

BIMPHASE SOLUTIONS



Scan-to-BIM Handbook

A field-to-model workflow for planning capture, controlling point-cloud quality, modelling existing conditions, and communicating accuracy.

2026 EDITION

PRACTICAL RESOURCE

From Concept to As-Built Design

Define the purpose before scanning

Capture and modelling requirements should follow the decisions the model must support. A survey for visual reference is different from one intended for fabrication or dimensional verification.

Confirm the use case

- Renovation design, coordination, asset records, verification, or progress capture.
- Required areas, systems, hidden conditions, access constraints, and exclusions.
- Model deliverables, authoring platform, file formats, and downstream users.

Set measurable requirements

- Required accuracy and model tolerance by area or element type.
- Point density, image requirements, control network, and coordinate system.
- Required level of information need and treatment of uncertain conditions.

Plan and execute field capture

A capture plan reduces shadows, registration weakness, and costly return visits. Coordinate site access and safety controls before equipment arrives.

Capture planning

- Review available drawings and conduct a site walk.
- Plan scanner positions for overlap, line of sight, vertical circulation, and congested spaces.
- Establish control points and independent check points where accuracy must be demonstrated.

Field records

- Record station IDs, dates, equipment, settings, operators, and site conditions.
- Maintain field notes for inaccessible, moving, reflective, transparent, or obstructed elements.
- Check coverage and registration quality before leaving the site.

Register and quality-check the point cloud

Registration quality should be demonstrated with evidence, not only a single software-reported average. Review local fit, control residuals, and visible alignment across the full dataset.

Processing

- Register scans using the approved control and coordinate strategy.
- Remove obvious transient noise while retaining evidence of existing conditions.
- Segment or index the dataset for practical access and model performance.

Quality checks

- Inspect overlap, edges, floors, walls, structural members, and repeated geometry.
- Report control and check-point residuals using the agreed units.
- Flag gaps, occlusions, low-confidence areas, and any transformed source data.

Model with traceable confidence

Model only what the point cloud and agreed supplementary evidence support. Do not imply precision or completeness that was not captured.

Modelling rules

- Use agreed categories, object types, levels, parameters, and naming conventions.
- Apply simplified geometry where fine detail does not support the intended use.
- Identify assumed, concealed, inaccessible, or insufficiently captured conditions.

Validation

- Compare model geometry against the point cloud using sections and sampled deviations.
- Use representative checks across the site, not only easy or regular areas.
- Record deviations, accepted tolerances, exclusions, and corrective actions.

Package and communicate the deliverable

A useful handover explains what was captured, how it was processed, what was modelled, and where users should exercise caution.

Handover package

- Registered point cloud in agreed native and exchange formats.
- As-built model, published views, and required drawings or schedules.
- Survey control, registration, modelling, and deviation reports.
- Coordinate system, units, software versions, dates, and file manifest.

Acceptance checklist

- Files open and align in the receiving environment.
- Coverage and known limitations are clearly documented.
- Model scope and information content match the agreed requirements.
- Accuracy evidence supports the declared tolerance and intended use.