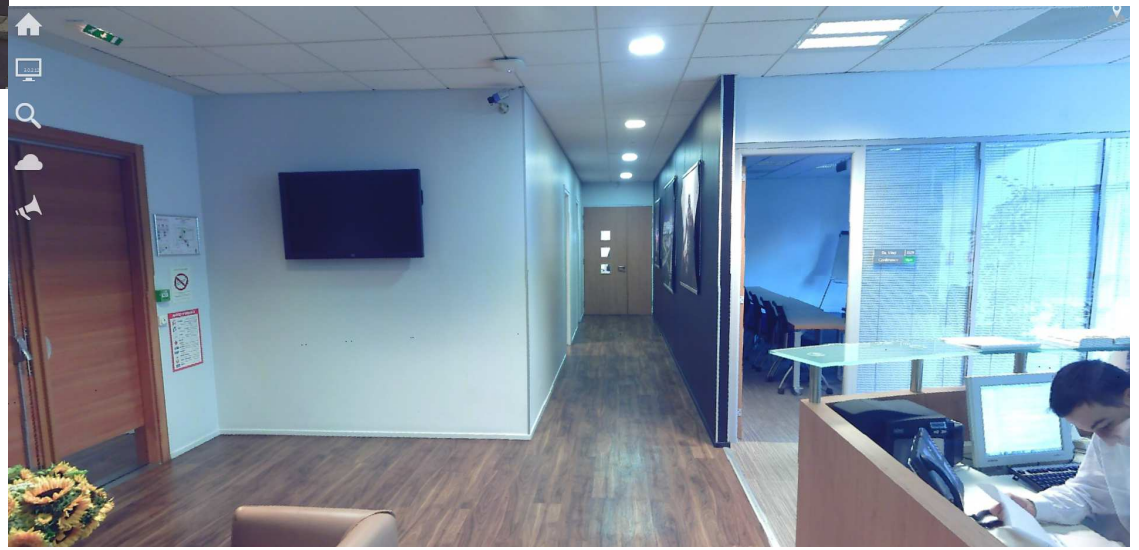
At the end of this class, you will be able to:

- Understand workflow from 3D scan to the field
- Learn how to take BIM to the field with BIM 360 Glue and BIM 360 Layout
- Learn how to value BIM 360 solutions to meet the construction needs
- Learn how to use reality-capture equipment

Session based on a real example

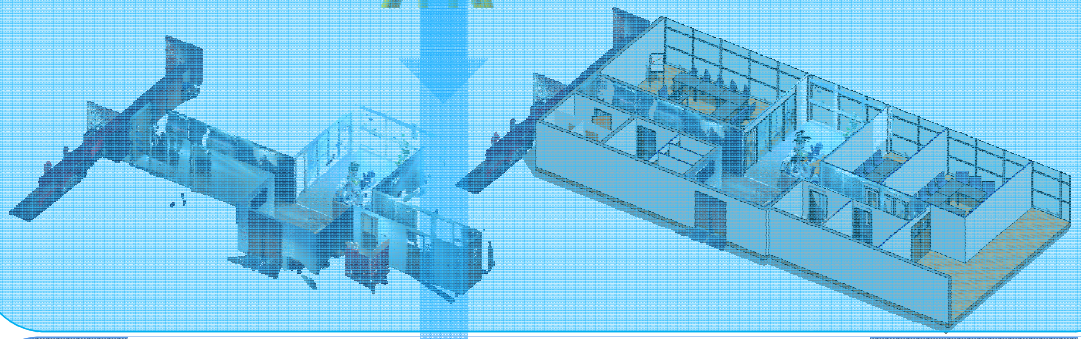
Example presentation (Video 1'03)

