Laser Scanning for Construction
Laser Scanning - Uses

Existing Conditions
  - Quantity Surveys
  - Verify Topography

Mid-Construction
  - Deformation Monitoring
  - Collision Detection
  - Floor Flatness

As-Built Model
  - Litigation Protection
  - Facilities Mgmt.
Pre-Construction / Existing Conditions

Pre-Construction or Existing Condition scanning is used to provide a true as-built representation of a project’s starting point…existing structure, topography quantification, building tie-in, and remodel/interior projects are all examples of scanning at this stage.

• Existing Conditions in high resolution
• Identify errors with 2D ‘as-built’ docs
• Reduce client risk for reno/rehab projects
• Reduce need for physical site visits and inspection
Laser Scanning – Existing

‘As-Builts’ the Old Way

- Blueprints
- Old Drawings
- Un-scaled PDFs
- Field Measure
- Guessing?
Laser Scanning – Existing
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Laser Scanning – Existing
Mid-Construction scanning involves leveraging the technology to validate ‘planned vs installed work’. This can be helpful to quickly ensure the scope in a Building Information Model has been installed as coordinated, check for stub-up/rebar/PT prior to a slab pour, ensure walls are plumb and verify floor flatness, and track structural settlement/deflection over time. Our Mid-Construction scanning process has come to be known as ‘Construction Verification.’

- Excavation Volumes
- Construction Verification
- Facade and Structural Deformation
- Monitor and record construction progress
Laser Scanning – Mid Construction

**Architect Rendering**

**Uses:**
- Visualization
- Design Intent
- Owner Understanding

**Coordination Model**

**Uses:**
- Coordination
- Clash Detection
- Conflict Avoidance
- Team Understanding
- Shop Drawing Creation

**Laser Scan Point Cloud**

**Uses:**
- Visualization
- Capture Existing Conditions
- Installation Discrepancy Check
- Floor Flatness Studies
- Steel Installation Alignment
- Accurate As-Built Model
- Pre-Pour Scans
Laser Scanning – Mid Construction
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Laser Scanning – Mid Construction
Laser Scanning

As-Built

When scanning is performed consistently during a project, a digital As-Built representation of the built environment is a byproduct. The scan or point cloud depicts the As-Built conditions and can then be overlaid with the Building Information Model. Then any final adjustments can be made to the final model ensuring an accurate as As-Built.

- Provide ‘true’ As-Built documentation
- Measurable record of everything scanned
- Reduce risk, increase knowledge of ‘covered’ conditions
Laser Scanning – As-Built
Laser Scanning – As-Built
Laser Scanning – As-Built