# Construction Services

**excitech**
*naturally balanced partnerships*

## Level 3 Verification and Validation

With industry margins remaining tight, an industry estimate of between 5% to 12% of a project budget is lost through mistakes and rework, buildings becoming more complex and handover timescales being squeezed tighter, the importance of building right first time to reduce costs and timeframes is becoming ever more critical. Couple this with Clients increasingly requesting a "Digital Twin" as part of the delivery, the requirement to produce high quality, accurate models to assist in the build right first-time methodology becomes clear.

The recognised best practice way to ensure the virtual design model and physical building both represent the "As Constructed" state is at key stages throughout the construction phase to take a laser scan of the physical build and compare it against the virtual model. Typically this would be done at the end of key work packages.

By taking this approach, the Contractor can ensure that any issues are picked up early and potentially save more expensive remedial work and delays that may be incurred at the end of the project.



This process can be done by importing point cloud data into Navisworks and using a third-party plug-in application called Verity. Verity compares the point cloud data against the modelled data. It then provides feedback on what has been installed in tolerance, what is out of tolerance, what is missing, what items are occluded (where they were not in direct sight of the scanner), and where there is not enough data to provide positive feedback.

By having this understanding of the project Verity helps you find construction mistakes before they become expensive problems.

Quite often quality and accuracy of build are only randomly spot checked. With this process, you can check 100% of your work in less time than it would take to spot check. Verity gives you a complete record of a subcontractor's work—when it was installed and if it was installed to specification.

Verity analyses constructed elements including footers, structural members, MEP, concrete, penetrations, walls, and more. Elements in the design/fab model are checked to determine installation status and accuracy. Out-of-tolerance work can be highlighted, annotated and pushed to the subcontractor, project manager and all stakeholders as an HTML or PDF report.

The Verity variance data can be exported to Navisworks to perform clash detection on the as-built position of any element, reducing the likelihood of downstream rework and schedule delays from out-of-tolerance construction. The Navisworks file along with a free viewer can be sent to your subcontractors along with the element's associated points, annotations and critical variance data.

Scan data can be either produced by in-house teams, or externally. Excitech offer this service through a preferred partner.

For more information on our construction services please call 01992 807 444 or email **marketing@excitech.co.uk**.

### Features and Benefits of Verification and Validation

- Delivery of accurate as-built models and drawings
- Early identification of issues
- Understand what work has been installed
- Compare actual vs planned
- Reduced remedial work

- Reduce costly rework from as-built variances
- More retained profit
- Reduced risk
- Fewer delays
- More efficient Quality Assurance process