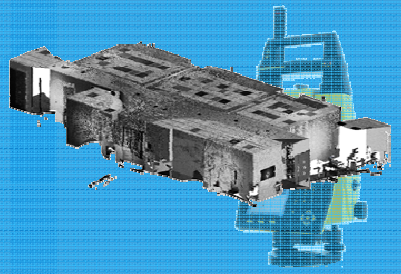
Example presentation



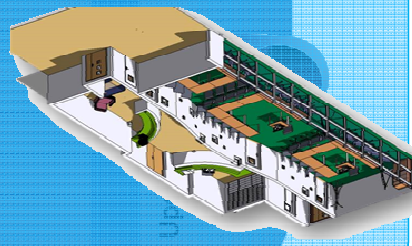
Working process

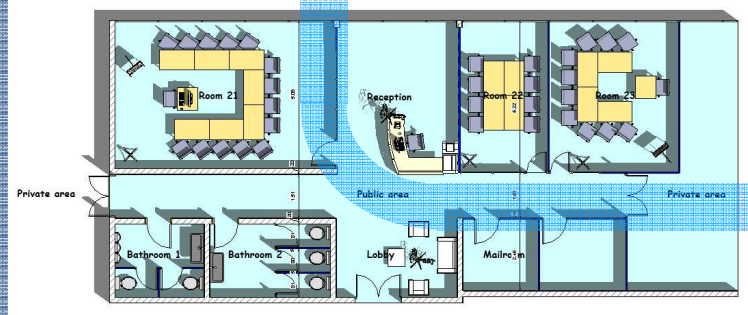
Initials conditions

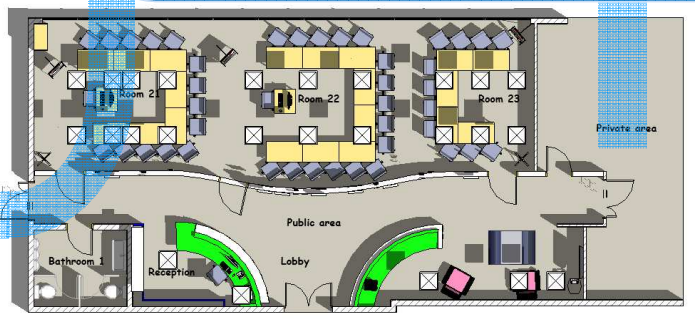




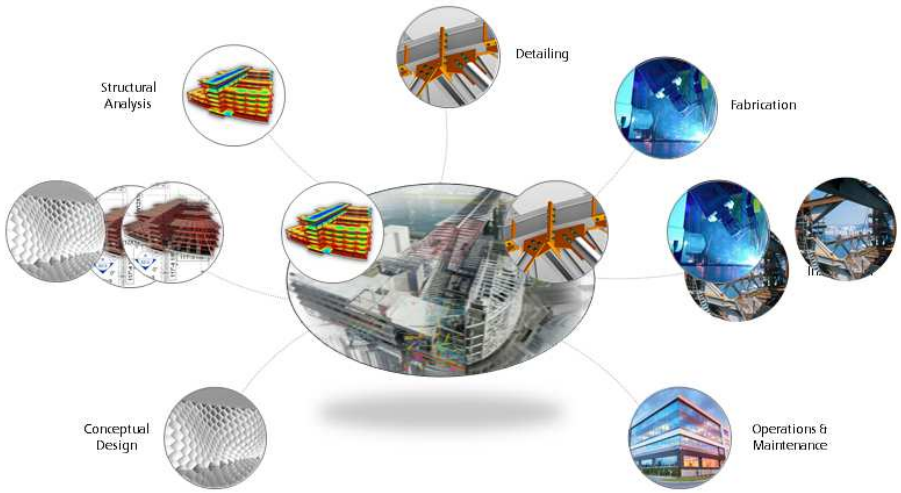
Robotic Total station



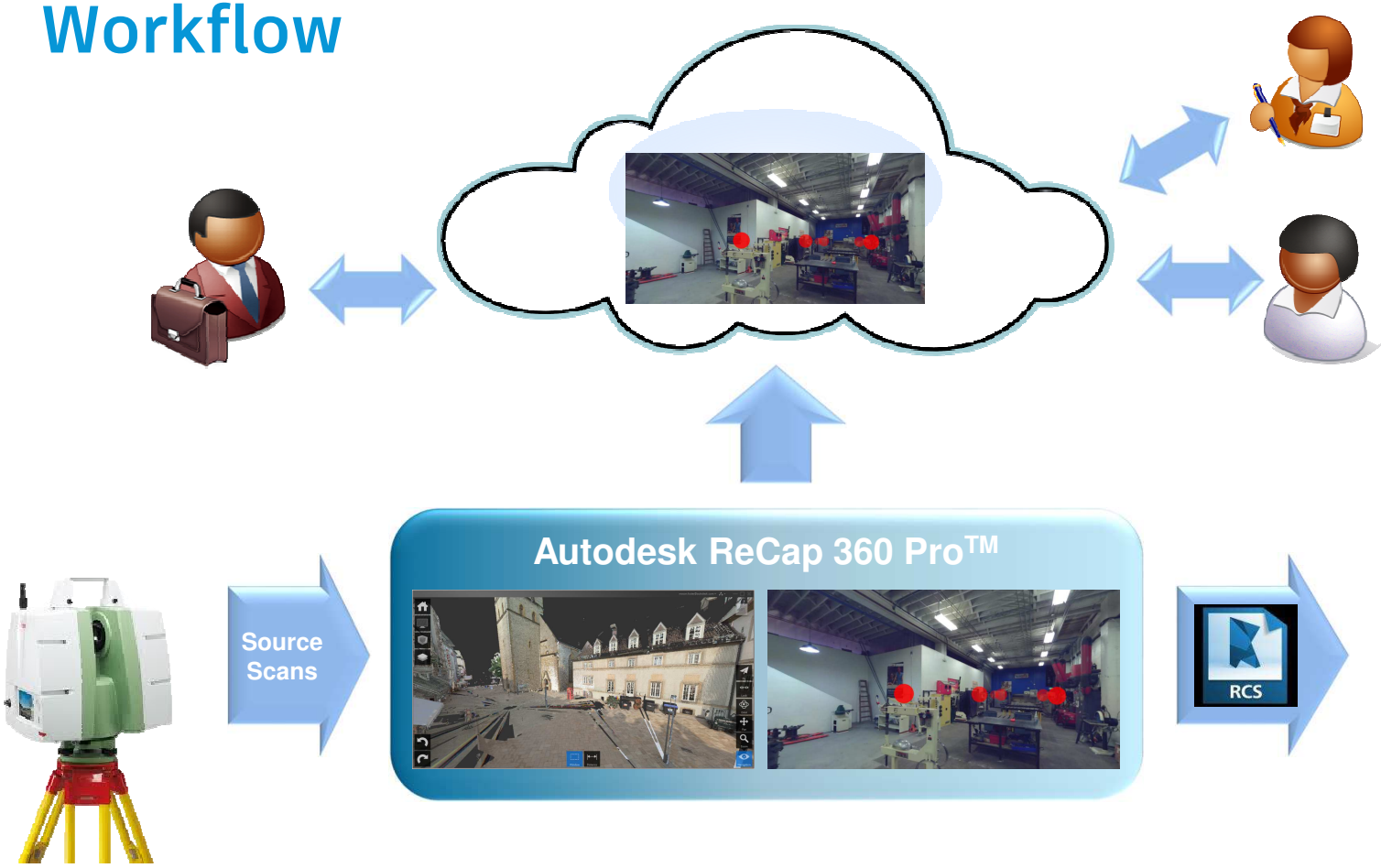




How to bring reality into virtual world



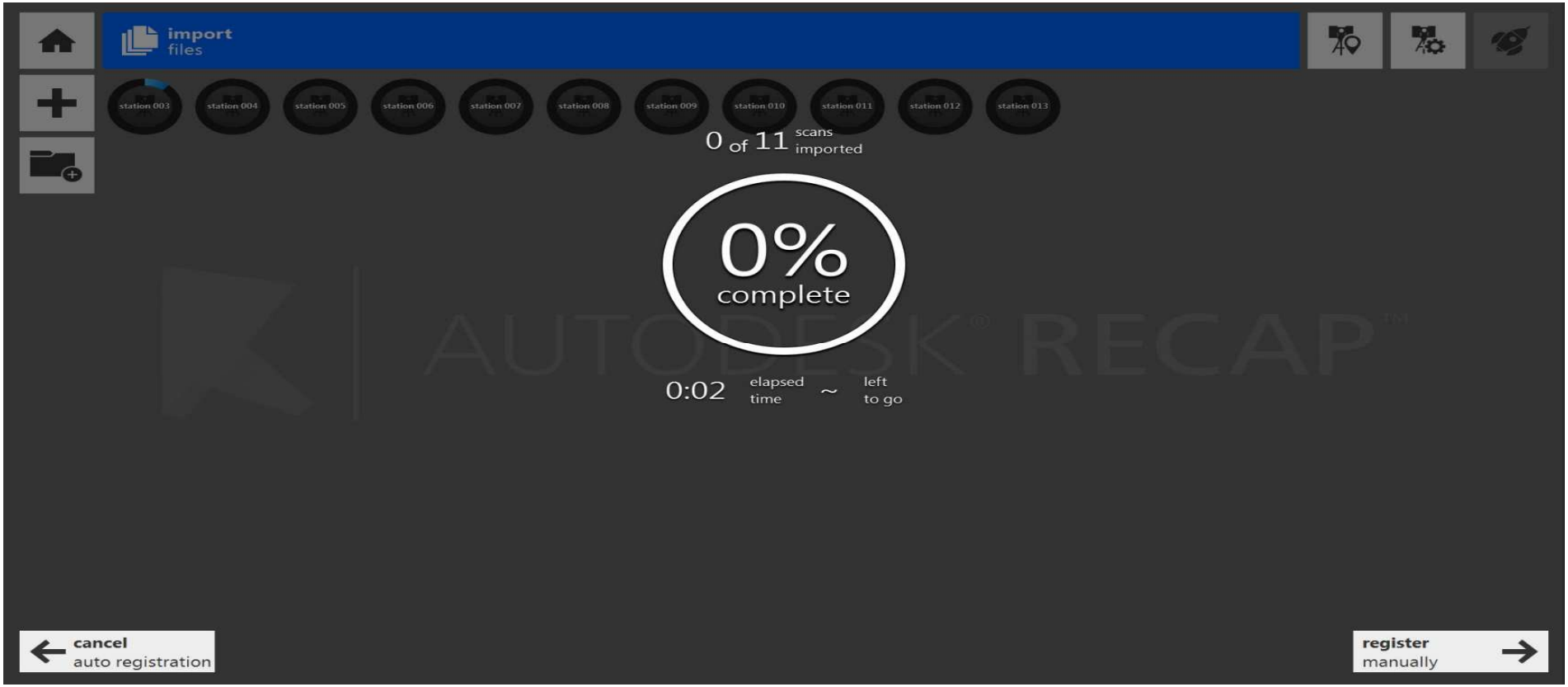
Workflow



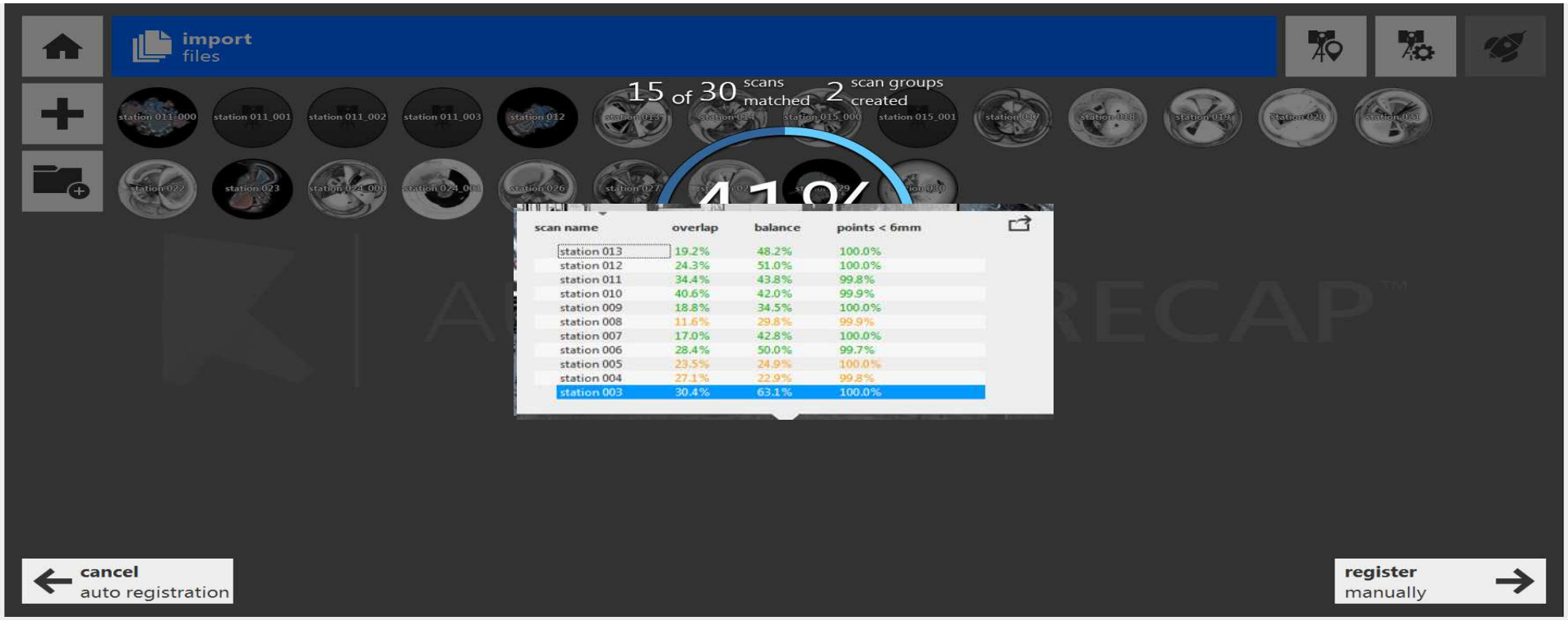
Collect points cloud with 3D scan

Collect points cloud with a 3D scan (Video 1'53)

