

Kroskin Design Group PC

CAD Standards Guideline



Table of Contents

Table of Contents.....	1
INTRODUCTION to KDG’s DOD CAD Standards.....	2
Starting the Project off Right!!!	2
Layer Management	4
Text and Dimensions	5
Scales and Units.....	5
Symbols.....	5
CAD Precision	6
Miscellaneous Notes	7
INTRODUCTION to KDG’s Residential CAD Standards	8
Starting the Project off Right!!!	8
Layer Management	8
Text and Dimensions	8
Scales and Units.....	9
Symbols.....	9
CAD Precision	10
Miscellaneous Notes	10

INTRODUCTION to KDG's DOD CAD Standards

- The following is a guideline for all .dwg or AutoCAD format drawings produced within Kroskin Design Group.
- All Drawings for NavFac Agencies unless otherwise noted here or in the individual project criteria must to follow the guidelines set forth by NAVFAC in http://wbdg.org/ccb/browse_cat.php?o=30&c=95 (UFC 1-300-09N).

Starting the Project off Right!!! **Drawing Setup**

- The first step in starting a new project is setting up a folder for the new project. In the “Jobs” folder on the server is a 0000 folder which is a prototypical job folder that the project manager (or whomever is setting up the new job) copies and renames using the 4 or 5 digit KDG job number followed with the name of the project. (EX: 0501-K P1227 WOUNDED WARRIORS BEQ)
- In the “Architectural” folder the project manager will determine what sheet formatting the project needs and retrieve the appropriate prototypical files to start the Cad drawings off with from the “DATA/TITLESHE” folders.
- Create a “Deliverable ##% DATE” for each deliverable stage. In this “Deliverable ##% date” folder all items and only the items delivered for that stage stay in this folder. Create sub folders in the deliverable folder as needed.
- The prototypical “BORDER” file should not be renamed. The prototypical “XXXX-X T-101” and “XXXX-X A-000” should be renamed in the new projects “Architectural”

folder for either the NavFac project # or the Lejeune project #, according with “UFC 1-300-09” Section 7. The “XXXX-X A-000” in the “Architectural” folder should also be used to create all of the other drawing sheets by way of either “copy” or “save as”. See the section about Xrefs in the “Miscellaneous Notes” page 7 for more about managing the Xrefs.

- Within each title block of the drawings are areas that need filling in. There are areas on the “BORDER” file with ??? and XXX that need to be filled in per the project on the “BORDER” file. There are also ??? and XXX areas in the “XXXX-X T-101” and “XXXX-X A-000” files that need to be filled in according to the particular sheet. Before any project is complete, all of the areas with ??? or XXX should be filled in or addressed. Most of the areas are self-explanatory. The ??? PHASE ??? area should reflect the active project phase and should be empty for the “Final Submittal”. The “Progress Prints” seal is left on the “BORDER” file until just before the “Final” drawings are to be submitted, at which time the final seal is to replace the “Progress Prints” seal in the “BORDER” file.
- Sheet type designator shall be based on the following.
 - 000’s General (symbols, legends, notes, etc.)
 - 100’s Plans (horizontal views)
 - 200’s Elevations (vertical views)
 - 300’s Sections (section views)
 - 400’s Large Scale Views (plans, elevations, sections that are not details)
 - 500’s Details
 - 600’s Schedules
 - 700’s User Defined and Plates
 - 800’s User Defined
 - 900’s 3D Representations and photographs

Layer Management

- All of the prototypical files have a variety of layers set up in them and these layers should be used if at all possible. If new layers are needed for further distinction of layers and management of layers and line weights try to use the existing system of layer naming that has already been set up. See the attached “Layer List” diagram.
- When Layer Management is needed in one base drawing to distinguish between new work and demo drawings, or similar conditions, the “Layer States Manager” should be used to create Layer Saved States for the different layer conditions. If you have questions about how this works either see the HELP menu, Eric Rueger, or Keith Kindler.
- The Colors for the new layers should be determined based on the attached “Pen Assignments” diagram.
- All layers follow a naming convention; the first letter is the Discipline designator. The next 3 - 4 letter group is the “major group” the layer is part of, like “DEMO” or “NEW” for the appropriate groups. The next group or groups of letters is the “Minor groups” which determine the specific usage of the layer. I.E. “A-Demo-Wall-Head”: the “A” is the Discipline designator, the “Demo” is the “major group”, and “Wall” and “Head” are both “Minor groups”.

