

# Construction Innovation in Housebuilding

## Hill Construction's BIM Journey

John Foster

BIM Business Manager, Europe

@JF\_Topcon

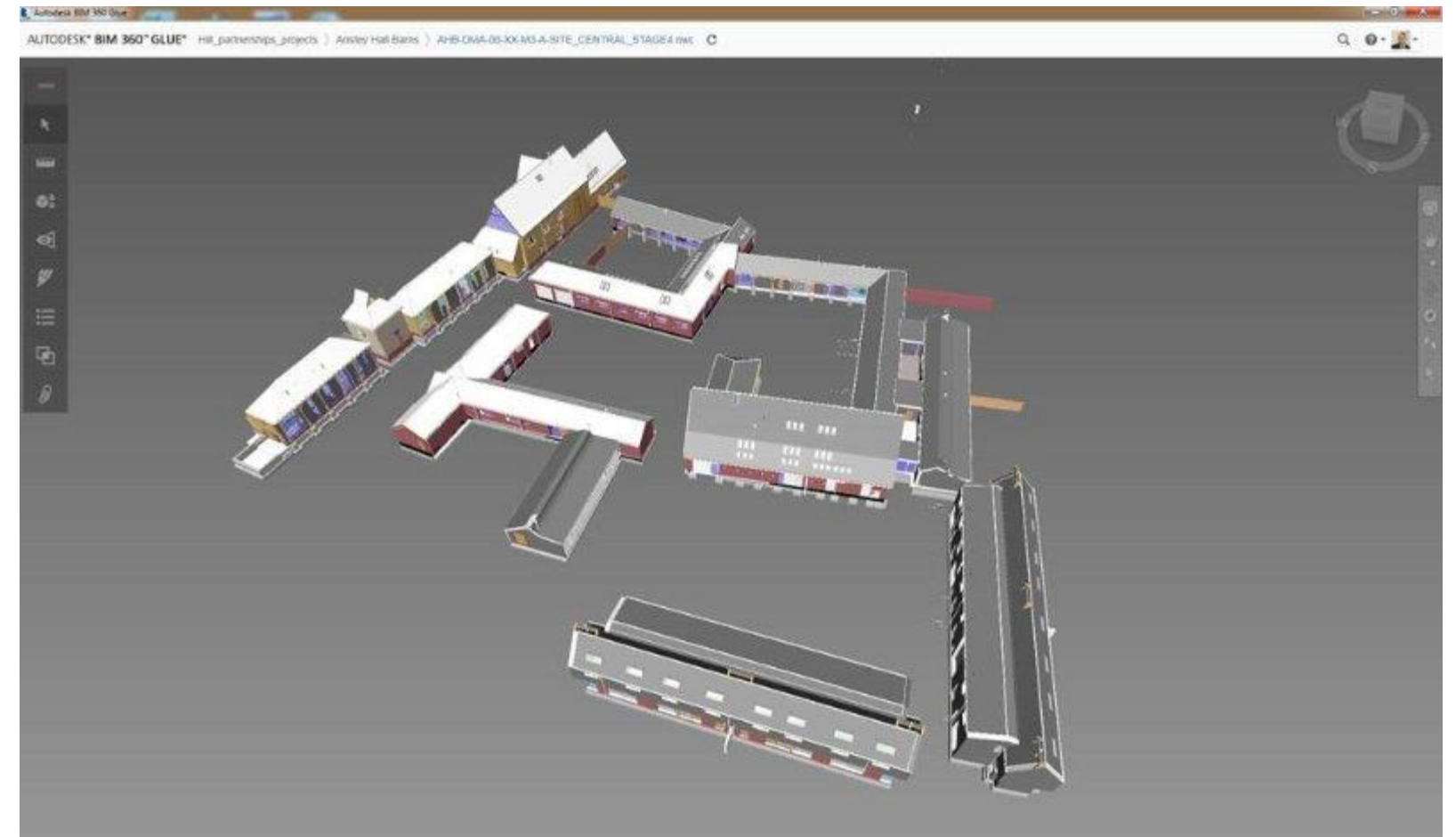
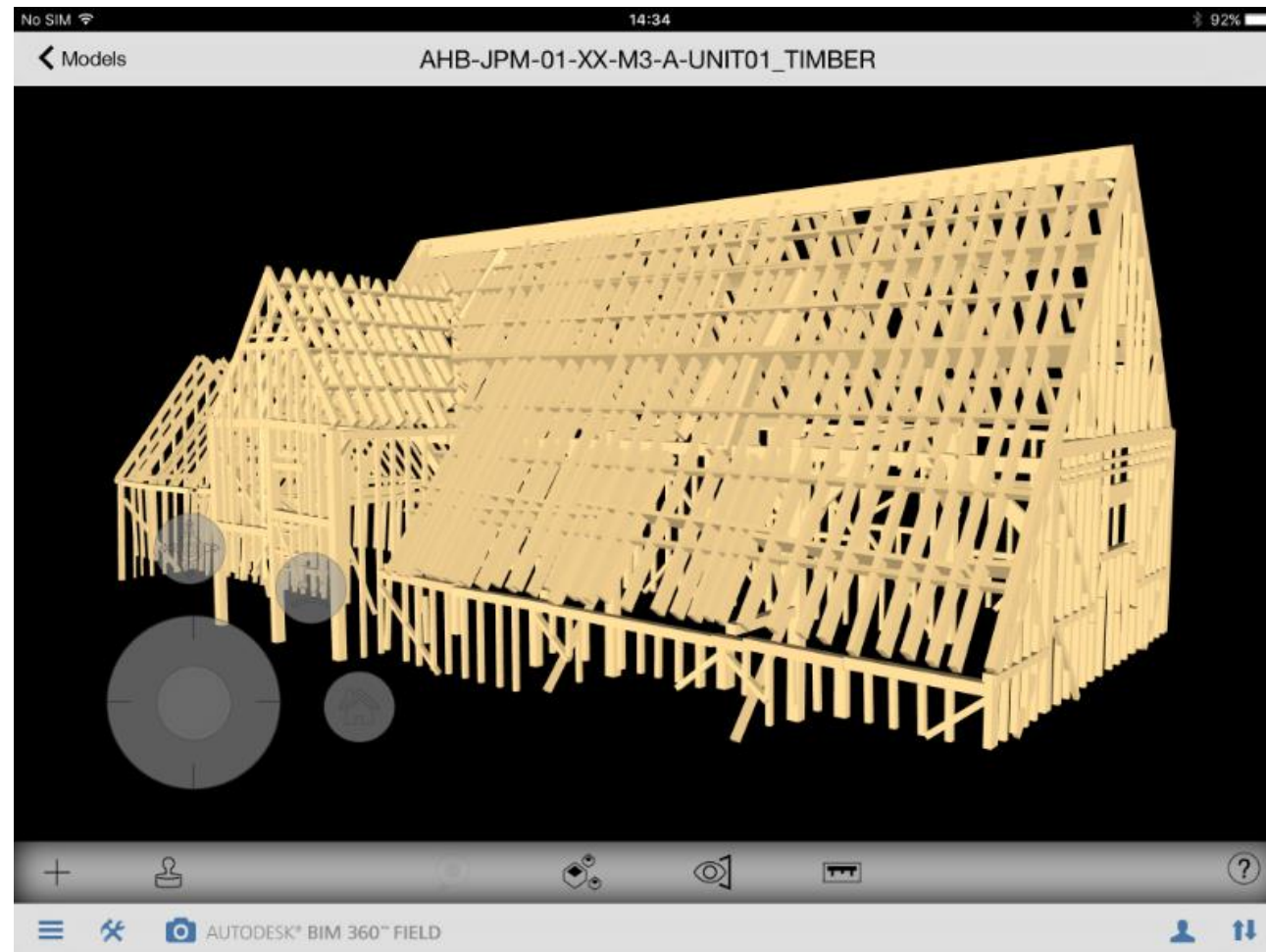
# Class summary - CS17838

- This class will be delivered by Hill Construction, a U.K.-based housebuilder, supported by Topcon Corporation and Autodesk, Inc. Hill Construction will describe its Building Information Modeling (BIM) journey so far, and how the firm has applied BIM 360 tools into its workflows on a complex construction project undertaken by Hill Bespoke in Cambridge, England.