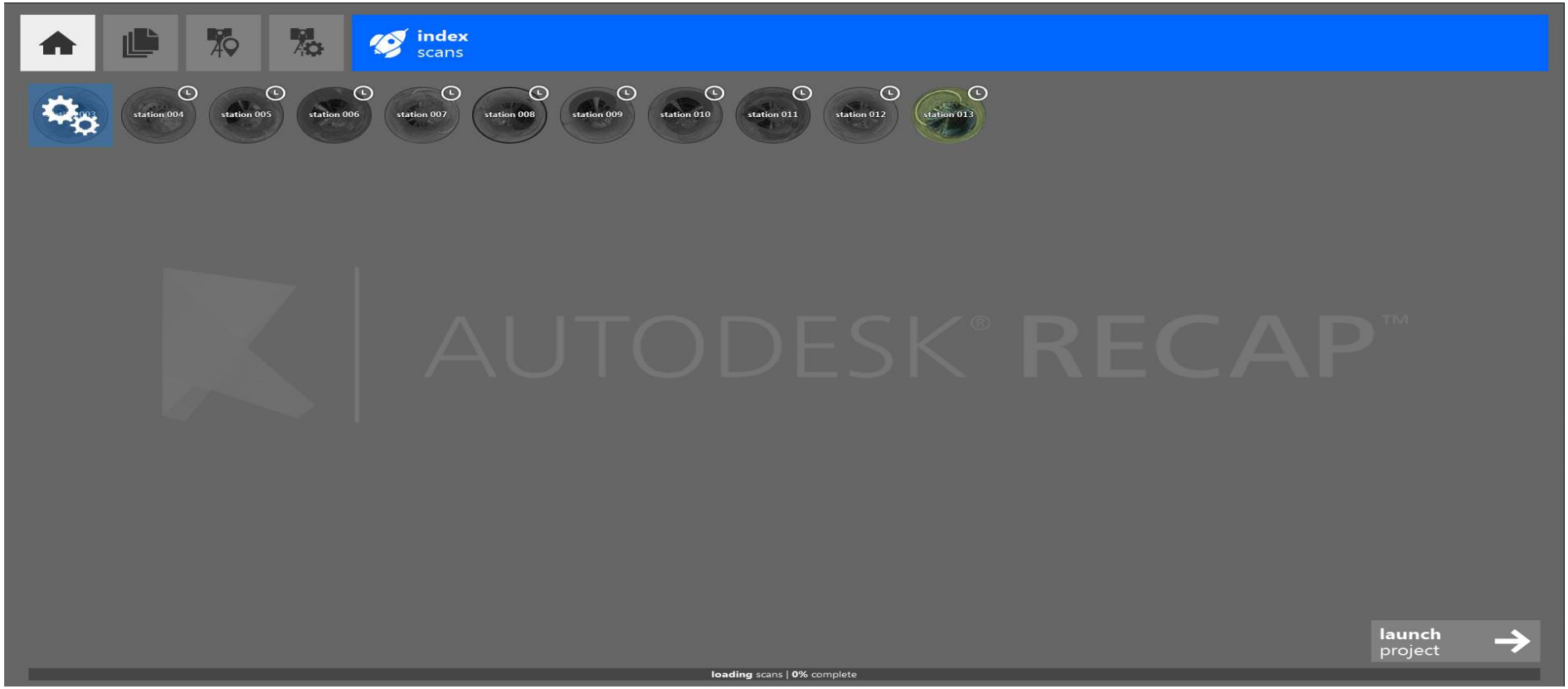
Importation & merge



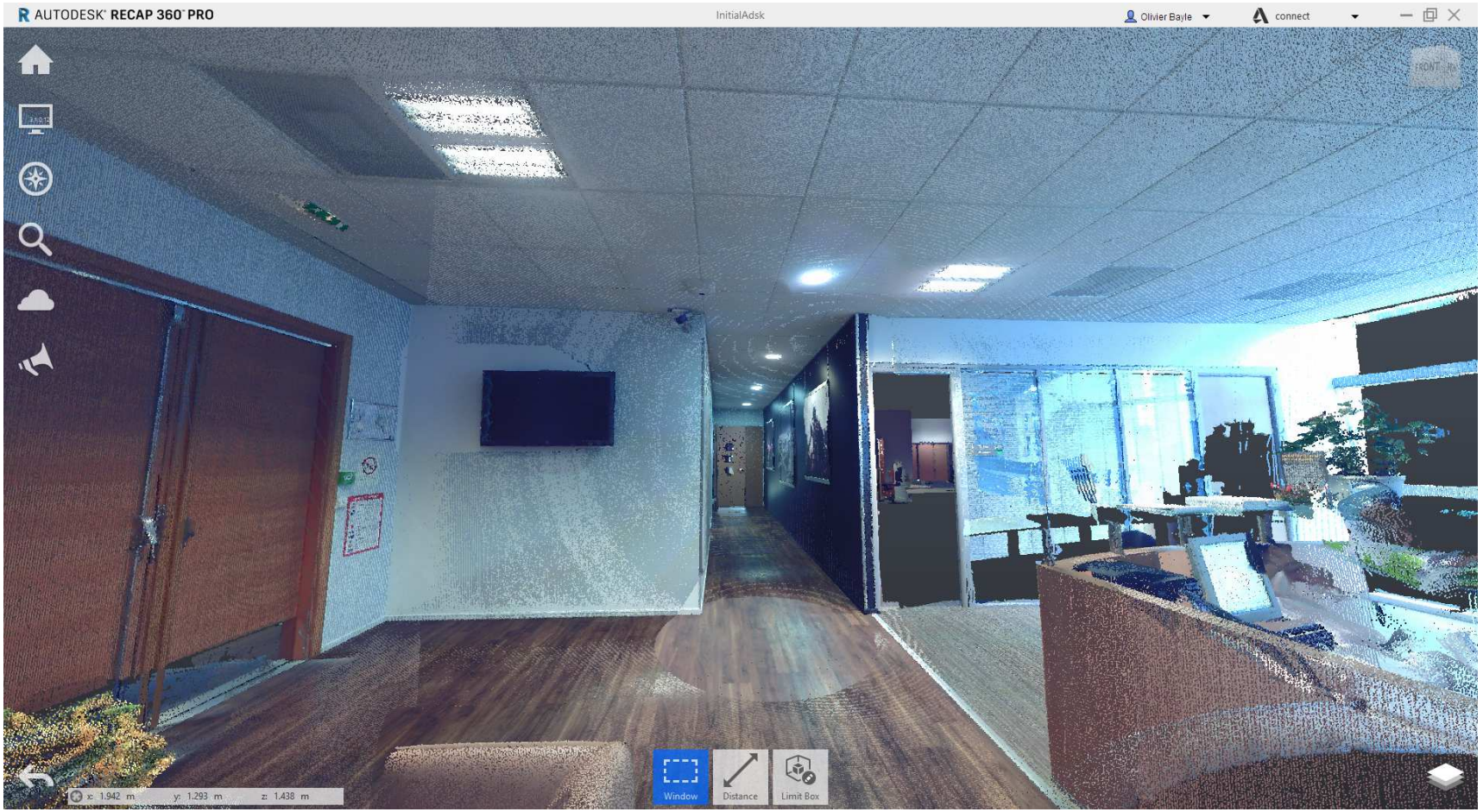
Importation & merge



Indexation


index
scans
station 004
station 005
station 006
station 007
station 008
station 009
station 010
station 011
station 012
station 013
AUTODESK® RECAP™
launch
project
loading scans | 0% complete