Text and Dimensions

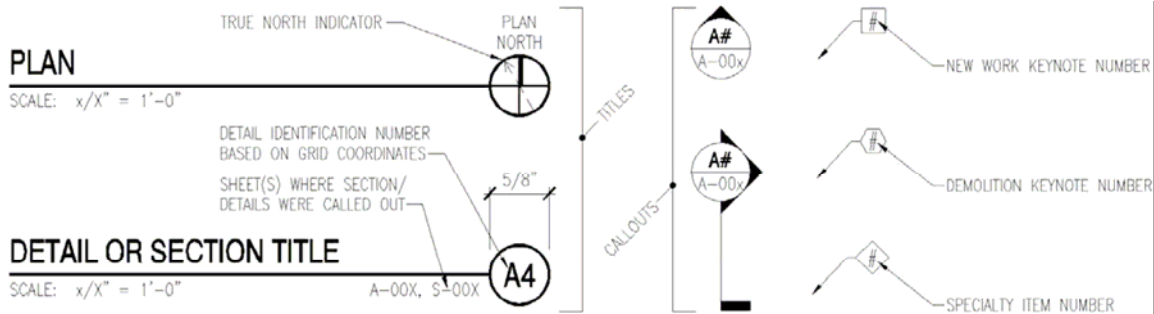
- For NavFac drawings all text needs to be ROMANS.SHX for any 1/8" text and SWISS.TTF (Swis721 BT) for any text larger than 1/8". All text should have a width factor of 0.8. For more details see Section 7 of the referenced NavFac's UFC 1-300-09N document above. All room names should be 3/16" text and use the SWISS.TTF (Swis721 BT) font.
- The dimensions should be taken from the "Data/Custom/dim styles" folder.

Scales and Units

- All units unless otherwise requested will be Imperial Architectural units.
- All drawings that have scaled elements on them need to have block "grsc.dwg" and "gsnote.dwg" as well as the graphic scales that accordingly go along with the scales of all elements on the drawing, which can be found at "Data/Custom/Scales".

Symbols

- According to NavFac's UFC 1-300-09N document referenced above the symbols that we use on any NavFac drawing sheet are shown below and located in the "Data/Custom/NAVFAC CADD Standards" folder. All other blocks if not noted otherwise should be found in the "Data/Custom" folder under its appropriate topic.



CAD Precision

- The door block in the “Tool Palettes” – “Architectural” named “Door-Imperial” should be used for representing doors on plans and should be on the “A-(Major group)-Door” layer. Represent the jam of the door with a single line on the “A-(Major group)-Wall” layer.
- All Cad drawings developed within Kroskin Design Group PC, will be drawn to actual dimensions. All lines must be straight, at the actual desired dimension designed length, and all corners must come to a close.
- “OSNAP” must be used with at least the following items on: Endpoint, Midpoint, Center, Intersection, Extension, and Perpendicular. **Nearest** must be used with caution.
- Either “ORTHO” or “POLAR” set to at least 45% should be used in most situations.
- “OTRACK” and “DYN” should be on.

Miscellaneous Notes

- The Linetype Scale (LTS) for paper space should be set at 0.5 in order for non-continuous lines to plot properly. The model space LTS can be temporarily set as needed according to the scale you are working with and the attached “Scales” diagram.
- Visretain should be set to “1”.
- Regenmode should be set to “1”
- The “NEW” Major group should be used for all new work even if there is no existing or demo work on the project.
- Any leader that is associated with text should be on the same layer and at the same scale as the text.
- Make sure that at all times the “Make new dimensions associative” is checked. This can be found in “option/user preferences/associative dimensioning”.
- With in the “External Reference” dialog box “Reference Type” should be “Attachment”, and the “Path Type” should be “Relative path”. If the path can not be made relative then see the attached “Set Paths to Referenced Drawings”.
- When creating tables and schedules on drawings, a new schedule tool can be used to create it and it is like an excel spreadsheet. This tool can be managed under “Format/Table Style...”, and new tables can be made from “Draw/Table...”. A setting for the tables is already set up in the 2-prototypical DoD project files, called “KDG Standard”.

INTRODUCTION to KDG's Residential CAD Standards

- All KDG's Residential CAD Standards are similar to the KDG's DOD CAD Standards

Starting the Project off Right!!!