Mike Beckett  
Managing Director,  
Hill Bespoke

# Hill Construction, UK



**A Fully digitised approach to a complex small-scale project**

<https://www.linkedin.com/pulse/innovation-deployed-field-saving-hill-partnerships-time-james-gall?forceNoSplash=true>

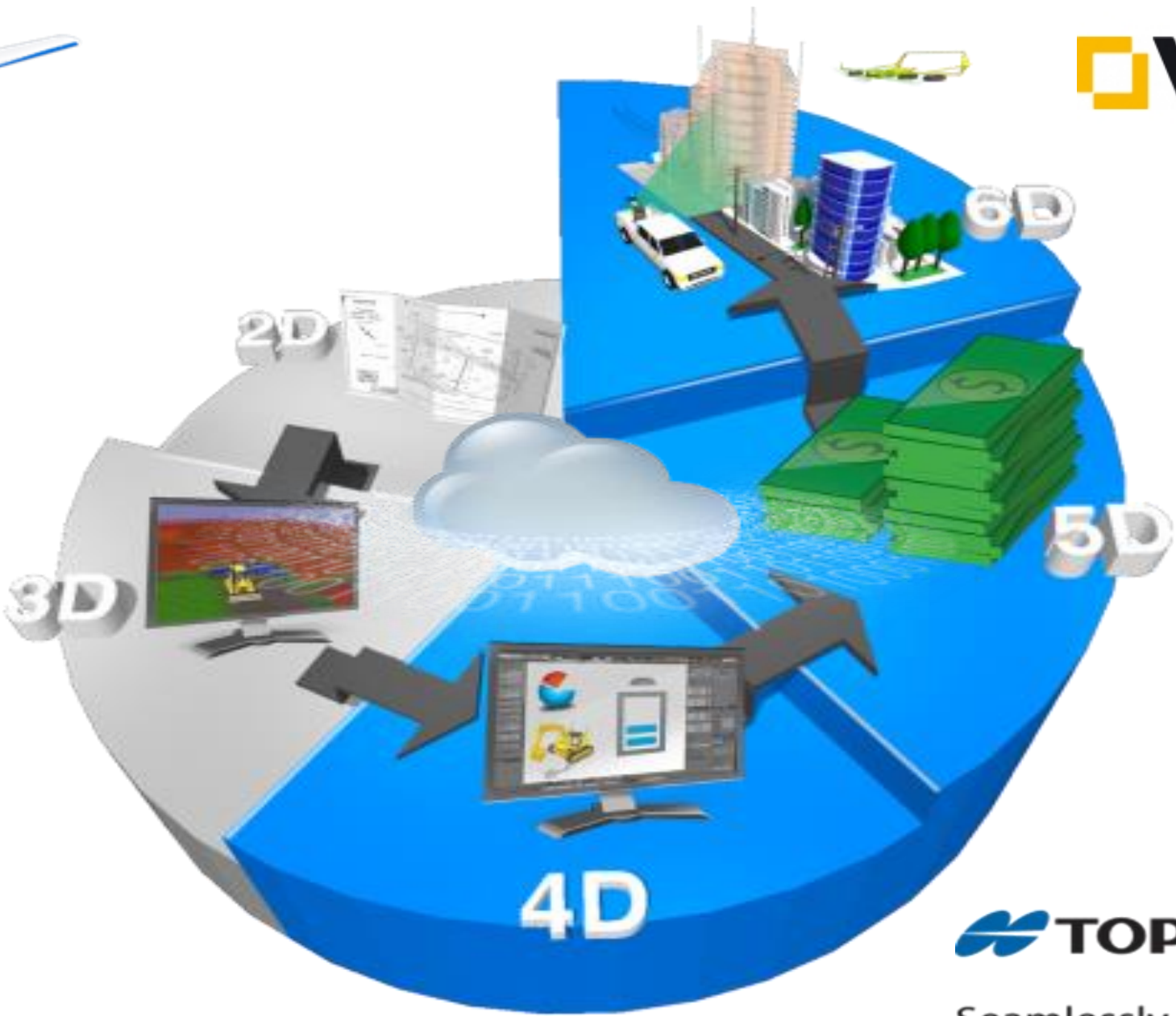


# Smart Partnerships

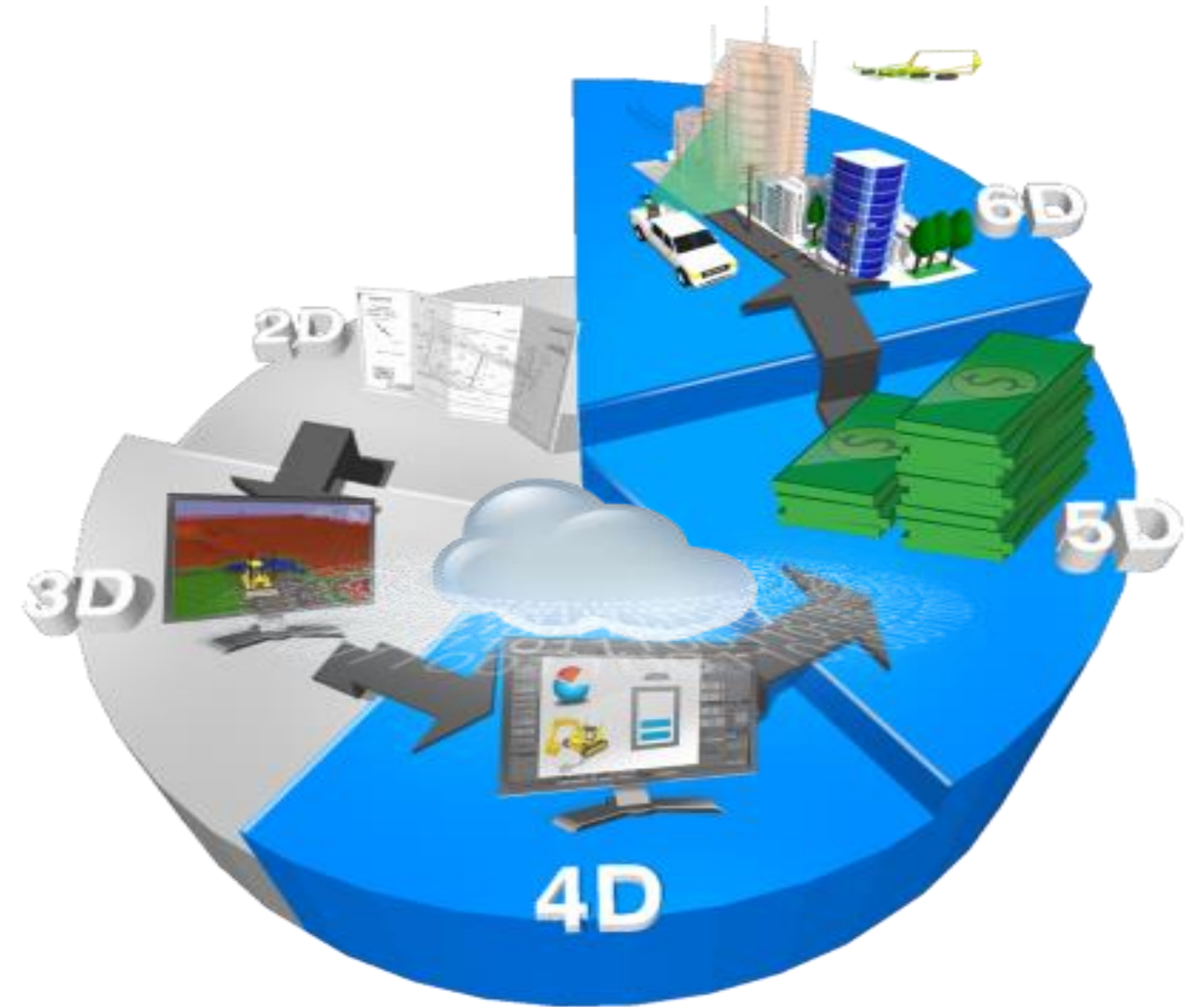
DAQRI



Seamlessly Connecting the Office and the Field.



# Smart Partnerships for efficient BIM processes...



Seamlessly Connecting the Office and the Field.



# Our BIM Focus

Workflow optimization for:

3D Model driven Layout



Reality Capture



# BIM Innovation Program

Current BIM360 Layout/QC pilots in EMEA

**SKANSKA**

**Balfour Beatty**



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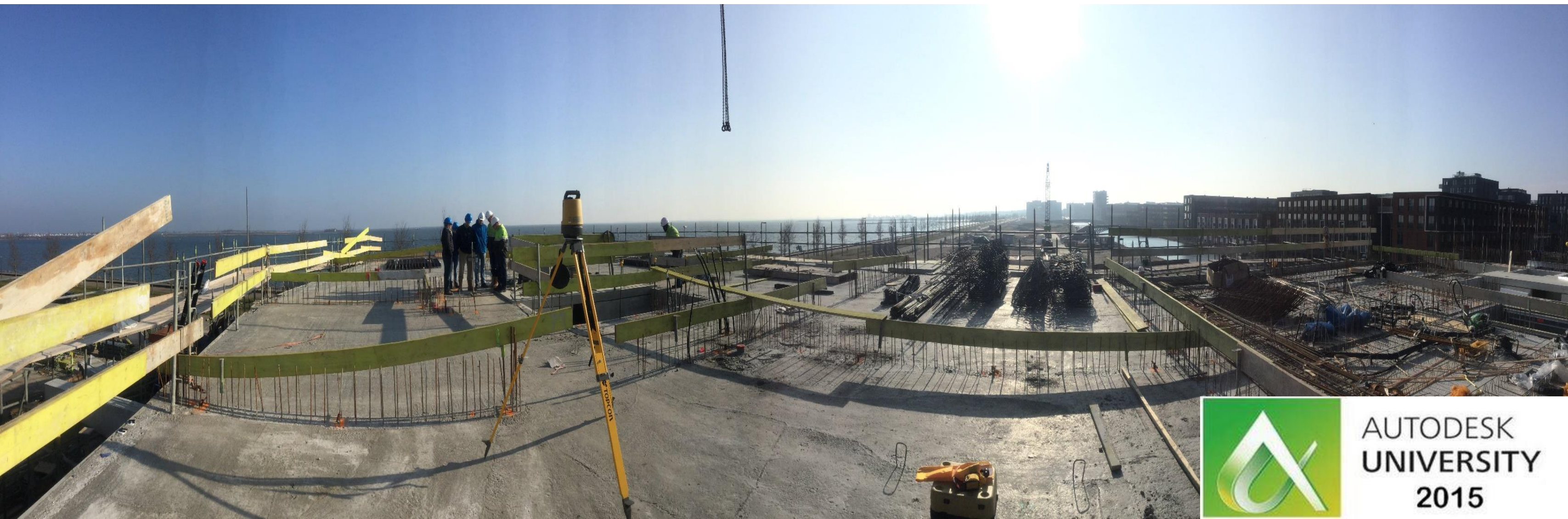
TBI enters into EBA



