Adopting Digital Construction in the Field – Robertson Construction and the BIM 360 Journey

John Paul Mann – Robertson Construction
Emma Dowey - Autodesk
Emma Dowey
Manager - UK & Ireland Construction
Customer Success
WHAT REALLY MATTERS?
PEOPLE
PEOPLE
“Robertson has invested in digital technology, not only in the adoption of BIM 360 Field software but also in the training of our people and improvement of our processes.”

Elliot Robertson, Chief Operating Officer at Robertson
In this session will look at how Robertson have embarked on a journey to digitally Construction and the successes and pitfalls of the implementation and adoption of BIM 360 Field and BIM 360 Glue.
Introducing Robertson

3000+
Dedicated and expert employees

10
OFFICES, FROM INVERNESS TO SHEFFIELD

22
BUSINESSES COVERING THE ENTIRE BUILT ASSET LIFECYCLE

£752m
TURNOVER

£2bn+
ORDER BOOK

One of the largest privately owned infrastructure groups in the UK.
National strength, local expertise

Founded in Elgin, HQ in Stirling.

Offices in Inverness, Elgin, Aberdeen, Dundee, Stirling, Edinburgh, Glasgow, Newcastle, Manchester and Sheffield.

Timber engineering production facilities in Moray and Northumbria.

Robertson Homes developments in Scotland and north England.
“Our vision for the Robertson Group is to utilise digital technology across all business units and over the full project lifecycle, enabling the Group to be productive, innovative and sustainable.”
Our Key Milestones

2014
- BIM Policy Published
- Internal Training Plan Implemented
- Autodesk BIM 360 Field Pilot Project

2015
- Robertson Group BIM strategy Initial Growth of Digital Team
- 3 Year Enterprise Agreement with Autodesk for BIM 360 Glue & Field
- BIM governance development

2016
- IM Procedures Aligned to ISO 9001:2015
- Asite Implemented as CDE
- 80% Increase in BIM L2 Projects
- VR used at NHS Orkney
- 3 Year Digital construction strategy approval

2017
- Digital Construction Strategy Approval
- Continued Growth of Digital Team
- Greater focus on Pre-Construction Phase 4D/5D BIM
- 360 Review & RMS Governance produced

2018
- BIM 360 Next Gen Introduced
- Introduction of Laser scanning
- Drone license granted
- BIM Governance Updated BS EN ISO 19650
- Robertson Homes Developing House Types
- Timber engineering develop 3D components
- Developing 3D site logistic models

2019
-
Combining first class project management skills with expertise in local conditions, our major projects division excels at building projects valued from £35m to in excess of £330m. Its track record includes projects in both busy city centre environments and in remote rural locations.
BIM 360 Field

Quality Control and Health & Safety

• Transition from a paper based to digital system
• Introduced technology to daily site operations
• Helped increase productivity of site workers
  o The Macallan Distillery - 20 mins saved per check sheet / 7 hours saving per week
  o 20% productivity gain
• 108 active members
• 36 partner companies
Robertson managed the project in a professional manner from the initial design brief, through the tendering process, construction phase and on to final commissioning, snagging and handover. At all times the Robertson team delivered their service with a level of integrity that was in keeping with the objectives of Edrington.”

George McKenzie – Edrington Group’s Engineering Manager
Robertson are now streamlining design, construction and maintenance process using BIM 360 Glue and BIM 360 Field to deliver a wide range of primary care, education, housing and social infrastructure projects for the public sector.

2016 – 2019
Key BIM 360 Projects

- **£34m**
  Stirling Health & Care Village
- **£65m**
  NHS Orkney Balfour Hospital
Information Management - Workflow

- **SHARED**: Verified design data shared with the project team
  - CLIENT SHARED AREA
  - Check, Review, Approve
  - Client authorisation

- **WORK IN PROGRESS**: Non-verified design data used by in-house design teams
  - DISCIPLINE 1
  - DISCIPLINE 2
  - DISCIPLINE 3

- **PUBLISHED / ISSUED**: Co-ordinated and validated design output for use by the total project team
  - Superseded/as-built

- **ARCHIVE**: Project history maintained for knowledge, regulatory and legal requirements
BIM 360 Glue - Workflow

Improved 3D Design Coordination during Stage 4 design with regular intermediate exchanges on BIM 360 Glue between the formal CDE uploads.
BIM 360 GLUE
NHS ORKNEY

- Greater collaboration between designers
- Models accessed by wider project team
- Models used during design team meetings – Less reliance on paper
- Helped decrease design coordination issues
  - 364 BIM Glue activities during Stage 4 design
  - 50% reduction in issues during Clash Detection exercises in the CDE workflow.
- Now live across 28 projects
On average each person could snag 2 rooms in 1.5 hours using the old paper process. However, using BIM 360 Field the productivity increased to 4 rooms 1.5 hours. 45% improvement in the time take for a subcontractor to complete corrective work and close issues.

- 1558 active members
- 1325 partner companies
BIM 360 Field Training

In the last 6 months Robertson have provided across the business.

- **224 hours** of formal BIM 360 training
- **To 242 people** across the business
Snagging with Barcodes or QR

- Consolidate project issues onto a single issue list and provide documentation for inspections.
- Provides comprehensive reports with locations and track the time taken to close out issues.
- Open and create issues in the field much faster.
- Issues and locations can be easily linked to drawings for using pins workflows.
- When the system is setup and easier to use it is more likely to be used by project teams.
BIM 360 Field to Power BI Workflow

• Harvest BIM 360 Field Data
• Analyse in Power BI
• Visualise on BIM 360 project dashboard
DATA Insight – Project IQ Dashboard

Robertson Group
RCG_AECC Robertson Quality Observations
Project Dates: P1: 01.02.2020 - P2: Aug 01.2020

Subcontractor Quality Risk Trend

Total Issues to Date: Active vs Closed

Open Issues By Due Date
Digital Construction Adoption Stages

TECHNOLOGY
AUTODESK BIM 360

ACTION PLAN
COMMUNICATION

PEOPLE
UPSKILLING & DEVELOPMENT

PROCESS
INFORMATION MANAGEMENT
Digital Construction Strategy – 2018 to 2021

Goal 1 Better project delivery throughout our project lifecycle

Goal 2 Build more safely and with fewer mistakes

Goal 3 Become more proactive & less reactive

Goal 4 To become an enabler for digital growth
BIM 360 Adoption Plan

Top down Support + Bottom up adoption = 360 Degree Approach

Equals Success
### BIM 360 Next Generation – process & productivity

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<td>For teams who need to collaborate in real-time using Revit</td>
<td>ASTA</td>
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<td>For teams who need to coordinate multi-discipline designs</td>
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<td>For all project stakeholders who need controlled access to information</td>
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ASTI 360 Sync
Making Digital Scalable Construction
Extending the digital workflows and using BIM 360 across the Residential businesses.

Robertson Residential Group

2018 - 2019

Scottish Housebuilder of the Year 2017 and Home of the Year 2018, Scottish Home Awards
Modelling of standard house types

Making Digital Construction Scalable

• Key Target
  o Improving processes and efficiencies within the Robertson Residential Group

• Solutions
  o Pilot project with Robertson Homes and Timber Engineering.
  o Data rich 3D components created.
  o Utilise equipment tracking through BIM 360 Glue and Field.
“BIM helps our team to be more efficient and maintain high quality throughout all phases of a project. Meanwhile, it gives our clients a clear view of progress and supports open, honest communication and stronger relationships.”

Elliot Robertson, Chief Operating Officer at Robertson
Thank you!