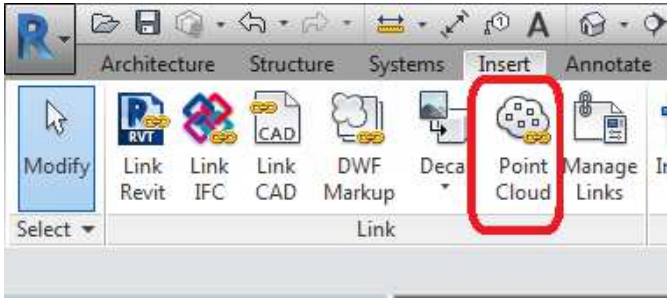
Autodesk ReCap 360 PRO



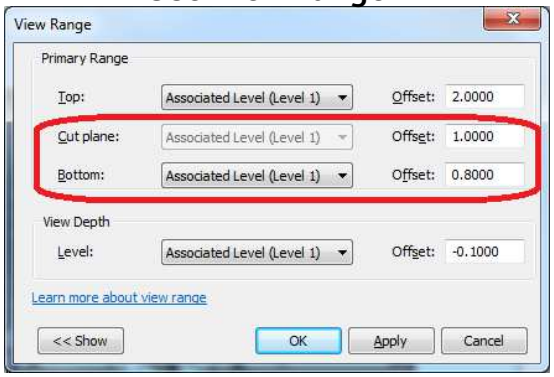
Verification of points cloud

Setup: Points cloud integration into Revit

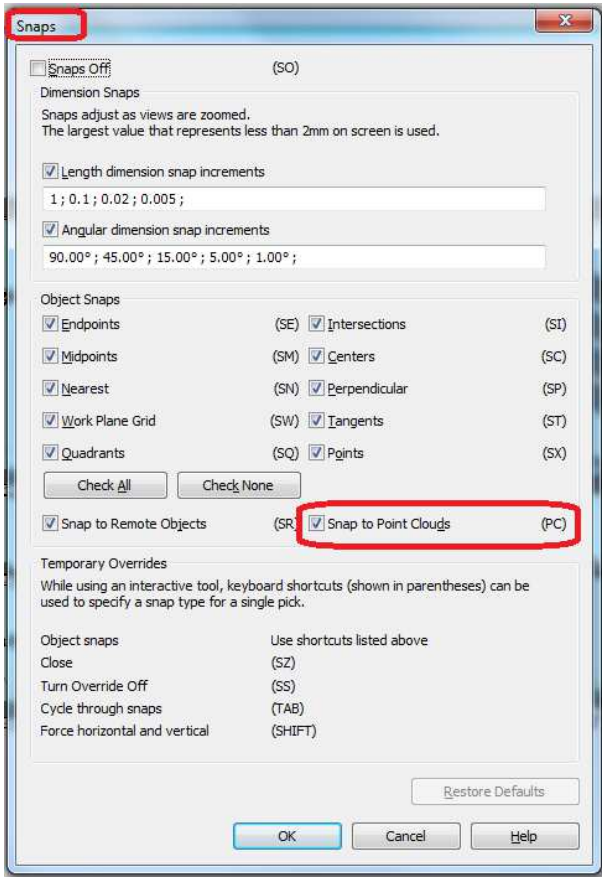
Insert Points Cloud



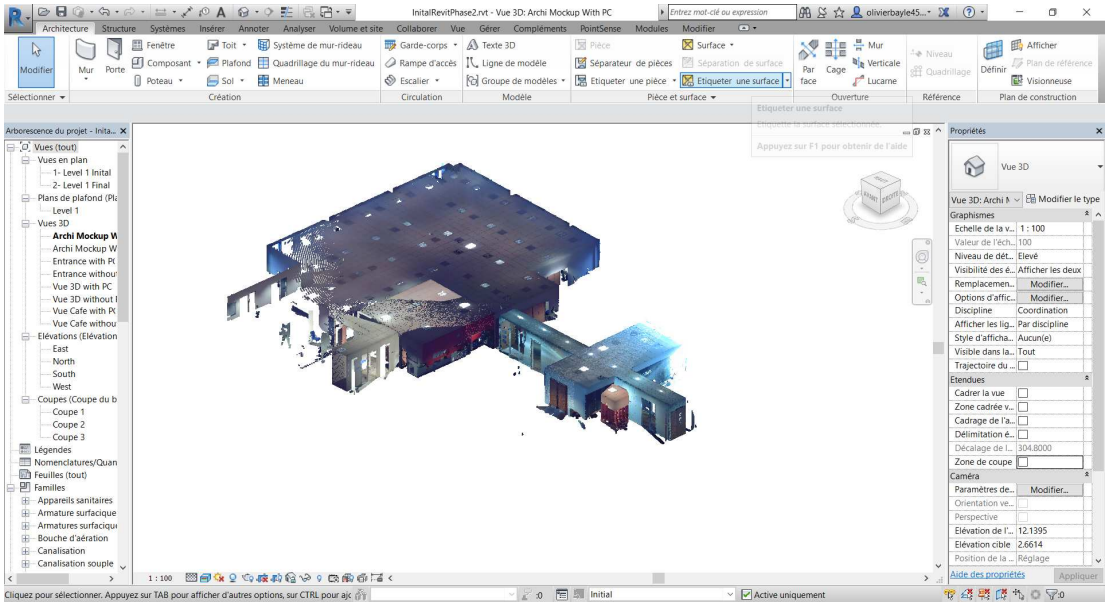
Use View range



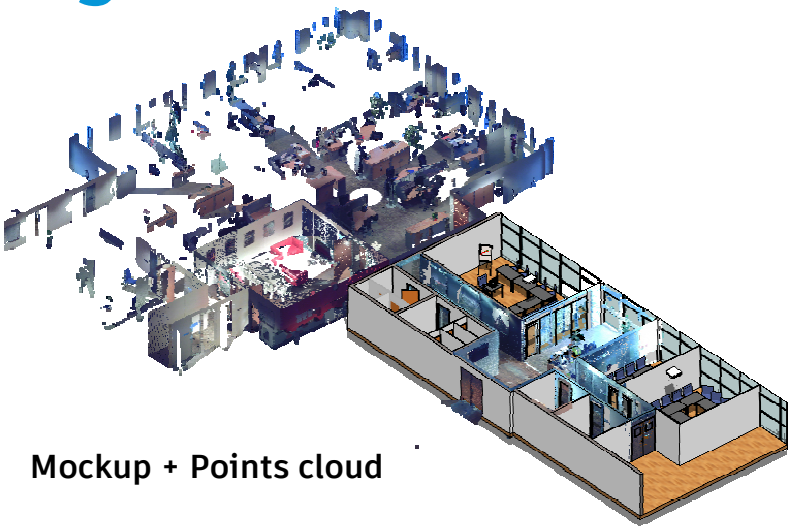
Use Snap Points Cloud



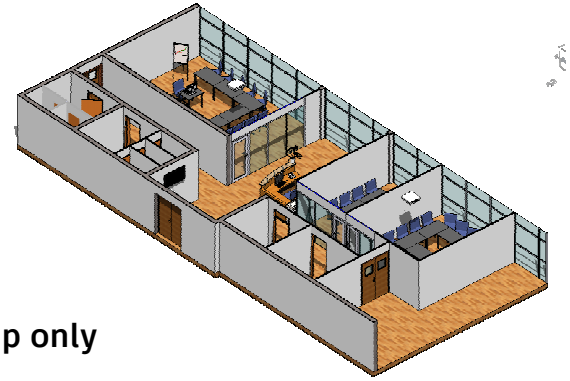
Initial Mockup : Points cloud integration into Revit