First Dutch client working with APL / BIM360/ Topcon Layout Navigator

***“We began dimensioning digitally to prevent errors and to save time”***

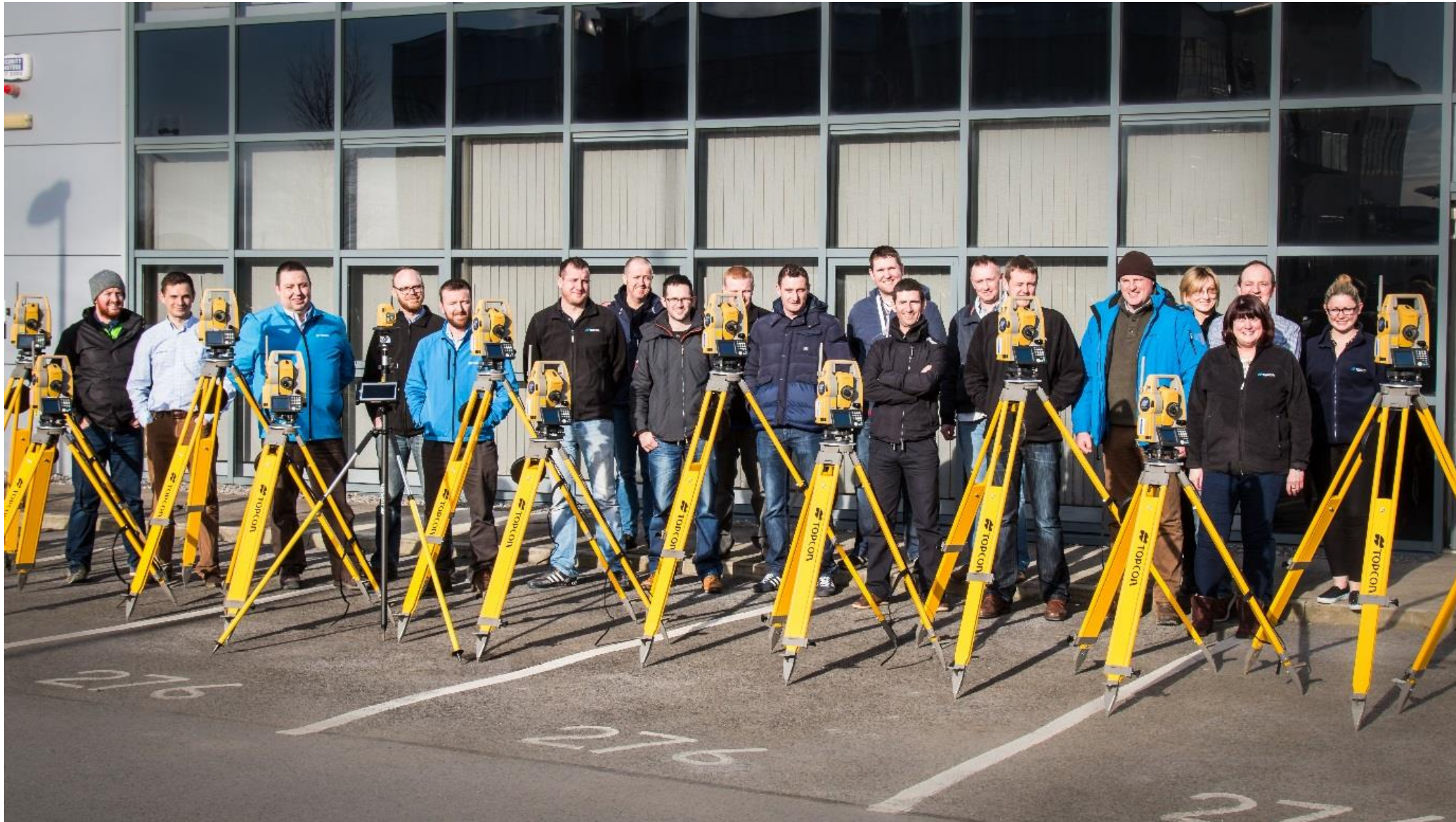
*Arjen van der Klis, TBI*



AUTODESK  
UNIVERSITY  
2015



# JJ Rhatigan, Ireland



**Invested in 25 DS-205i Robotic Total Stations with Autodesk and Magnet workflows**

<http://edition.pagesuite-professional.co.uk/Launch.aspx?PBID=8a4589fb-47e4-4bcb-9c74-5959d84dbf5e>





SHARE:    

#AULondon

# AU LONDON

June 21-22, 2017, Tobacco Dock, London, E1

## Learn. Connect. Explore.

Countdown: 216 days 15 hours 57 minutes 42 seconds

WANT EXCLUSIVE ACCESS?

## FOR THOSE WHO DESIGN, BUILD, MAKE & CREATE

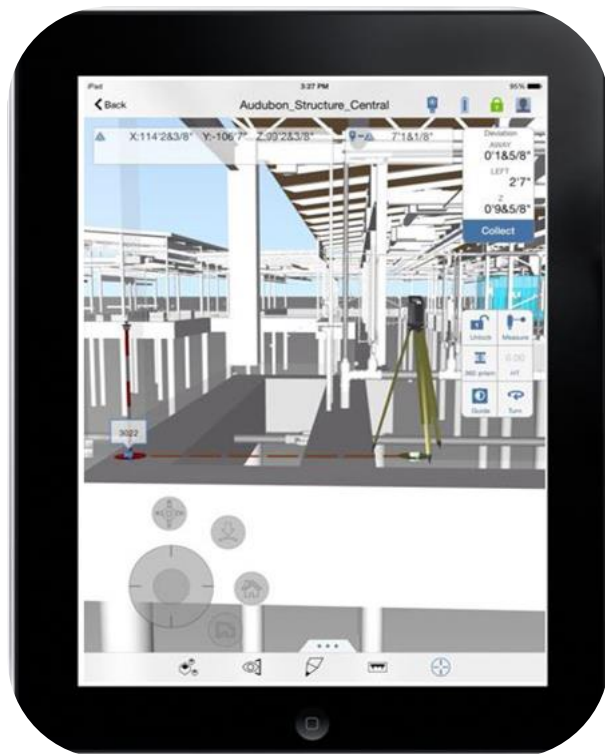
Autodesk University\* is the premier learning destination for Autodesk software users everywhere, bringing together design and engineering professionals from around the world. Join us

Cookie Consent





 **AUTODESK<sup>®</sup>**  
**RECAP 360<sup>™</sup> PRO**



 **TOPCON** |  **AUTODESK.**

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# A 360 Approach to Improving Productivity

