

8.3 CAD Standards

8.3.1 Introduction

AutoCAD files are used by UCalgary and its business partners throughout the building life-cycle. Consistent, usable, quality CAD drawings are a valuable information asset. These requirements must be followed by all UCalgary and external partners. Submitted CAD drawings that do not conform to the standard will be returned. Drawings are to be re-submitted once the requirements have been met.

This section outlines overall CAD requirements. Refer to Design Standard section 8.4 - *CAD Standard Appendix* for more detailed information.

8.3.2 AutoCAD Drawing File Naming Convention

[Building abbreviation] _ [Project number] _ [Sheet number] _ [Sheet title] . dwg

For an example, SB_BAS180123_A1-01_MainFloorPlan.dwg

8.3.2.1 Building Abbreviation

Refer to UCalgary building address website for the list of building abbreviations

<https://ucalgary.ca/facilities/buildings/building-list>.

SB in the above example stands for Science B building.

8.3.2.2 Project Number

UCalgary BAS/IMP/CRO project number

8.3.2.3 Sheet Number

In the above example, the sheet number is A1-01.

8.3.2.4 Sheet Title

Use the title in the drawing. Use uppercase letter for the first letter of each word and lowercase for the rest letters. No space between each word.

8.3.3 AutoCAD Drawing Requirements

1. All drawings must be compatible with AutoCAD 2013 format or earlier.
2. Conform to Design Standard section 8.4.2 - *Layer Naming Convention*.
3. Set drawing units as millimeters.
4. Load linetypes from metric linetype file (acadiso.lin).
5. "Audit", "purge" and "overkill" all the drawings to remove unused blocks, layers, line types, plot styles, text styles, dimension styles, etc.
6. Save drawings in both model and paper spaces with "zoom extend".
7. Check spelling.
8. Record drawings must meet all additional requirements as listed in section 8.3.4 and 8.3.5.



8.3.3.1 Drawing Settings

LTSCALE = 0.75 Sets the global lintype scale factor

MSLTSCALE = 1 Linetypes displayed on the model tab are scaled by the annotation scale.

PSLTSCALE = 1 View scaling governs linetype scaling

8.3.3.2 Drawing Elements

1. Do not draw on layer 0.
2. All elements shall have the following properties:
 - Color ByLayer
 - Linetype ByLayer
 - Linetype scale 1
 - Lineweight ByLayer
 - Transparency ByLayer
 - Thickness 0

8.3.3.3 Blocks

All objects within blocks shall have the following properties:

- Layer 0
- Color ByLayer
- Linetype ByLayer
- Linetype scale 1
- Lineweight ByLayer
- Transparency ByLayer
- Thickness 0

Drawing entities translated into AutoCAD blocks from non-AutoCAD systems must revert to layer 0 when exploded within AutoCAD.

8.3.3.4 Paper Space

1. Title blocks must be inserted on paper space at 0,0 coordinate.
2. All viewports must be locked and on G-ANNO-NPLT layer, which should be on.
3. Nothing should be drawn outside the title block boundaries.

8.3.4 Record Drawings

1. Only submit the actual constructed version. Delete alternates or options. Purge revision layers including “Clouds” and “Deltas” before submittal.
2. Record drawings shall be accurate, clean, clear and easily readable.
3. Conform to all AutoCAD drawing requirements in section 8.3.3.
4. Make layer 0 as current layer before closing the drawing.



5. 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 was resulted from using “bind” command to bind xref(s).

8.3.5 Record Composite Plan Drawings

A composite plan is a drawing of the entire floor plate. UCalgary currently archives architectural composite plans for all building assets. These drawings require:

- Structural grid in compliance to section 8.1.7 - *Structural Grids*.
- Building elements (walls, doors, windows, reflected ceilings, etc.)
- Millwork, furniture, fixtures, equipment, etc.
- Minimal annotations
- No construction notes, tags and dimensions
- No demolition or related annotations
- Conform to all requirements in section 8.3.3 and 8.3.4.
- Everything drawn in model space (with nothing in paper space)
- No annotative text or dimensions.
- No AEC objects, 3D polylines, surfaces, solids and any 3D objects. Any of the aforementioned objects are to be flattened to lines or polylines.

Before drafting commences, external consultants require record composite plans from the Record Management Office (RMO) through the PM. 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.**

After substantial completion, record composite plans with project updates are to be submitted by external consultants.

8.3.6 Revit Projects

If the project is modelled in Revit, submit the model as required in Design Standard section 8.6 - *Required Consultant Document Submission*. *Model requirement is under development.*

Revit export to CAD setup shall follow Design Standard section 8.4.2 - *Layer Naming Convention*. Acknowledging the translation between Revit and AutoCAD, CAD drawings exported from Revit that meet our basic requirements are acceptable. Only architectural composite plans must conform to UCalgary CAD requirements.



Revision History

Revision Date	Version	Description
Nov 2018	1.1	Baseline version
August 10, 2023	1.0	Added Revision History table to end of document and reset to Version 1.0.