



Never Stand Still

UNSW Architectural CAD Standards Version 1 – August 2018

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UNSW
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1.0 OVERVIEW

This document has been prepared by the Space Management Unit (SMU) as part of the UNSW Facilities Management (FM) 'Design and Construction Guidelines'. The document represents the specific conditions under which architectural drawings and documentation submitted to UNSW will be accepted from any consultant and contractor engaged in building works at UNSW.

1.1 Scope

The standards in this document aim to ensure consistency across all UNSW CAD plans, improve project collaboration and improve accuracy across the UNSW plan set. The standards apply to all design drawings, contract drawings, construction drawings and 'As built' drawings. The standards shall be followed by all builders/contractors and consultants undertaking construction work at UNSW.

1.2 UNSW CAD Model

All drawings prepared in relation to work carried out for UNSW shall be provided for the SMU in electronic drawing format and shall include all disciplines.

The UNSW FM nominated software is AutoCAD 2012. Drawings produced from earlier versions of AutoCAD are acceptable.

UNSW CAD drawings consist of the following information about UNSW buildings:

- Architectural (i.e. walls, doors, windows, columns, etc.) which form the basis for As-built drawings.
- Space (i.e. r
- oom numbers, room areas, GBA, GFA, UCA, space polylines)

1.3 Document Transmittal

All documents shall be supplied with an accompanying document transmittal. The details required include:

- Details of the sender;
- Project name;
- Date of issue;
- Rev/issue number; and
- Description of each item, detailing what has been provided.

Documents will not be accepted without a document transmittal.

1.4 Drawing Control

Prior to commencement of design, consultants will receive a UNSW CAD Standards template in DWG format, a copy of the 'UNSW CAD Standards' document and the UNSW 'Room Numbering Standards' document. These files are to be used to establish drawing set up.

Consultants are then required to submit related documents on CD, email or access through a designated centralised server at the design stage, revision stages and the final construction stage (As Built's) to the SMU.

This includes:

- Approved design CAD and PDF drawings with a draft room numbering sequence for the SMU to review;
- A set of final CAD and PDF plans with the approved room numbering sequence;
- A complete set of updated CAD and PDF files at the practical completion stage containing comments and revisions made throughout the course of construction reflecting any amendments to design and specifications.

1.5 Labelling of CAD Files

CAD drawings shall contain a title block displaying the following information:

- UNSW project number;
- Project name;
- CAD drawing file name;
- Date;
- Stage the drawings are at e.g. 'As Built'; and
- Drawing discipline.

Letters identifying drawing disciplines:

Table 1

A	Architectural
S	Structural
M	Mechanical & Lifts
E	Electrical
H	Hydraulic
DC	Data & Communications
C	Civil & Survey
F	Fire (including Fire Compartment plans)

CAD files shall follow the UNSW naming standard i.e

Drawing discipline – Building grid code – floor code

E.g. A-C20-G

Level naming standards can be found in the "UNSW Room Numbering Standards" document under the heading '3. Level Naming and Numbering'.

2.0 CAD DRAWING GUIDELINES

2.1 Requirements

CAD files shall be in AutoCAD drawing (DWG) format. The version required is to be no later than AutoCAD 2004. If AutoCAD is not the contractors primary software CAD files need to be converted to DWG format.

Drawings are to be in 2D format. 3D plans will be accepted separately for future BIM purposes.

The following drawing requirements shall be met:

- All CAD drawings shall be drawn as one continuous and uniform plan in MODEL SPACE. PAPERSPACE should only be used as an outlet for the ability to plot;
- Plans shall be drawn at a scale of 1:1 (1 drawing unit to 1 millimetre) in modelspace;
- Each CAD drawing file showing building plans shall contain only the plan information for that level. No other plan is to be placed on the drawing;
- Multiple drawings shall not be permitted on one CAD file;
- All text, dimensions, drawing reference symbols, hatching and border sheets shall be on separate layers;
- UNSW Layers shall be used (supplied in Appendix 1);
- UNSW Plot Style Tables (.ctb) files will be supplied and shall be used;
- No external references (x-refs) to be used on main drawing (If x-refs exist, they are to be bound and delivered separately)
- All drawings shall be purged
- Each CAD plan must have the base set to "0,0,0".
- All entities in the drawing file must have the colours and line types set to BYLAYER.
- Blocks are to be used: Any identical group of entities, objects or symbols in a drawing should not be exploded.
- All CAD files are to be accompanied by the corresponding PDF drawing

2.2 Layer Naming Standard

Appendix 1 (page 9) lists UNSW layers and layer properties shall be included on all UNSW architectural plans. A UNSW CAD Standards file (dws) will be supplied as part of the UNSW CAD Package.

UNSW layers shall be applied to all design drawings, working drawings, contract drawings and "as built" drawings.

2.3 Additional Layers

If additional layers are needed, layer naming shall follow the procedures in Appendix 1 according to the American Institute of Architects (AIA) which consists of Major Group (1 character) – Minor Group (4 characters) - Modifier (4 characters-optional).

E.g. A-WALL (architectural-walls), A-DOOR-NO (architectural-door-number).

2.4 Space Layers

In addition to building information, space information is recorded on UNSW CAD plans. This includes room areas, GBA, GFA and UCA. Closed polylines shall be used to define these areas as outlined in Appendix 2.

Polylines determining UNSW Space shall be placed on the corresponding SPACE- layer as outlined in Appendix 1.

3.0 ROOM NUMBERING & RELATED DOCUMENTS

All plans shall be numbered using the UNSW “Room Numbering Standards” document.

Room numbers are included in UNSW space data and shall be placed on the SPACE-ROOM-NO layer.