- Sheet type designator shall be based on the following.
 - 0.0's General (symbols, legends, notes, etc.)
 - 1.0's Building Plans (horizontal views)
 - 2.0's Unit Plans
 - 3.0's Large Scale Views (plans, elevations, sections that are not details)
 - 4.0's Elevations (vertical views)
 - 5.0's Sections and Details (section views)
 - 6.0's Rated Assemblies
 - 7.0's User Defined and Plates
 - 8.0's User Defined
 - 9.0's 3D Representations and photographs

Layer Management

- The Layer List for Residential is per the CAD file set up in the "TITLESHE/KDG RESIDENTIAL SHEETS".

Text and Dimensions

- For KDG drawings all text should be archquik for 1/8", architxt for 3/16" text, and archtitl for 1/4" and greater text.
- The dimensions should be taken from the "Data/Custom/dim styles" folder, and adjusted for the KDG text.

Scales and Units

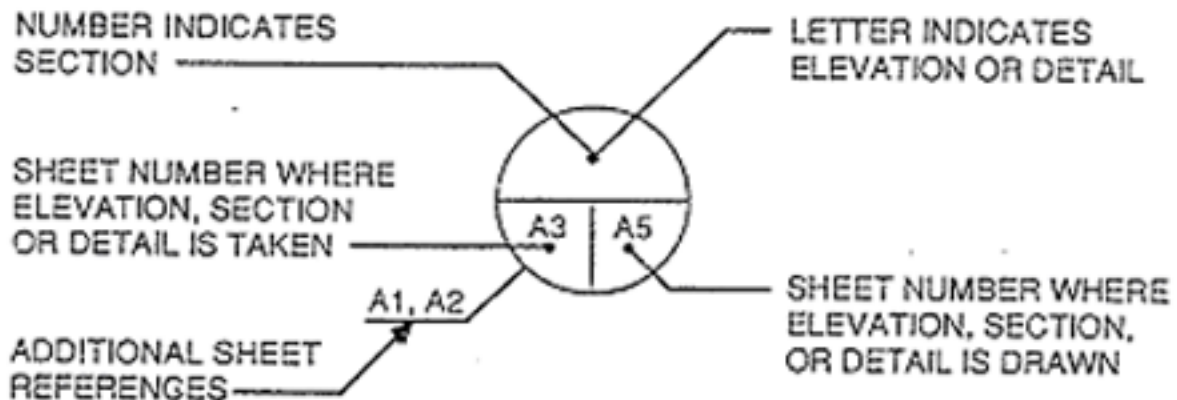
- All units unless otherwise requested will be Imperial architectural units.
- All drawings that have scaled elements on them need to have block “grsc.dwg” and “gsnote.dwg” as well as the graphic scales that accordingly go along with the scales of all elements on the drawing, which can be found at “Data/Custom/Scales”. This will be determined for each project.

Symbols

- Use the following.

SECTION AND DETAIL DESIGNATION

The standard section symbol will be as follows:



ELEVATION, SECTION, OR DETAIL SYMBOL

NOTE: SYMBOL SHOULD ALWAYS APPEAR AS PART OF THE TITLE, PLACED UNDER THE VIEW.