Points cloud only

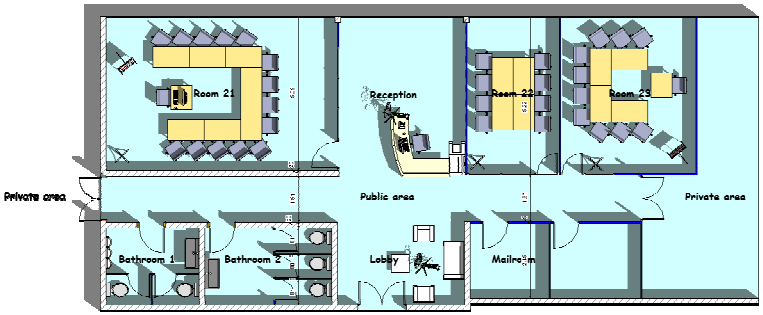


Mockup + Points cloud

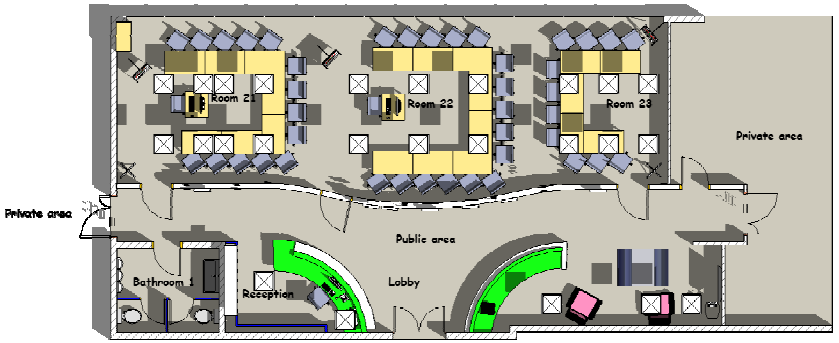


Mockup only

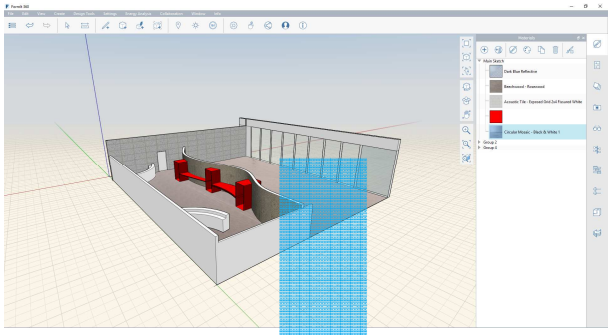
Architectural propositions

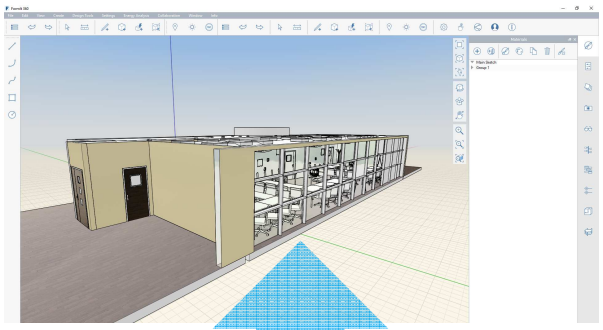


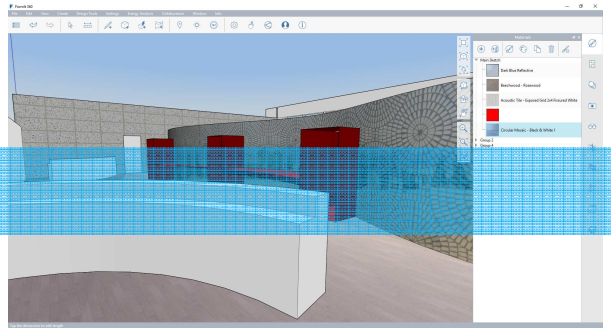
Initial conditions



Final project