4.0 CONDITIONS

All consultants and contractors shall meet the UNSW CAD standards and to strictly maintain the layering structure and data held within the layers. The UNSW FM Space Management Unit shall be contacted if any doubts or queries exist regarding the preparation or submission of drawings and documentation.

5.0 CONTACT

All requests and queries shall be directed to the Space Management Unit.

Email: spacemanagement@unsw.edu.au

Appendix 1 – UNSW Layers

Name	Colour	Linetype	Line weight	Description
0	white	CONTINUOUS	ByLineWeightDefault	Layer 0
A-ANNO-DIMS	cyan	CONTINUOUS	ByLineWeightDefault	Architectural - Annotation, Dimensions
A-ANNO-LEGN	cyan	CONTINUOUS	ByLineWeightDefault	Architectural - Annotation, Legends, Symbol keys
A-ANNO-TEXT	cyan	CONTINUOUS	ByLineWeightDefault	Architectural - Annotation, Text
A-ANNO-TTLB	cyan	CONTINUOUS	ByLineWeightDefault	Architectural - Annotation, Border and title block
A-AREA-PATT	white	CONTINUOUS	ByLineWeightDefault	Architectural - Texture or hatch patterns
A-CLNG	white	CONTINUOUS	ByLineWeightDefault	Architectural - Ceiling
A-COLS	green	CONTINUOUS	ByLineWeightDefault	A-COLS
A-DOOR	150	CONTINUOUS	ByLineWeightDefault	Architectural - Doors
A-EQPM	red	CONTINUOUS	ByLineWeightDefault	Architectural - Equipment
A-FLOR-EVTR	10	CONTINUOUS	ByLineWeightDefault	Architectural - Floor, Elevator cars and equipment
A-FLOR-HRAL	10	CONTINUOUS	ByLineWeightDefault	Architectural - Floor, Handrails, guard rails
A-FLOR-STRS	10	CONTINUOUS	ByLineWeightDefault	Architectural - Floor, Stair treads, escalators, ladders
A-FURN	242	CONTINUOUS	ByLineWeightDefault	Architectural - Furniture
A-GLAZ	92	CONTINUOUS	ByLineWeightDefault	Architectural - Glazing
A-ROOF	red	CONTINUOUS	ByLineWeightDefault	Architectural - Roof
A-WALL	50	CONTINUOUS	ByLineWeightDefault	Architectural - Walls
A-WALL-MOVE	50	CONTINUOUS	ByLineWeightDefault	Architectural - Walls, Moveable equipment
A-WALL-PATT	32	CONTINUOUS	ByLineWeightDefault	Architectural - Walls, Texture or hatch patterns
DEFPOINTS	white	CONTINUOUS	ByLineWeightDefault	DEFPOINTS
E-COMM	white	CONTINUOUS	ByLineWeightDefault	Electrical - Communications
E-LITE	white	CONTINUOUS	ByLineWeightDefault	Electrical - Lighting fixtures
E-LITE-CLNG	white	CONTINUOUS	ByLineWeightDefault	Electrical - Lighting fixtures, Ceiling
E-POWR	white	CONTINUOUS	ByLineWeightDefault	Electrical - Major -POWR
F-CO2S-EQPM	white	CONTINUOUS	ByLineWeightDefault	Fire - Equipment CO2
H-HYD	white	CONTINUOUS	ByLineWeightDefault	Hydraulic
I-FURN-CASE	242	CONTINUOUS	ByLineWeightDefault	Interiors - Furnishings, Casework
M-EXHS-DUCT	white	CONTINUOUS	ByLineWeightDefault	Mechanical - Major -EXHS, Minor 1 -DUCT
M-FUME-EQPM	white	CONTINUOUS	ByLineWeightDefault	Mechanical - Major -FUME, Equipment
M-HVAC-DUCT	white	CONTINUOUS	ByLineWeightDefault	Mechanical - HVAC, Minor 1 -DUCT
S-SITE-WALL	50	CONTINUOUS	ByLineWeightDefault	Structural - Site plan, Walls
S-WALL	yellow	CONTINUOUS	ByLineWeightDefault	Structural - Walls
SPACE-GBA	blue	CONTINUOUS	ByLineWeightDefault	UNSW Space -Gross Building Area
SPACE-GFA	cyan	CONTINUOUS	ByLineWeightDefault	UNSW Space - Gross Floor Area
SPACE-ROOM	green	CONTINUOUS	ByLineWeightDefault	UNSW Space - Net Room Area
SPACE-ROOM-AREA	255	CONTINUOUS	ByLineWeightDefault	UNSW Space -Gross Building Area
SPACE-ROOM-NO	yellow	CONTINUOUS	ByLineWeightDefault	UNSW Space -Gross Building Area
SPACE-UCA	magenta	CONTINUOUS	ByLineWeightDefault	UNSW Space - Unenclosed Covered Area

Appendix 2 – UNSW Space Layer Definitions

Name	Layer Name	Definition
Gross Building Area (GBA)	Space-GBA	Measured from the outside face of exterior walls including any projections such as columns.
Gross Floor Area (GFA)	Space-GFA	Measured from the inside face of the exterior walls including minor projections such as columns. This total is the sum of FECA (Fully Enclosed Covered Area) and UCA (Unenclosed Covered Area).
Unenclosed Covered Area (UCA)	Space-UCA	Measured between the exterior wall and balustrade, edge of paving or cover (roof or upper roof). UCA includes any trafficable uncovered and unenclosed areas such as verandas, balconies, under crofts, car parking stations and attached covered walkways.
Net Room Area	Space-Room	Measured from the inside face of a room or space excluding structural projections such as columns which cannot be useable.
Space Room No.	Space Room No	Displays the room number of a room or a space
Space Room Area	Space Room Area	Displays the area of a room or a space