8.7 Project As-built and Record Documents

8.7.1 Purpose

The purpose of this section is to clarify the requirements for the preparation of As-built and Record Documents.

8.7.2 Related Sections

- Section 8.1 *Drawing Standard*
- Section 8.2.1 *Drawing Standard Appendix 1 – Glossary* (Abbreviations and Definitions)
- Section 8.3 *CAD Standards*
- Section 8.6 *Required Consultant Document Submission*

8.7.3 As-built Documents

As-built Documents are a marked-up set of the most recent document versions as issued by the prime consultant, typically either labelled as Issued for Tender (IFT) or Issued for Construction (IFC). They are maintained throughout construction by the contractor to accurately represent the completed Work and shall include all revisions as issued by change order and site instruction and show the location of all utilities, systems and equipment. Draft As-built Documents in PDF format shall be prepared and coordinated by the contractor and submitted for review to the prime consultant within 30 days of substantial performance.

Upon acceptance, the final approved set of As-built Documents are to be resubmitted with a copy to the owner's project manager as part of the final closeout process.

The prime consultant and their associated sub-consultants shall use the As-built Documents as the basis for creating final Record Documents.

8.7.4 Record Documents

Record documents are the final set of drawings, specifications and other construction documents, prepared by the consultant team, coordinated by the prime consultant. These documents reflect the as-constructed conditions based upon the information provided by the contractor as reflected in the As-built Documents.

- The prime consultant is responsible to coordinate and assemble a complete set of record documents in PDF and DWG format, and submit this set to the owner's project manager within 90 days of substantial performance. RVT format record model is required in the same timeframe if a project is modelled in Revit.

- Record drawings will show the as-built conditions including, but not limited to,
    - Any architectural, structural, mechanical, electrical, civil and landscape changes made to the design during construction or through addenda during the bid phase.
    - Construction concealed utility and equipment locations that require future access for maintenance, operation and/or inspection including, but not limited to, underground utilities and appurtenances, dampers, valves, controls, cleanouts and other equipment riser installation
    - Electrical panel zoning

- o   Furniture layout
- o   Room numbering

- Drawing sheet format
  - o   All record sheets should be dated and labeled with "RECORD SET" in the issuing column.
  - o   Record drawings shall be accurate, clean, clear and easily readable.
  - o   Delete alternates or options.
  - o   All revision notations including clouds, delta, revision dates and numbers should be removed from the documents.

- O&M Manual
  - o   Refer to individual project specifications for exact requirement.
  - o   The document must contain the following information including, but not limited to,
    - ▪ Commissioning functional tests
    - ▪ Field test reports
    - ▪ Job, resource & spare information
    - ▪ Manufacture certificates
    - ▪ Manufacture installation instructions
    - ▪ Manufacturer test reports
    - ▪ Material test reports
    - ▪ Materials certificates
    - ▪ Operations & maintenance manual
    - ▪ Product certificates
    - ▪ Product data
    - ▪ Product test reports
    - ▪ Shop drawings
    - ▪ Spare parts list
    - ▪ Start-up report
    - ▪ As-built finish schedule
    - ▪ Warranty

8.7.5   Architectural Composite Plans

Campus Architecture maintains asset drawings to support the campus community. These drawings make use of AutoCAD to build architectural composite plans of all floors within buildings. Campus Architecture also adopt Revit models in the Integrated Workplace Management System (IWMS) when such models are available for use.

Before a project commences, if the prime consultant requires record composite plans from the Record Management Office (RMO), he/she must request them through the owner's project manager. All files provided by UCalgary are the "best available data" at the time of transfer and are intended for informational use only. **Prior to the commencement of any work, consultants shall be responsible for field verifying data to ensure accuracy.**

Nearing the completion of a project, all asset modification resulting from a project needs to be reflected in the university's IWMS. At substantial performance based on IFC documentation, Campus Architecture will update drawings to prepare for occupancy and again later, will do a final update based on record documentation. To support this process, designers are required to submit composite plans at IFC and at project close-out directly to Campus Architecture at cad.bimadmin@ucalgary.ca.

8.7.6   AutoCAD Drawing Requirements

8.7.6.1   Project Record AutoCAD Drawings

- Conform to all requirements in section 8.3.3 *AutoCAD Drawing Requirements*.

- Purge revision layers including "Clouds" and "Deltas" before submittal.

- Make layer 0 the current layer before closing the drawing.