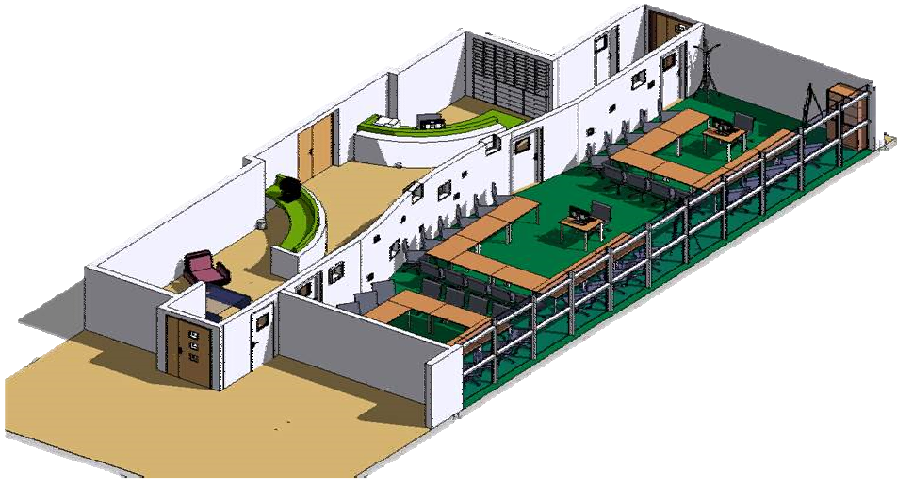


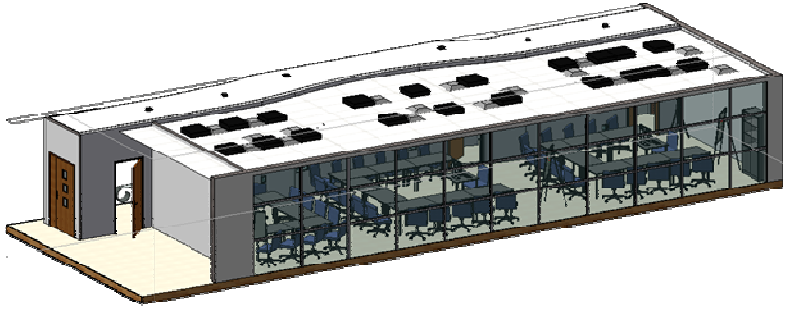


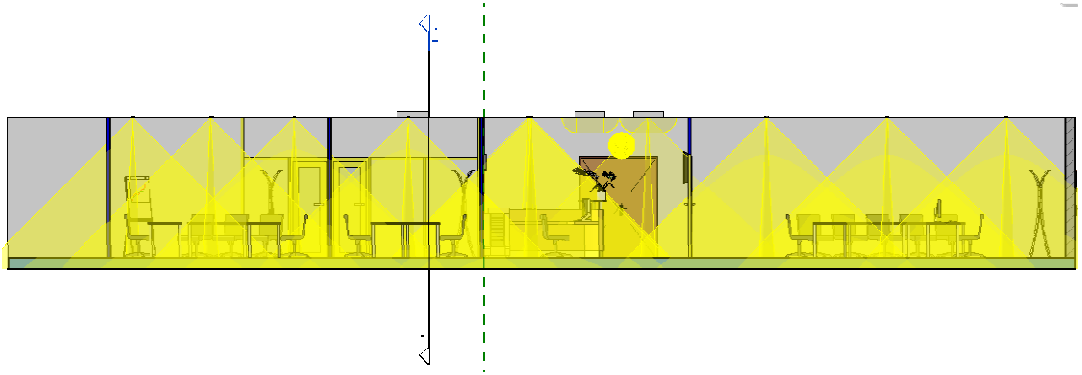


Final result : Points cloud integration into Revit

Final Mockup

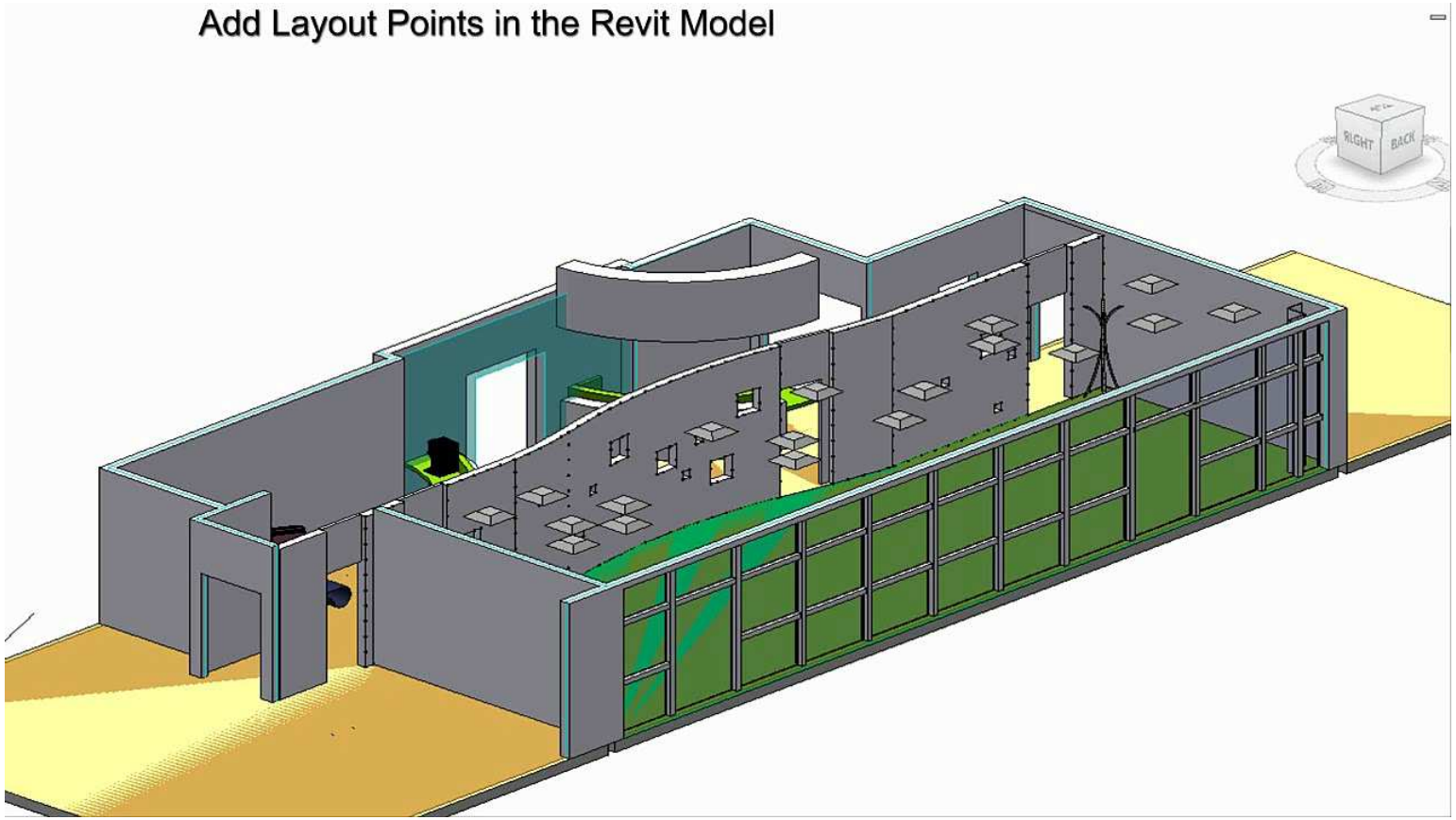




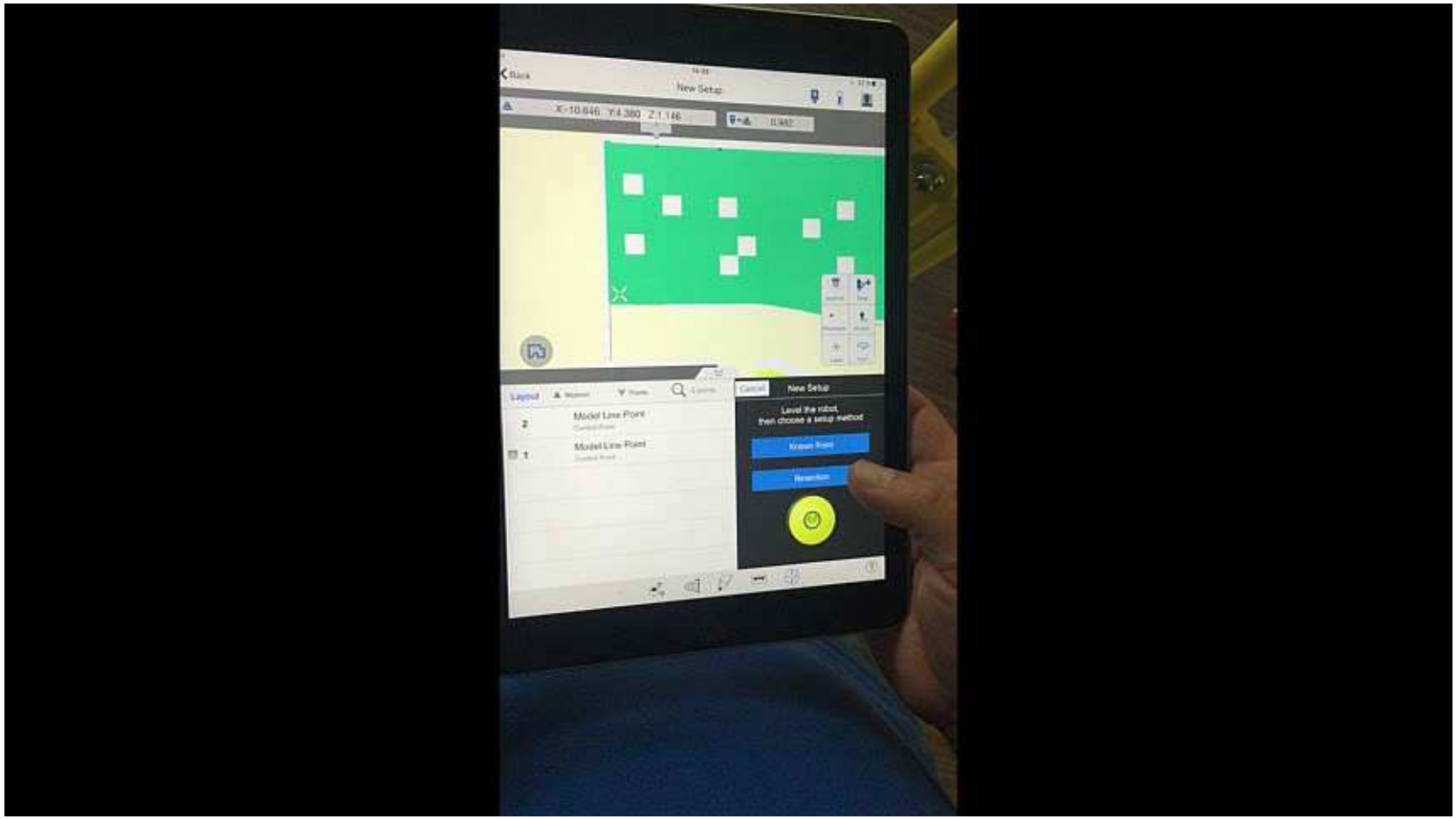


Reference points exported to the site