September 2016



WhatHouse?  
Housebuilder of the Year



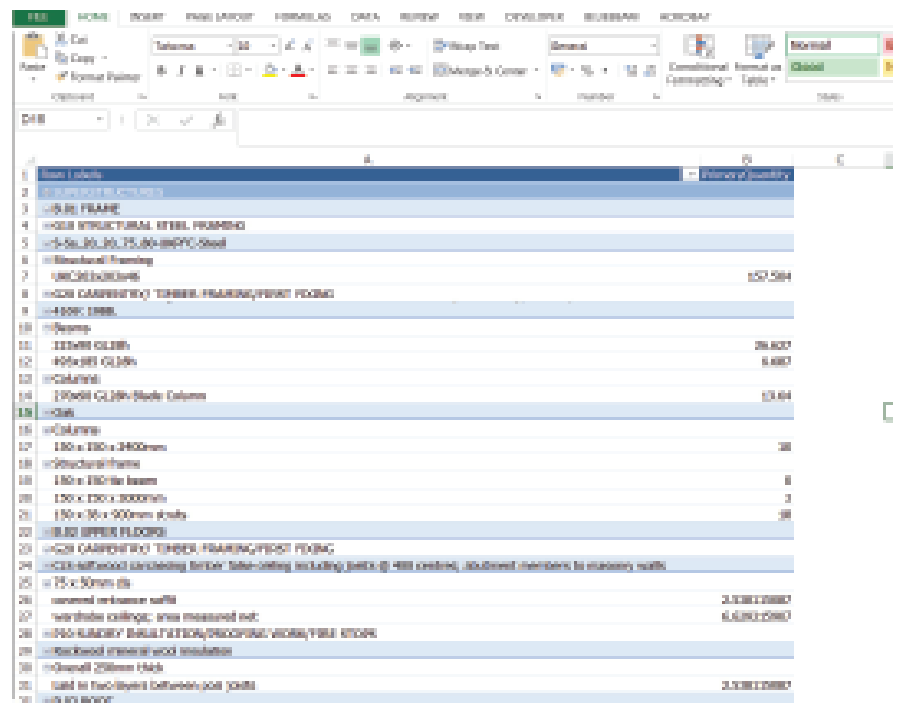
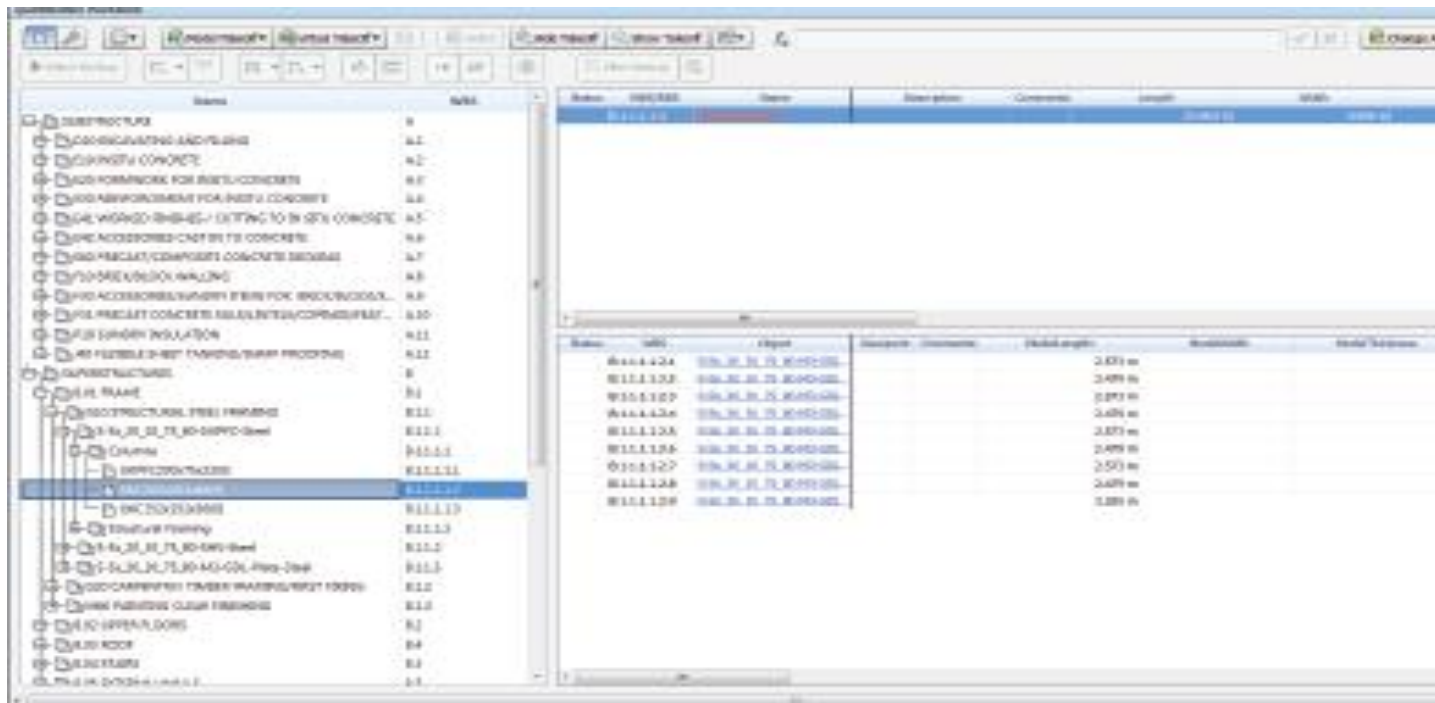
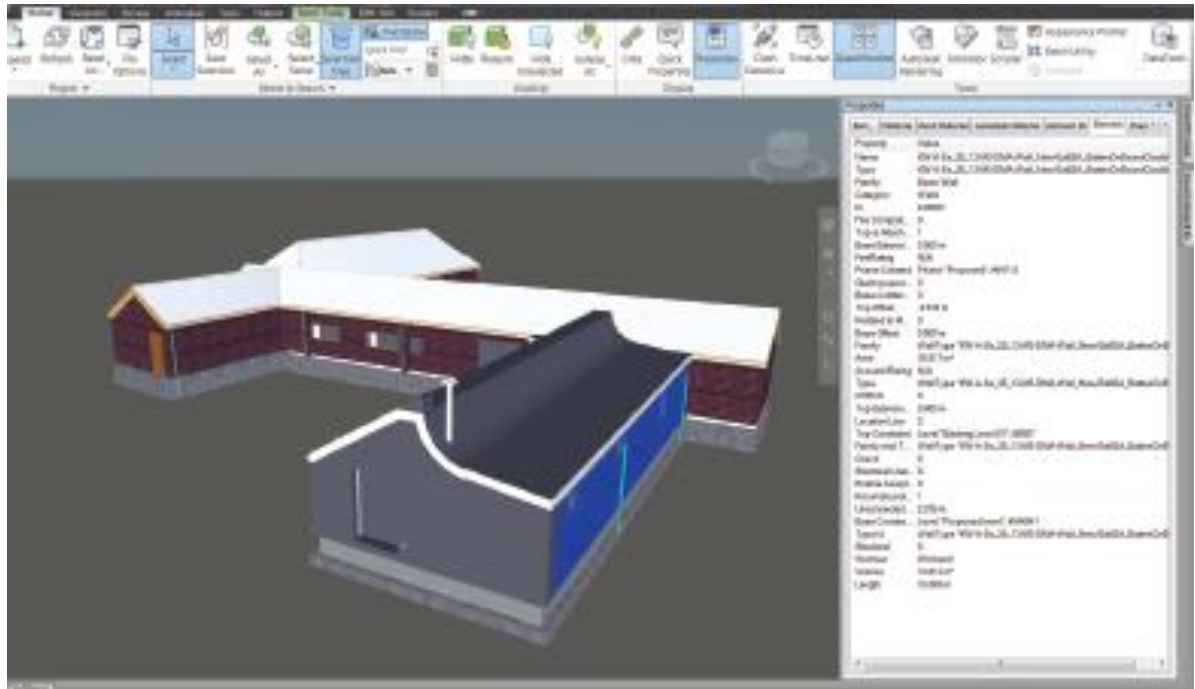














Autodesk Navisworks Manage 2016 (For BIM360) AHB-HBL-02-XX-M3-W-UNIT\_05 TAKEOFF

Home Viewpoint Review Animation View Output Item Tools BIM 360 Render

Append Refresh Reset File Select Save Selection Select All Select Same Selection Tree Quick Find Sets Hide Require Hide Unhide Links Quick Properties Properties Clash TimeLiner Quantification Autodesk Animator Scripter Appearance Profiler Batch Utility DataTools

Project Select & Search Visibility Display Tools

375 Items Selected

Find Items

Search Standard

AHB-DMA-02-XX-M3-A-UNIT05\_CENTRAL\_STAGE4

Category	Property	Condition	Value
Item	Type	=	Structural Framing: Timber: Timber

☒ Match Character Widths  
☒ Match Diacritics  
☒ Match Case  
☐ Prune Below Result









Search: Default

Find First Find Next Find All Import... Export...

Connected to BIM 360 Ready 1 of 1 707

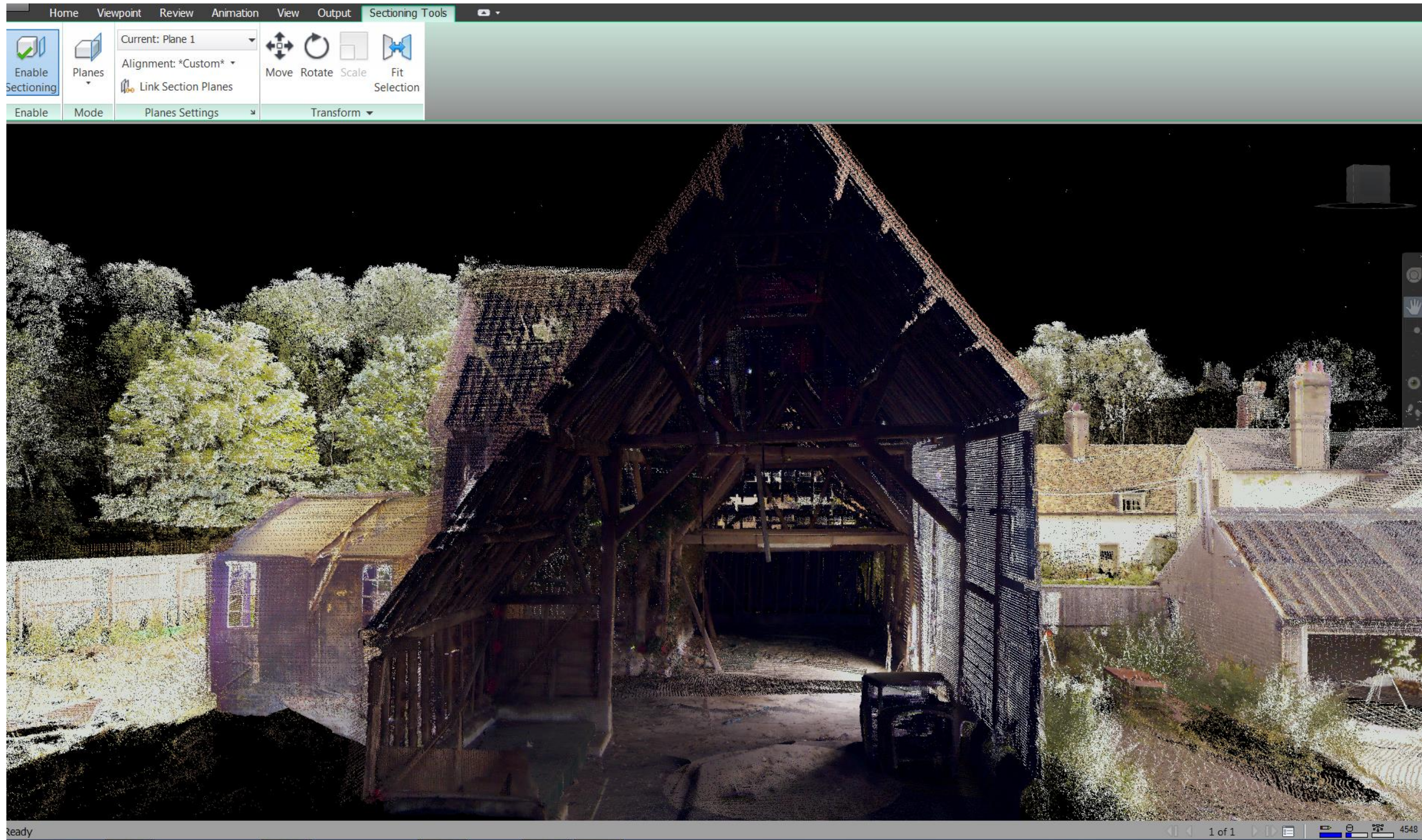
[illegible]