CAD Precision

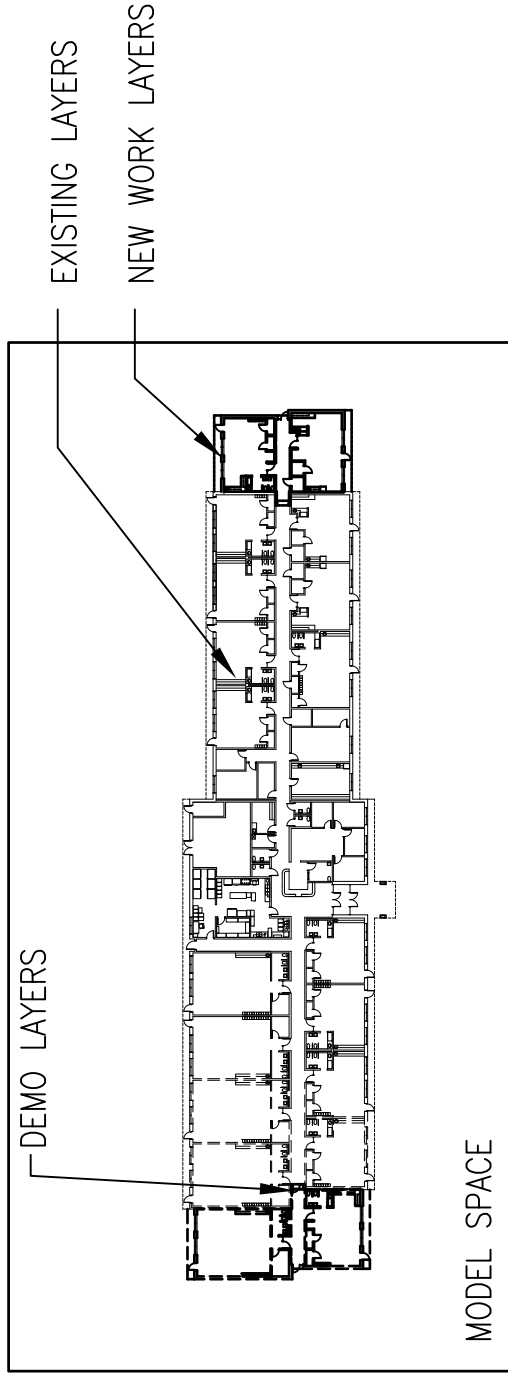
- All Cad drawings developed within Kroskin Design Group PC, will be drawn to actual dimensions. All lines must be straight, at the actual desired dimension designed length, and all corners must come to a close.
- “OSNAP” must be used with at least the following items on: Endpoint, Midpoint, Center, Intersection, Extension, and Perpendicular. **Nearest** should never be used.
- Either “ORTHO” or “POLAR” set to at least 45% should be used in most situations.
- “OTRACK” and “DYN” should be on at all times.

Miscellaneous Notes

- The Linetype Scale (LTS) for paper space should be set at 0.5 in order for non-continuous lines to plot properly. The model space LTS can be temporarily set as needed according to the scale you are working with and the attached “Scales” diagram.
- Visretain should be set to “1”.
- Regenmode should be set to “1”
- The “NEW” Major group should be used for all new work even if there is no existing or demo work on the project.
- Any leader that is associated with text should be on the same layer and at the same scale as the text.
- Make sure that at all times the “Make new dimensions associative” is checked. This can be found in “option/user preferences/associative dimensioning”.

- With in the “External Reference” dialog box “Reference Type” should be “Attachment”, and the “Path Type” should be “Relative path”. Is the path can not be made relative then see the attached “Set Paths to Referenced Drawings”.
- When creating tables and schedules on drawings, a new schedule tool can be used to create it and it is like an excel spreadsheet. This tool can be managed under “Format/Table Style...”, and new tables can be made from “Draw/Table...”. A setting for the tables is already set up in the 2-prototypical DoD project files, called “KDG Standerd”.

Xrefs and More.



Base Plan – Draw the base plan in model space. The base plan should include: walls, doors, windows, casework and anything that is a physical part of the building. The base plan should include existing, demo and new work. Make sure the layers are set up correctly and the building components are drawn on the correct layers.

Use of Base Plan

- The base plan is used to show what changes we are making to the building. If the walls, windows, doors, etc. are only drawn here there is no chance of conflicting information from sheet to sheet. Think of the base plan as the "master plan."
- The base plan is "xrefed" into all other drawings and can be set to different scales according to it's use on that sheet.

*** Never delete, move, or rename the base plan because all other sheets are using the base plan.

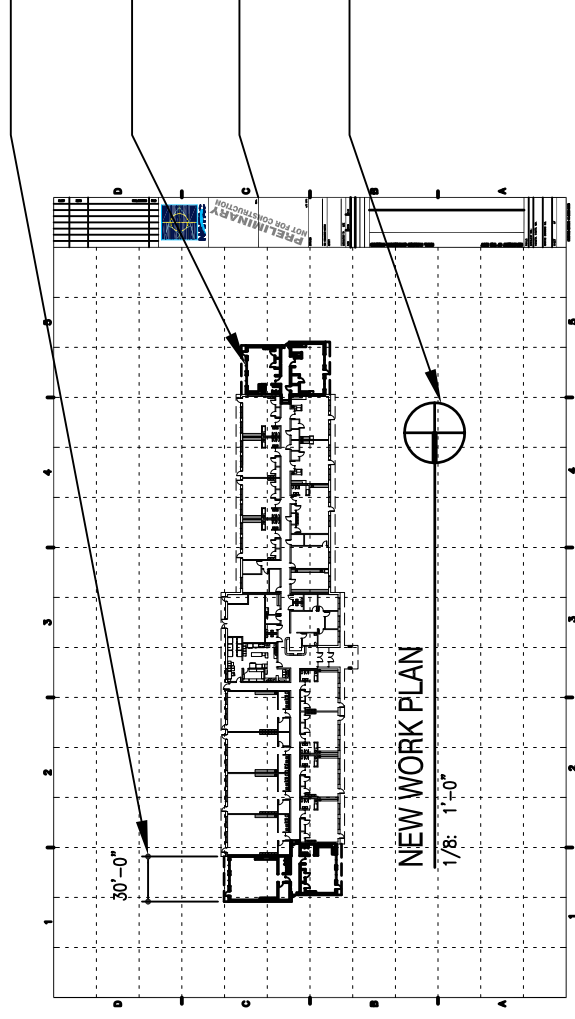
*** Never draw details, sections or elevations in the base plan. Set them up as their own dwg files and xref the base plan into the file to draw from.