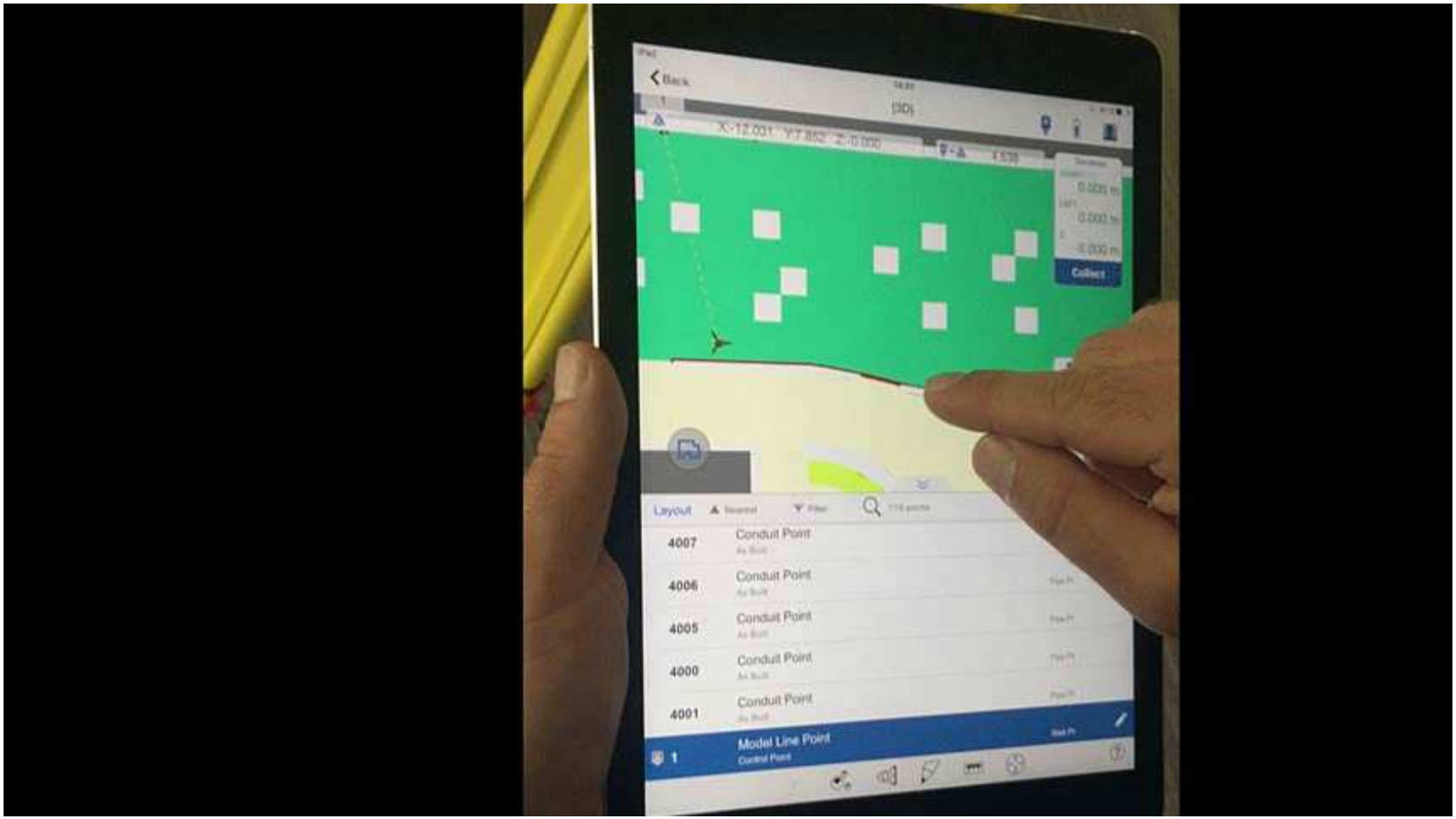
Point Layout workflow from Model to the Construction Site x2 (Video 2'51)



Setup the Leica robotic total station (Video 1'03)



Stake out reference point on site (Video 1'35)



Some site pictures :

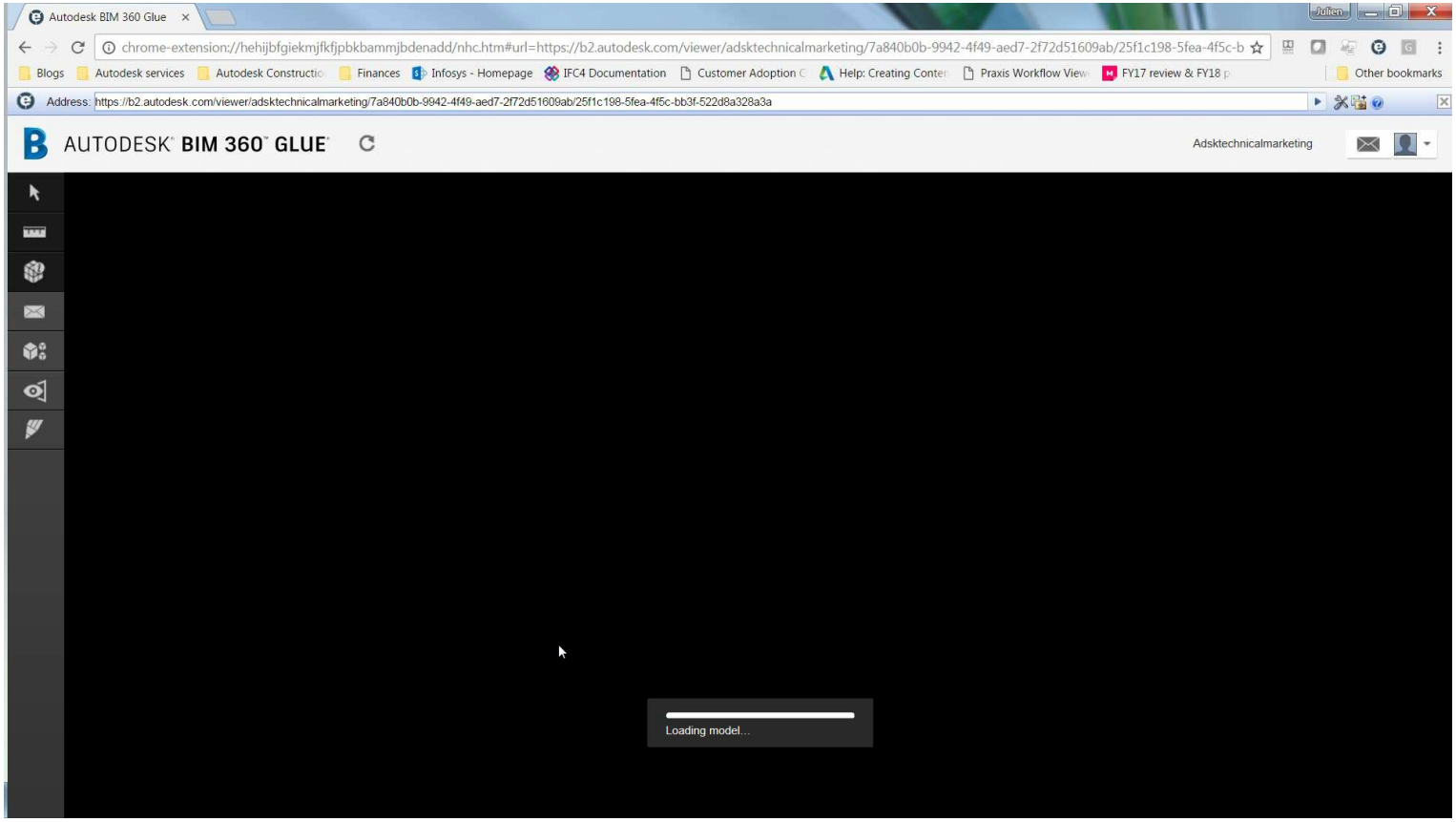
Compare as build points to the final model