Items	WBS
SUBSTRUCTURE	A
D20 EXCAVATING AND FILLING	A.1
E10 INSITU CONCRETE	A.2
E20 FORMWORK FOR INSITU CONCRETE	A.3
E30 REINFORCEMENT FOR INSITU CONCRETE	A.4
E41 WORKED FINISHES / CUTTING TO IN SITU CONCRETE	A.5
E42 ACCESSORIES CAST IN TO CONCRETE	A.6
E60 PRECAST/COMPOSITE CONCRETE DECKING	A.7
F10 BRICK/BLOCK WALLING	A.8
F30 ACCESSORIES/SUNDRY ITEMS FOR BRICK/BLOCK/S...	A.9
F31 PRECAST CONCRETE SILLS/LINTELS/COPINGS/FEAT...	A.10
P10 SUNDRY INSULATION	A.11
J40 FLEXIBLE SHEET TANKING/DAMP PROOFING	A.12
SUPERSTRUCTURES	B
B.01 FRAME	B.1
B.02 UPPER FLOORS	B.2
B.03 ROOF	B.4
G10 STRUCTURAL STEEL FRAMING	B.4.1
G12 ISOLATED STRUCTURAL METAL MEMBERS	B.4.2
G20 CARPENTRY/ TIMBER FRAMING/FIRST FIXING	B.4.3
Treated sawn softwood	B.4.3.1
25 x 38mm	B.4.3.1.1
50 x 50mm	B.4.3.1.2
75 x 50mm	B.4.3.1.3
100 x 50mm	B.4.3.1.4
125 x 50mm	B.4.3.1.5
142 x 50mm	B.4.3.1.6
140 x 48mm	B.4.3.1.7

Status	WBS	Name	Description	Comments	Length	Width	Thickness	
	B.4.3.1.4	<a href="#">100 x 50mm</a>						
	B.4.3.1.4.1	<a href="#">rooflight bearers bolted tog...</a>			28.800 m	0.000 m	0.000 m	
	B.4.3.1.4.2	<a href="#">replacement rafter and hip...</a>			60.000 m	0.000 m	0.000 m	
	B.4.3.1.4.3	<a href="#">trimming existing rafter feet</a>			0.000 m	0.000 m	0.000 m	
	B.4.3.1.4.4	<a href="#">extend trimmed rafter feet t...</a>			0.000 m	0.000 m	0.000 m	
	B.4.3.1.4.5	<a href="#">packing to existing wall plat...</a>			0.000 m	0.000 m	0.000 m	
	B.4.3.1.4.6	<a href="#">horizontal trimming to roof l...</a>			11.200 m	0.000 m	0.000 m	
	B.4.3.1.4.7	<a href="#">rafter nailed to exisitng 75...</a>			514.290 m	0.000 m	0.000 m	

Status	WBS	Object	Viewpoint	Comments	ModelLength	ModelWidth	ModelThickness	ModelHeight
	B.4.3.1.4.1.1	(No Name)			28.800 m			
	B.4.3.1.4.2.1	(No Name)			60.000 m			
	B.4.3.1.4.3.1	(No Name)						
	B.4.3.1.4.4.1	(No Name)						
	B.4.3.1.4.5.1	(No Name)						
	B.4.3.1.4.6.1	(No Name)			11.200 m			
	B.4.3.1.4.7.1	(No Name)			514.290 m			





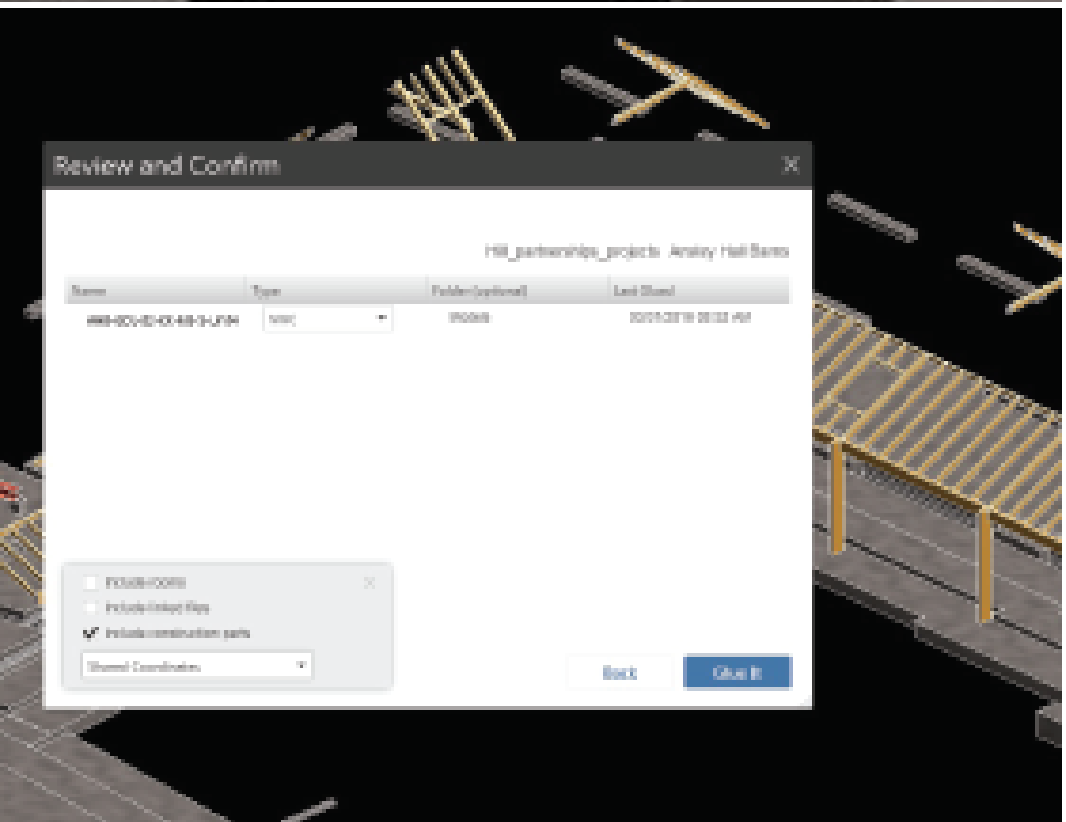
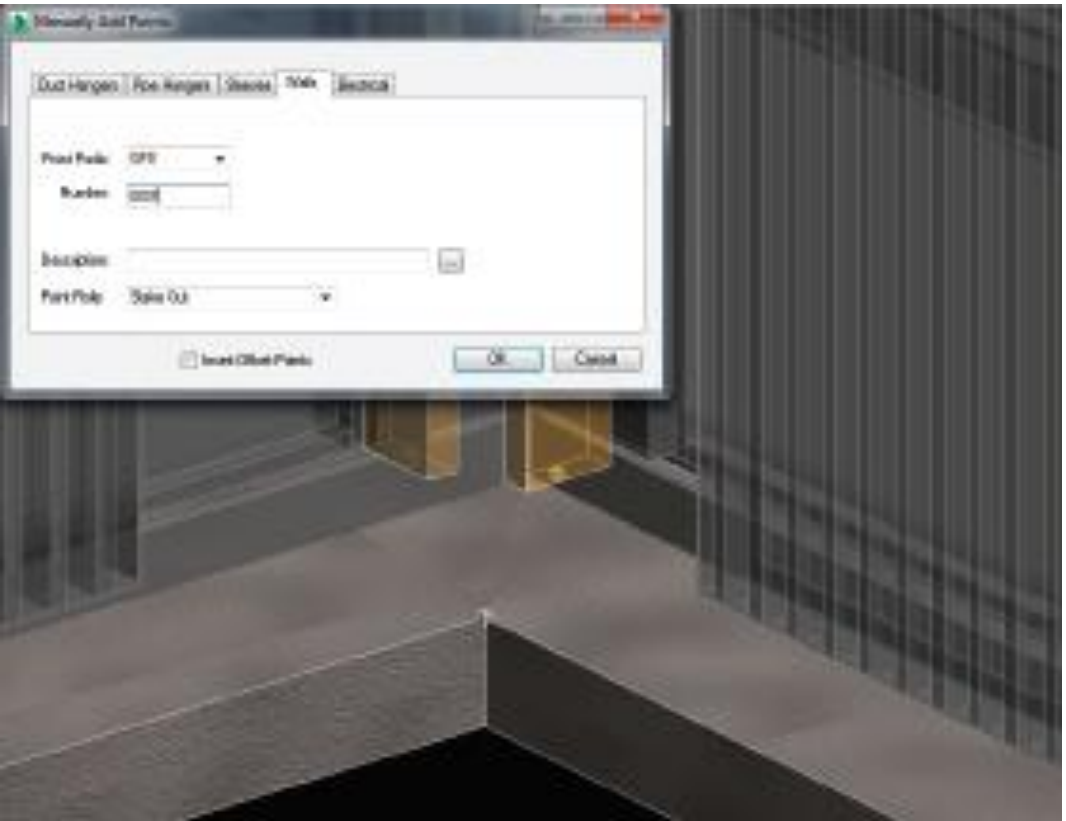