- Remove external references (xref).
    - Use "Insert" command to bind xref(s) into a block reference.
    - It is not acceptable to have a layer with a prefix of blockname n, which resulted from using "bind" command to bind xref(s).

8.7.6.2   Architectural AutoCAD Composite Plans

An AutoCAD architectural composite plan contains:

- Items conforming to section 8.3.3 *AutoCAD Drawing Requirements*.
- Structural grid in compliance with section 8.1.8 *Structural Grid*.
- Structural elements (columns, concrete walls etc.)
- Building elements (walls, doors, windows, reflected ceilings, etc.)
- Millwork, furniture, fixtures, equipment, etc.
- Fire ratings/fire separations/wall assemblies where relevant to regulatory requirements
- Dotted construction area
- Minimal annotations
- No construction notes, tags or dimensions
- No demolition or related annotations
- Everything drawn in model space (with nothing in paper space)
- No annotative text or dimensions.
- No AEC objects, 3D polylines, surfaces, solids or any 3D objects. Any of the aforementioned objects are to be flattened to lines or polylines.

8.7.7 Project Record Revit Models

- Use eTransmit to deliver the master Revit model. The eTransmit shall be setup as illustrated. All Revit models should accept the prime design option before submission.

- Export each sheet to AutoCAD DWG format. UCalgary doesn't provide Revit templates including DWG/DXF Export Setup at this time. Designers need to create it based on section 8.4.2 *Layer Naming Convention*. It is impossible to be a perfect match. Close enough is acceptable.

- UCalgary has only integrated a few Revit models into IWMS. Most buildings require AutoCAD composite plans. Contact Campus Architecture if AutoCAD composite plan are to be extracted from the REVIT models to be submitted. If so, this plan is required to strictly follow section 8.4.2 *Layer Naming Convention*.

- UCalgary is able to provide AutoCAD layer script by request.
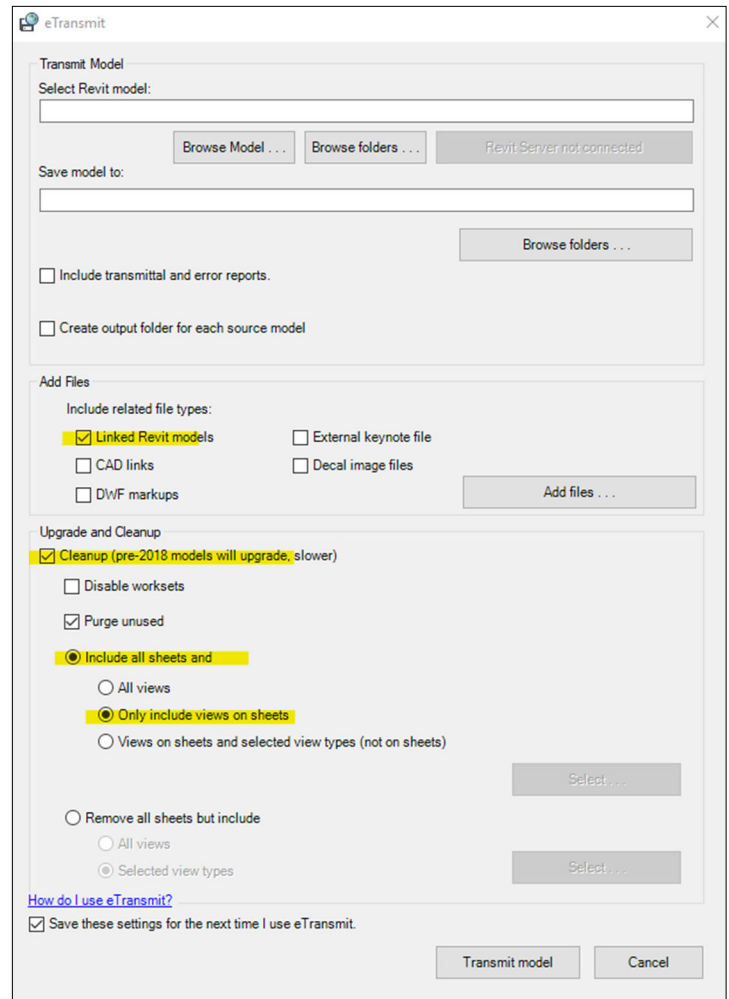
Revision History

Revision Date	Version	Description
Jan 2022	1.1	Baseline version
August 10, 2023	1.0	Added Revision History table to end of document and reset to Version 1.0.