360

LAYOUT GLUE

Compare as build points to the final mockup (Video 1'33)

Workflow from the Construction site to the Model: update the model as built (Video 1'36)

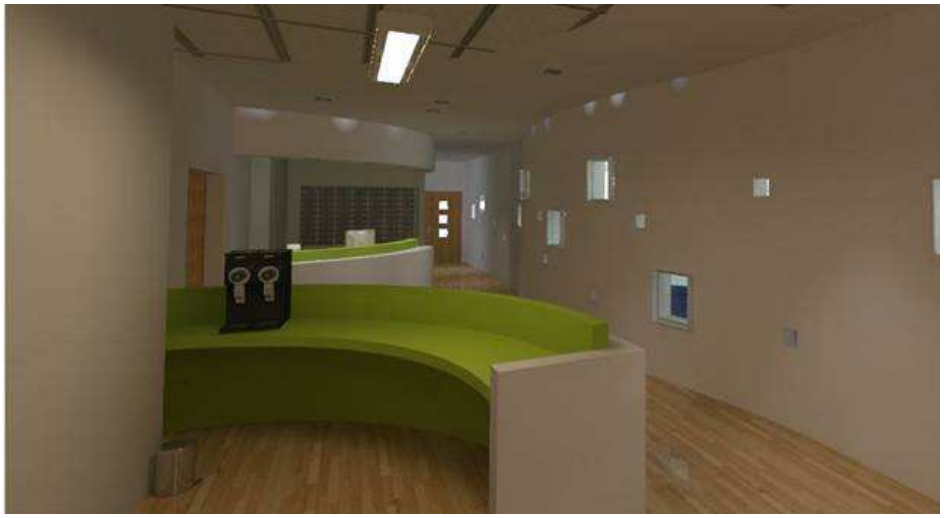


Final result : Points cloud integration into Revit

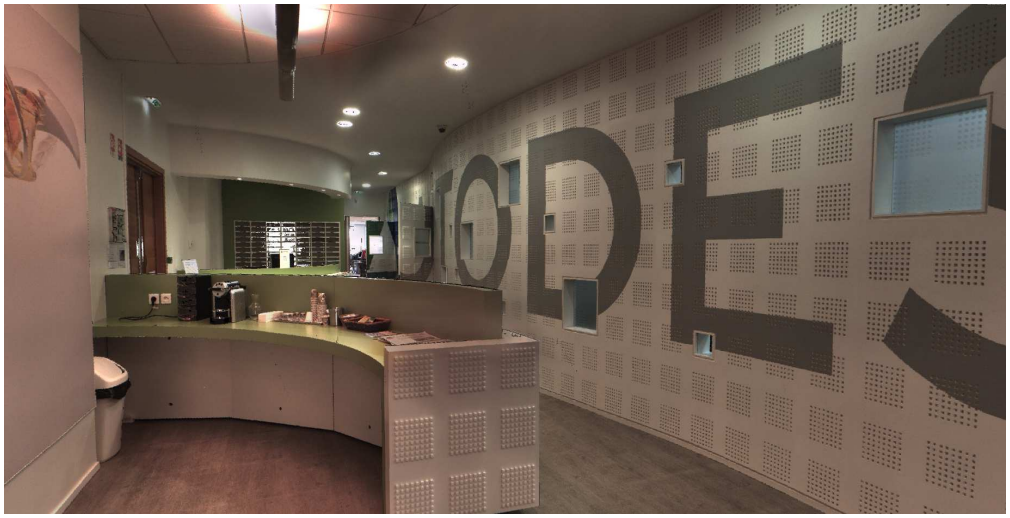
Metrics and numbers

- 7 scans made (10 minutes / scan, color),
- Registration + indexation : 2h30,
- Point cloud : 45 077 113 points, 3,60 Go size folder,
- Manual cleanup (manual) : 5 minutes,
- Build model in Revit : manually (any plugin used) : 1 day

Benefits : virtual view



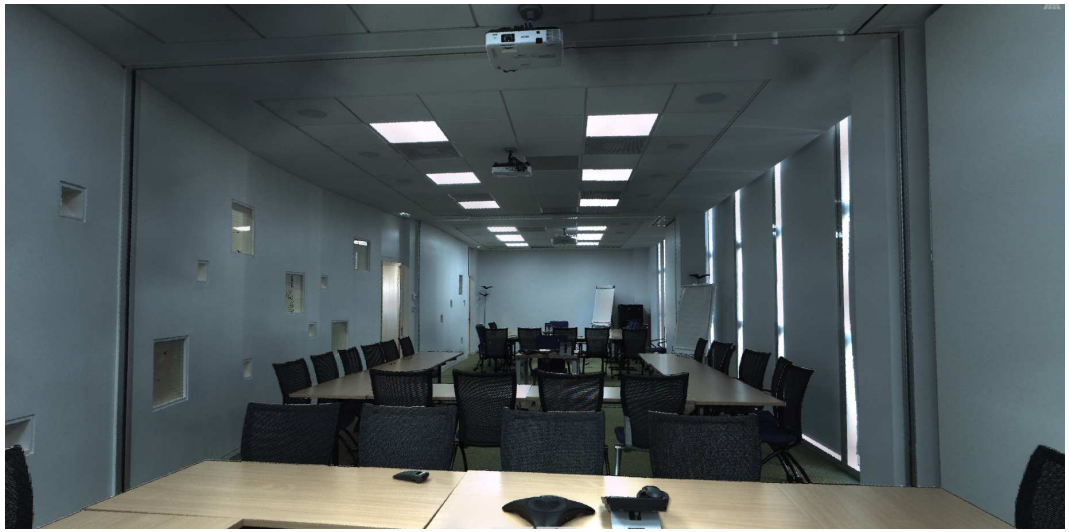
Virtual view from Revit



Real view

Benefits : virtual view

Virtual view from Revit



Real view

Conclusion

- Integrated into BIM process
- More accurate (Dimensions BOM…)
- Faster process than the usual
- Safer – cloud connected
- Quality

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obrigado
Dank U
Merci
mahalo
Köszi
спасибо
Grazie
Thank you
mauruuru
Takk
Gracias
Dziękuję
Děkuju
danke
Kiitos

Questions ?