## DIGITAL DESIGN & CONSTRUCTION BENEFITS



### REDUCED TIME

**75% REDUCTION IN TIME PRODUCING SETTING OUT INFORMATION**



### REDUCED COST

**£25k SAVING IN COST FOR SETTING OUT GROUNDWORK - PROJECTED £50k SAVING OVERALL**

**£195k SAVING FROM PICKING UP STEEL CLASHES WITH EXISTING STRUCTURE IN BARN 1**  
WITHOUT POINT CLOUD - 4 - 6 WEEK DELAY FOR STEEL RE-DESIGN, WHICH BREAKS DOWN AS:

- £168,000 IN TIME (DELAYS)  
+
- £20,000 IN STEEL  
+
- £7,500 IN DESIGN FEES & SUBMISSION TO LPA



### IMPROVED QUALITY

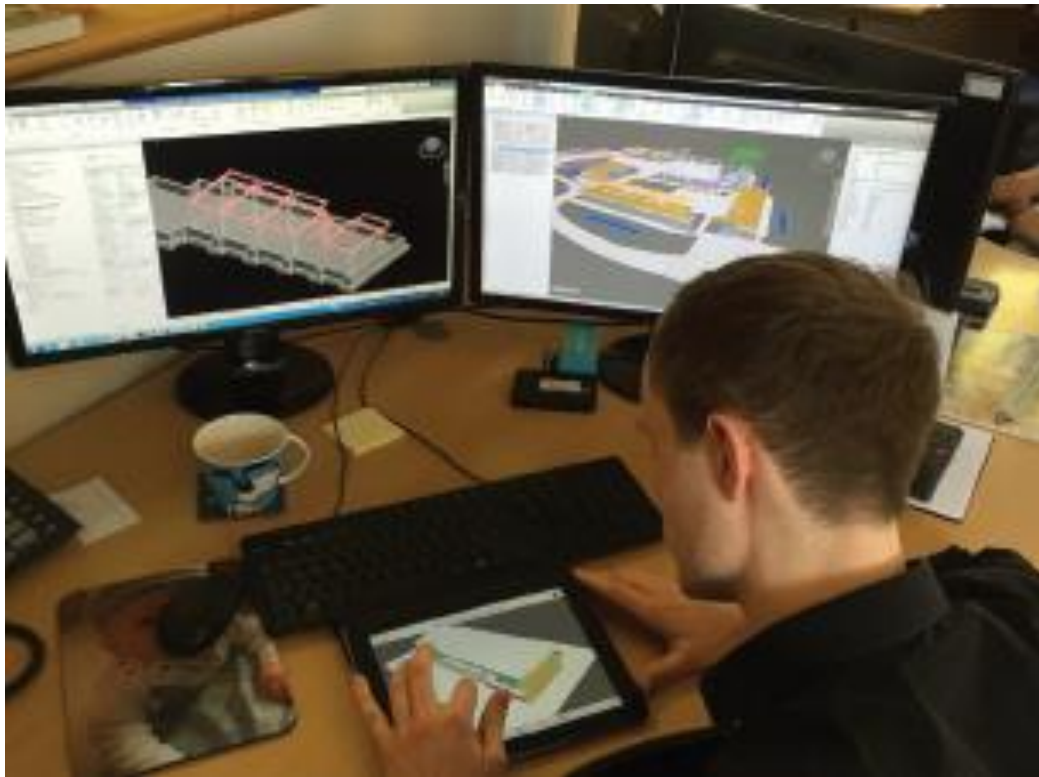
BEING MORE PRECISE ABOUT OUR RESPONSE TO THE EXISTING BUILDINGS – HAS GIVEN THE PLANNERS CONFIDENCE – BUT ALSO A BETTER RESULT FOR THE END USER.



"I am **saving two hours per day** by having the information to hand and not having to walk back to the office to find plans or pieces of paper"  
"Historically all of the changes would have been recorded on paper going back and forward to the office, this **now takes 30 seconds** on my iPad"

**Jamie Roberts**, Senior Site Manager

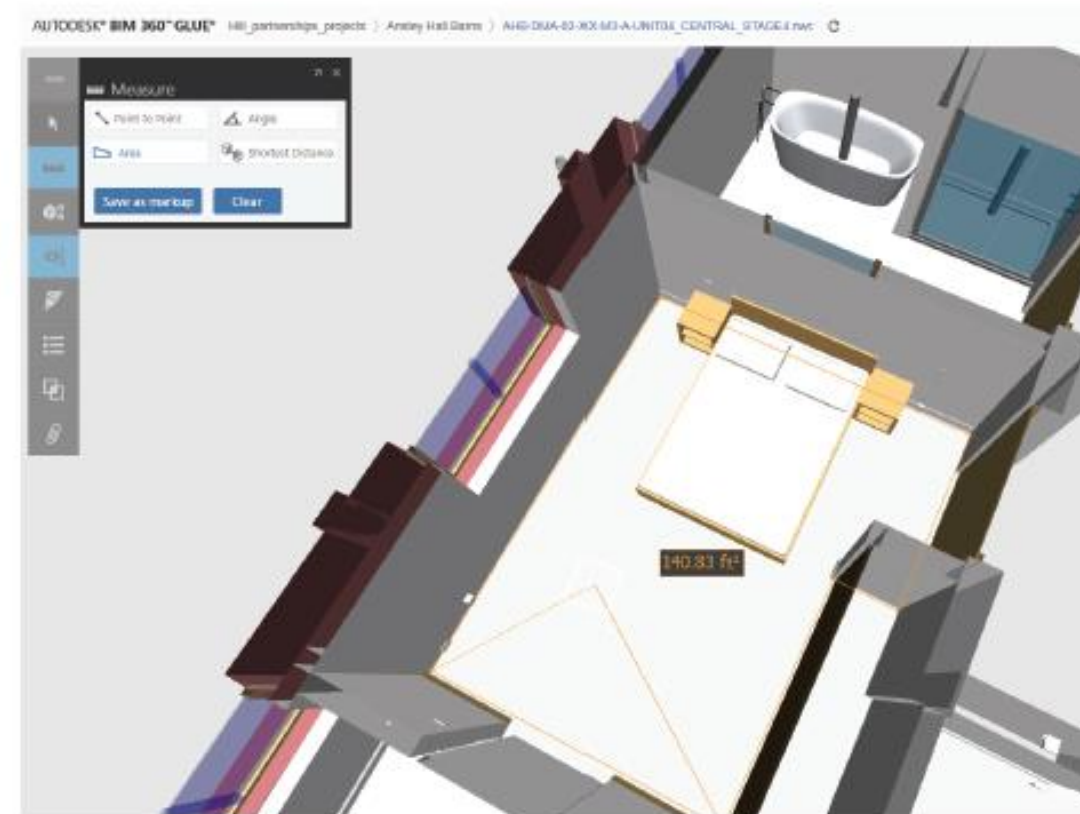
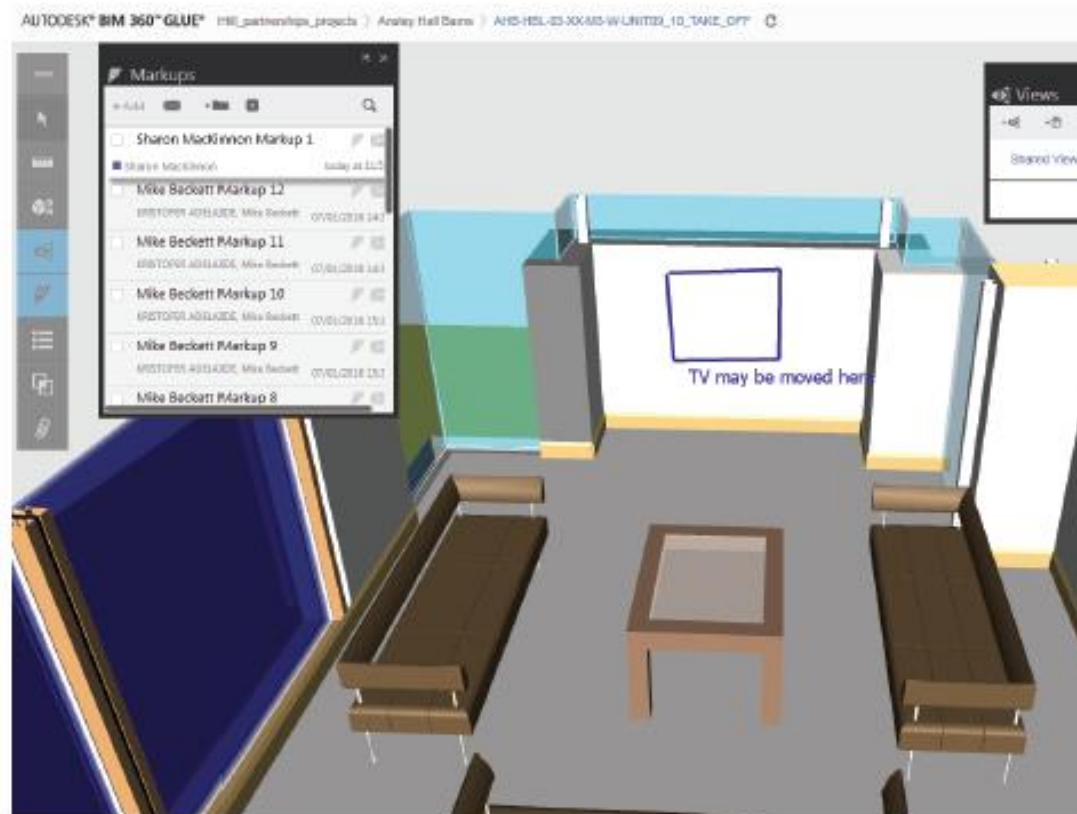