DIMENSION ADDED IN MODEL SPACE OVER THE BASE PLAN XREF

BASE PLAN XREF IN MODEL SPACE

SHEET BORDER PLACED IN THE PAPER SPACE

TITLE BLOCK PLACED IN MODEL SPACE OVER THE BASE PLAN XREF & SCALED ACCORDINGLY

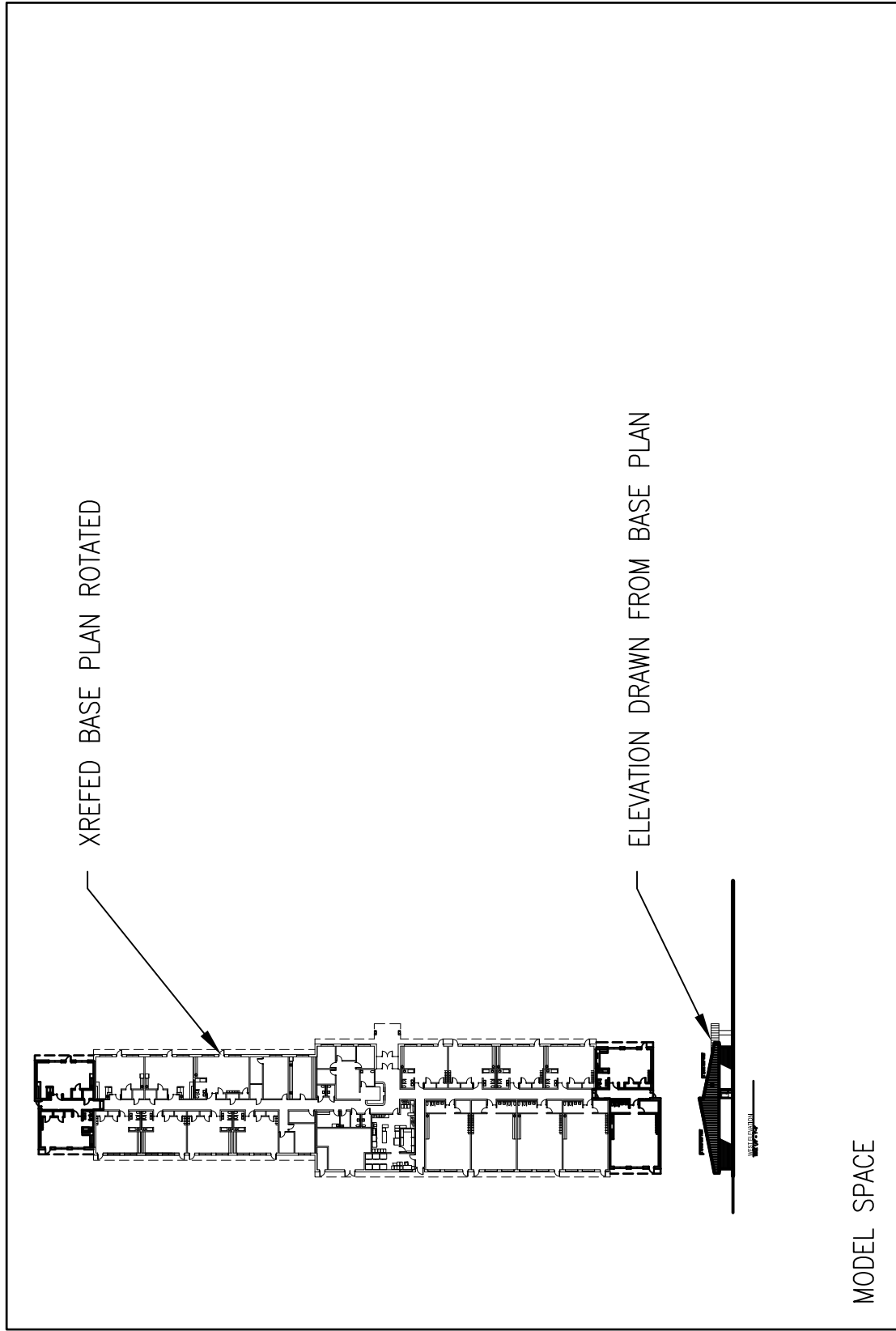


New Work Plan – Xref the base plan into model space. Freeze the demo layer so that only the existing and new work layers show. Add dimensions, title blocks, leaders, notes, etc. Any part of the drawing that is not a physical part of the building should be drawn here. Use your layout tab to switch over to sheet view and use the correct sheet border.

Why are dimensions, notes, title blocks, etc. drawn here instead of in the base plan?

- When you draw them in the base plan you carry them into other sheets where they are not needed and therefore increase the size of your dwg files. Example—new work dimensions are not needed on the demo sheet. Therefore if placed in the base you will need to freeze them in your demo plan as well as all other plans where they are not used.
- We use different scales on different sheets. Therefore it makes sense to draw your dimensions, notes and leaders on the sheet where their scale is designated.

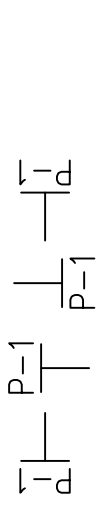
Demo Plan – Follow the same procedure except freeze all new work layers in the base plan and leave the demo layer on. Add demo notes, leaders and title block at the correct scale.



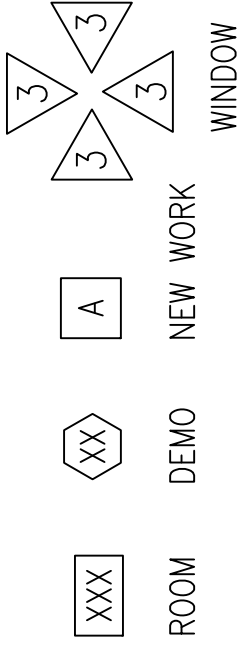
For elevations, sections and details– the base plan is xrefed into model space and used as a reference to draw from. If a new wall is moved, the xref will reflect the change so that you know to move the wall on your elevation drawing. This prevents conflicting information throughout the project.

***Never copy and paste the base plan to draw from because it will not reflect changes made in the base plan.

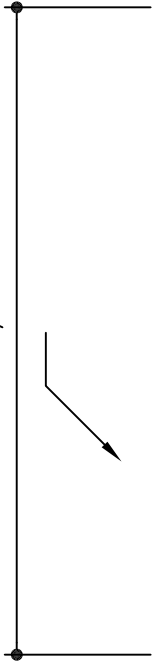
NAVFAC CAD STANDARD NOTATION



PARTITION TYPE FLAGS

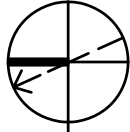


3 3/8"