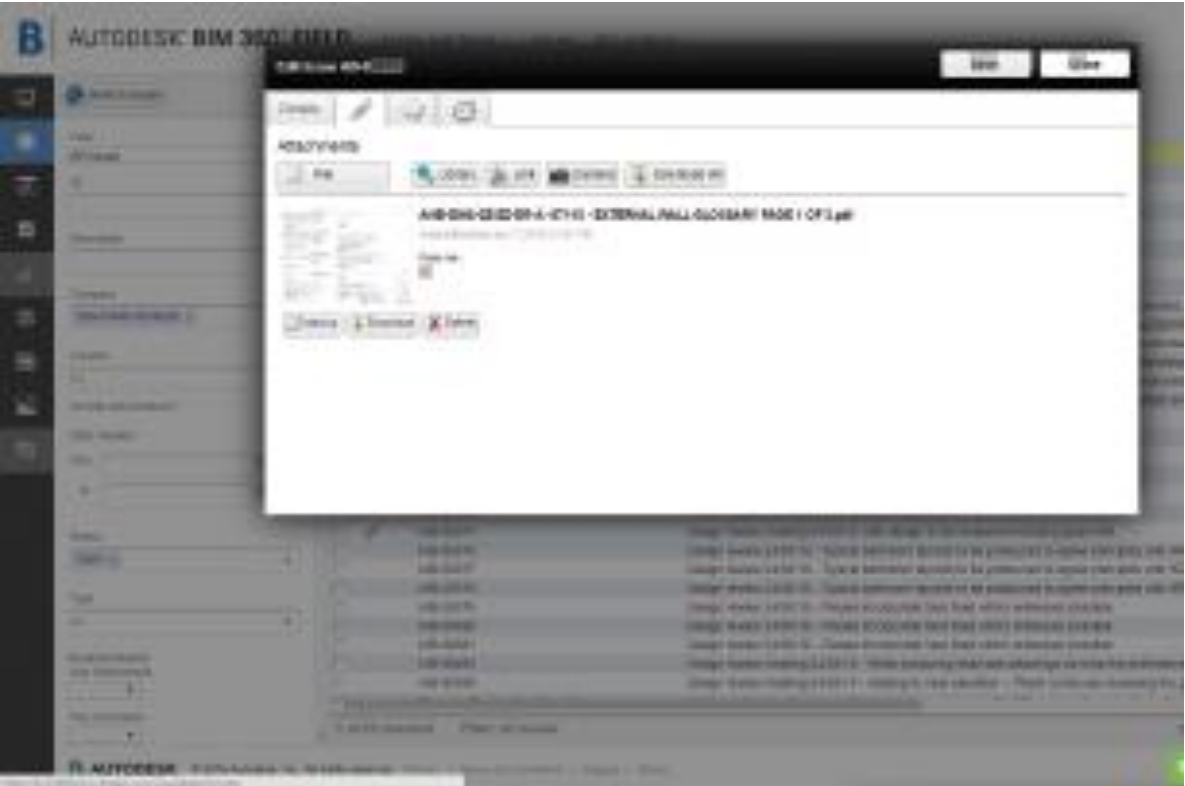
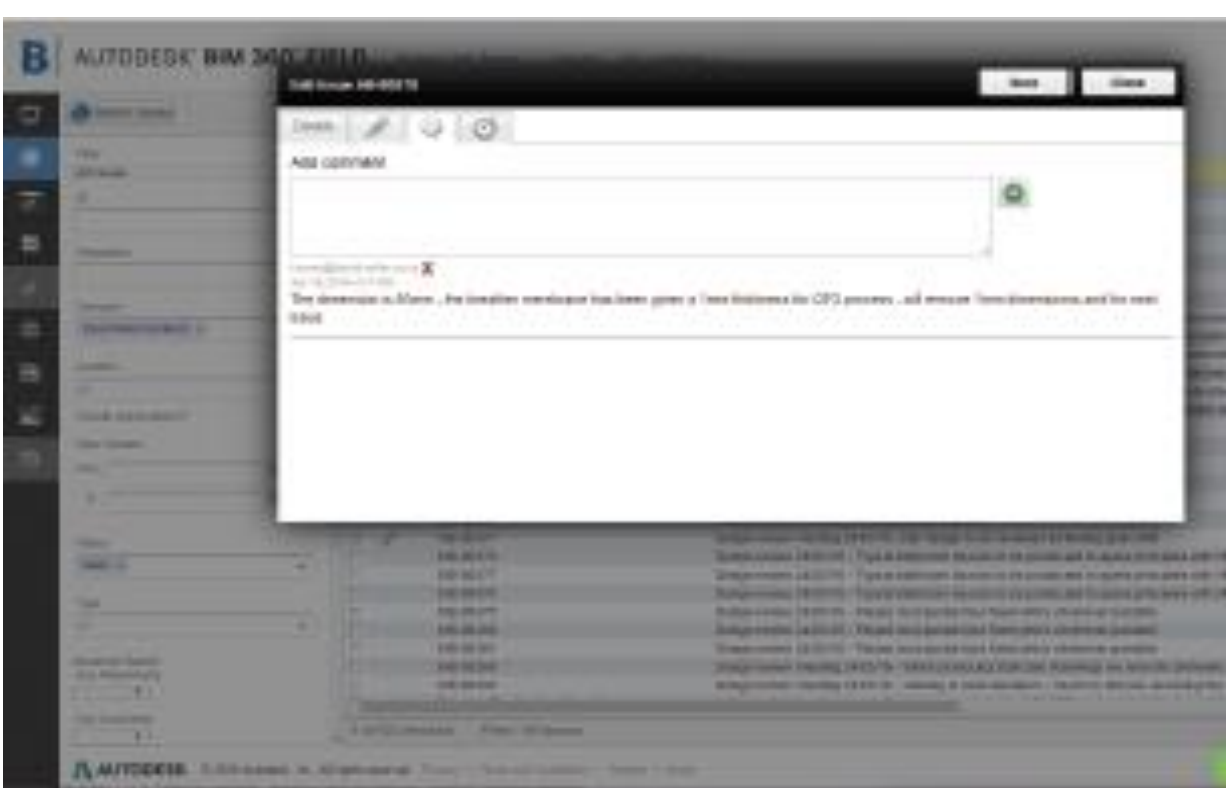
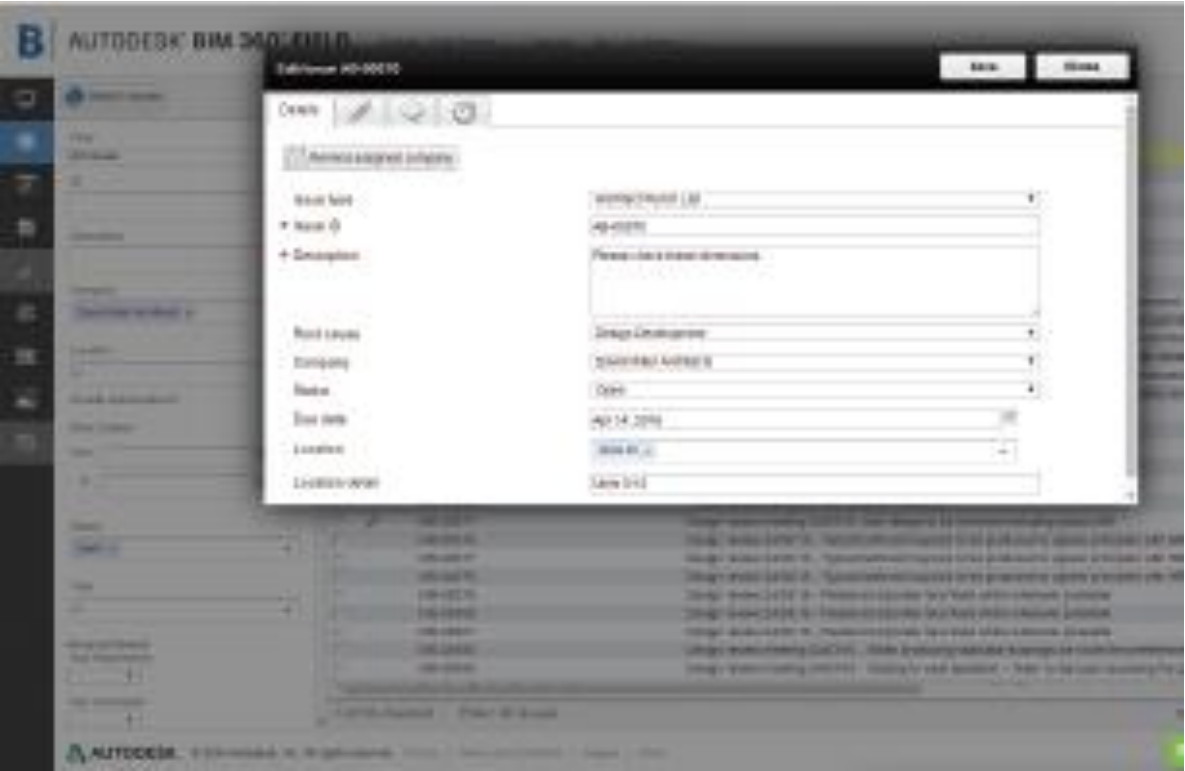