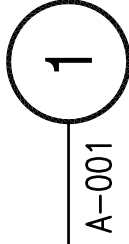
PLAN

SCALE: FULL SCALE



DETAIL OR SECTION TITLE

SCALE: FULL SCALE

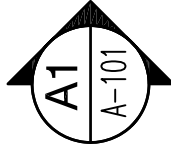


A-001

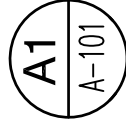
DOOR DOOR



INTERIOR
ELEVATION
BUBBLE; ROTATE
AS NEEDED



SECTION AND
EXTERIOR
ELEVATION
BUBBLE; ROTATE
AS NEEDED



DETAIL BUBBLE
AND FLAG

THIS IS THE FONT TO BE USED
FOR TITLES OR TEXT 3/16" OR
LARGER ON NAVFAC
PROJECTS

THIS IS THE FONT TO
BE USED FOR NAVFAC
PROJECTS

THIS IS THE FONT TO BE USED
FOR TITLES OR TEXT 1/4" OR
LARGER ON NAVFAC PROJECTS

ARCHITECTURAL SCALES

SCALE:	1/16"	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"	1 1/2"	3"	6"	12"
RATIO:	192	128	96	64	48	32	24	16	12	8	4	2	1
1/8" TEXT:	2'-0"	1'-4"	1'-0"	8"	6"	4"	3"	2"	1 1/2"	1"	1/2"	1/4"	1/8"
3/16" TEXT:	3'-0"	2'-0"	1'-6"	1'-0"	9"	6"	4-1/2"	3"	2-1/4"	1-1/2"	3/4"	3/8"	3/16"
1/4" TEXT:	4'-0"	2'-8"	2'-0"	1'-4"	1'-0"	8"	6"	4"	3"	2"	1"	1/2"	1/4"
LTSCALE:	64	42.66	32	21.33	16	10.67	8	5.33	4	2.67	1.33	0.67	0.33
DIMSCALE:	192	128	96	64	48	32	24	16	12	8	4	2	1

ENGINEERING SCALES

SCALE:	10'	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'
RATIO:	120	240	300	360	480	600	720	840	960	1080	1200
1/8" TEXT:	1'-3"	2'-6"	3'-1 1/2"	3'-9"	5'-0"	6'-3"	7'-6"	8'-9"	10'-0"	11'-3"	12'-6"
1/4" TEXT:	2'-6"	5'-0"	6'-3"	7'-6"	10'-0"	12'-6"	15'-0"	17'-6"	20'-0"	22'-6"	25'-0"
LTSCALE:	40	80	100	120	160	200	240	280	320	360	400
DIMSCALE:	120	240	300	360	480	600	720	840	960	1080	1200

METRIC SCALES

SCALE:	1:5	1:10	1:20	1:50	1:100	1:200	1:500
RATIO:	127	254	508	1270	2540	5080	12700
1/8" TEXT:	16mm	32mm	64mm	159mm	318mm	635mm	1588mm
1/4" TEXT:	32mm	64mm	128mm	318mm	636mm	1270mm	3175mm
LTSCALE:							
DIMSCALE:	127	254	508	1270	2540	5080	12700

METRIC VS. CUSTOMARY SCALES AND RATIOS

METRIC SCALES	CUSTOMARY RATIO	CUSTOMARY SCALES
1:05	1:4	3"=1'-0"
1:10	1:8 or 1:12	1-1/2: = 1'-0" or 1" = 1'-0"
1:20	1:16 or 1:24	3/4"=1'-0" or 1/2" = 1'-0"
1:50	1:48	1/4" = 1'-0"
1:100	1:96	1/8" = 1'-0"
1:200	1:192	1/16" - 1'-0"

WHEN WORKING IN METRIC, ENSURE THAT DRAWING UNITS ARE SET TO 'DECIMAL' AT PRECISION '0' DO THE SAME FOR PRIMARY UNIT SETTINGS IN THE DIMENSION STYLE MANAGER.

Pen Assignments

COLOR #	PEN COLOR	PLOT COLOR	SCREENING	(KDG) FULL-SIZE.ctb	NavFacStnd.ctb
Color 1	Red	Black	100%	0.35 mm	0.10 mm
Color 2	Yellow	Black	100%	0.35 mm	0.25 mm
Color 3	Green	Black	100%	0.50 mm	0.35 mm
Color 4	Cyan	Black	100%	0.60 mm	0.50 mm
Color 5	Blue	Black	100%	0.80 mm	0.70 mm
Color 6	Magenta	Black	100%	0.25 mm	1.00 mm
Color 7	White	Black	100%	0.18 mm	0.70 mm
Color 8	Grey (tone)	Black	100%	0.13 mm	0.00 mm
Color 9	L Gray (tone)	Black	100%	0.50 mm	2.00 mm
Color 17	Brown	Black	10%	0.18 mm	0.18 mm
Color 18	Brown	Black	10%	0.25 mm	0.25 mm