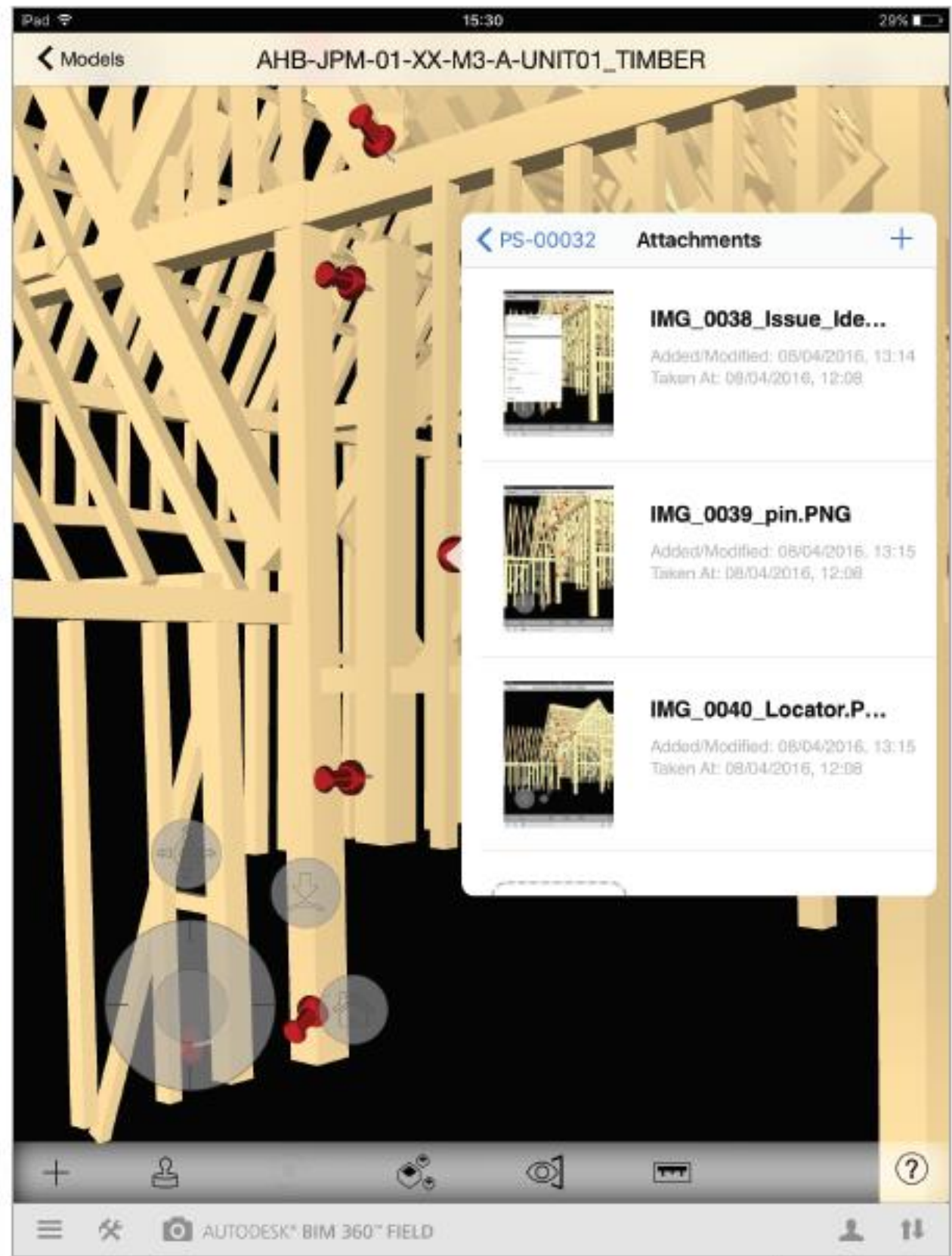
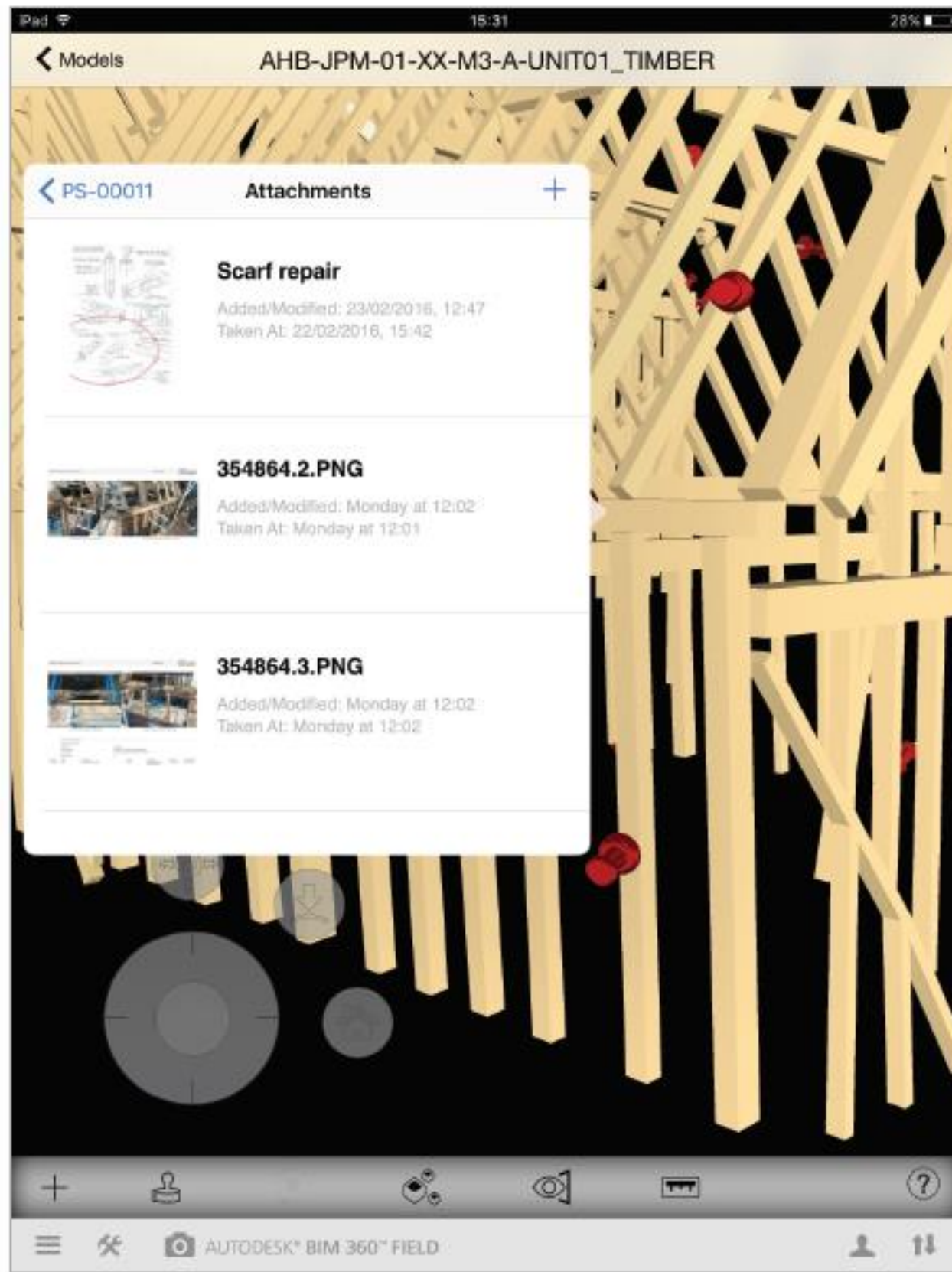




















The implementation of these technologies will, over time, dramatically improve our productivity levels, (getting more done with less resource). This will inevitably lead to better margins and make us more competitive.



Presentation by Mike Beckett



**Hill**

WhatHouse?  
Housebuilder of the Year





**Any Questions?**



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# How did I do?

- Your class feedback is critical. Fill out a **class survey** now.
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- Give feedback after each session.
- AU speakers will get feedback in real-time.
- **Your feedback results in better classes and a better AU experience.**