Layer List

NAME	COLOR	LINE TYPE	COMMENTS
0	WHITE	CONTINUOUS	
A-Area	RED	CONTINUOUS	
A-Center	RED	CENTER	
Ceiling "Major Group"			All Ceiling
A-CLNG	RED	CONTINUOUS	
A-CLNG - GRID	RED	CONTINUOUS	
A-CLNG -HEAD	RED	CONTINUOUS	
A-CLNG - Light	BLUE	CONTINUOUS	
A-CLNG -NOTES	YELLOW	CONTINUOUS	
A-Cols	YELLOW	CONTINUOUS	
A-Cols-Cen	RED	DASHED2	
Demo "Major Group"			All objects to be removed on a drawing.
A-Demo	YELLOW	DASHED2	
A-Demo-Ceiling	YELLOW	DASHED2	
A-Demo-Col	YELLOW	DASHED2	
A-Demo-Door	YELLOW	DASHED2	
A-Demo-Wall	YELLOW	DASHED2	
A-Demo-Wall-Head	RED	DASHED2	
A-Demo-Window	RED	DASHED2	
Detail "Major Group"			
A-Detl-Xhvy	BLUE	CONTINUOUS	Heaviest, I.E. Flashing and Grade
A-Detl-Hvy	CYAN	CONTINUOUS	
A-Detl-Med	GREEN	CONTINUOUS	
A-Detl-Lite	YELLOW	CONTINUOUS	
A-Detl-Xlite	RED	CONTINUOUS	
A-Detl-Xxlite	8	CONTINUOUS	Littlest, I.E. Insulation and most hatching
A-Detl-Shadow	17	CONTINUOUS	Objects beyond
A-Dims	YELLOW	CONTINUOUS	ALL Dimensions
A-Eqpt	YELLOW	CONTINUOUS	
Existing "Major Group"			All Existing to remain
A-Exst-Cabt	RED	CONTINUOUS	
A-Exst-Ceiling	RED	CONTINUOUS	
A-Exst-Cols	RED	CONTINUOUS	
A-Exst-Door	RED	CONTINUOUS	
A-Exst-Fixt	RED	CONTINUOUS	
A-Exst-Floor	RED	CONTINUOUS	
A-Exst-Hidden	RED	HIDDEN	
A-Exst-Shlf	RED	CONTINUOUS	
A-Exst-Strs	RED	CONTINUOUS	
A-Exst-Wall	RED	CONTINUOUS	
A-Exst-Wall-Head	RED	CONTINUOUS	
A-Exst-Window	RED	CONTINUOUS	
A-Flor-Appl	RED	CONTINUOUS	
A-Furn	8	CONTINUOUS	

[AutoCAD LT 2008 User's Guide](#) > [Share Data Between Drawings and Applications](#) > [Reference Other Drawing Files](#) > [Attach and Detach Referenced Drawings](#) >

Set Paths to Referenced Drawings

Concept

Procedure

Quick Reference

You can view and edit the file name and path used when locating a particular drawing reference (xref). Use this option if the referenced file has been moved to a different folder or renamed since it was first attached.

You can view and edit the file name and path that the program uses when locating a drawing reference. Use this option if the referenced file has been moved to a different folder or renamed since it was first attached.

You can choose from three types of folder path information to save with an attached reference: a full path, a relative path, and no path.

Specify a Full (Absolute) Path

A full path is a fully specified hierarchy of folders that locates the file reference. A full path includes a local hard drive letter, a URL to a website, or a network server drive letter. This is the most specific but least flexible option.

Specify a Relative Path

Relative paths are partially specified folder paths that assume the current drive letter or the folder of the host drawing. This is the most flexible option, and enables you to move a set of drawings from your current drive to a different drive that uses the same folder structure.

If the file that is being referenced is located on a different local hard drive or on a network server, the relative path option is not available.

The conventions for specifying a relative folder path are as follows:

`\`

Look in the root folder of the host drawing's drive

`path`

From the folder of the host drawing, follow the specified path

`\path`

From the root folder, follow the specified path

`.\path`

From the folder of the host drawing, follow the specified path

`..\path`

From the folder of the host drawing, move up one folder level and follow the specified path

..\..\path

From the folder of the host drawing, move up two folder levels and follow the specified path

Note If a drawing that contains referenced files is moved or saved to a different path, to a different local hard drive, or to a different network server, you must edit any relative paths to accommodate the host drawing's new location or you must relocate the referenced files.

Specify No Path

When no path information is saved with the attached external reference, the following search is initiated in the order shown:

- Current folder of the host drawing
- Support search paths defined on the Files tab in the Options dialog box
- Start In folder specified in the Microsoft® Windows® application shortcut

Specifying the No Path option is useful when moving a set of drawings to a different folder hierarchy or to an unknown folder hierarchy.

Know when a Referenced Drawing has been Relocated

If the drawing you are working on contains an xref that has been moved to a different folder, a message is displayed at the site of the xref when you load the drawing. The message indicates that the xref cannot be loaded using the old path. When you specify the new path, the xref is reloaded into your drawing.