

Appendix L**CRITERIA FOR COMPUTER GENERATED DRAWINGS****A. INTRODUCTION**

FDCC's CAD Standards are intended to be simple and only address the most fundamental of requirements for 2D CAD drafting. Any questions regarding these Standards should be directed to FDCC's CAD Manager.

B. GOVERNMENT PROVIDE INFORMATION AND ITEMS

Before the development of any CAD drawings, FDCC will provide the following electronic files:

Appendix L – Criteria for Computer Generated Drawings
 Appendix M – Electronic Deliverables
 Design Submission Transmittal Form
 FDCC File Naming Guide
 GENERAL_SYMBOLS.dwg
 FDCC A-Landscape JUN2009.dwt
 FDCC A-Portrait JUN2009.dwt
 FDCC D Civil SEPT 2009.dwt
 FDCC D Sheet-JUN2009.dwt
 FDCC MODEL SPACE.dwt
 fdclant.stb

C. DRAWING SHEET FILES AND BORDERS

Standard paper space drawing sheets with borders/title blocks shall be used. The following Paper Space AutoCAD templates shall be used:

FDCC A-Landscape.dwt	-“A” size sheet (8.5” x 11”) (landscape)
FDCC A-Portrait.dwt	-“A” size sheet (8.5” x 11”) (portrait)
FDCC D Sheet.dwg	-“D” size sheet (34” x 22”)
FDCC D Civil.dwg	-“D” size sheet (34” x 22”)

All CAD drawings shall use the FDCC titleblock templates furnished to the Contractor by the Government. The design, configuration and attributes of this titleblock shall not be altered in any way. The Government uses a file management software program, “Adept”, which extracts data from the attributes in each of the titleblock fields. If the attributes are changed, the data will not be readable by Adept and therefore make the drawing irretrievable. The Contractor's electronic drawing files will be checked at each submission for compliance, and if they are not acceptable, the Contractor will be required to insert new titleblocks and edit the fields appropriately.

D. SOFTWARE

USCG Civil Engineering Units and FDCC use AutoCAD 2009 software to develop 2D design and construction drawings. Contractor produced design and construction drawings may be prepared in ArchiCad 12 or Revit. If either ArchiCad or Revit are used to produce design or construction drawings, interim progress submittals must include editable 2D DWG AutoCAD 2009 electronic files for site plans and floor plans. These site and floor plans may be used by FDCC for developing other plans for furnishings and equipment. At all submittals, drawings, specifications, calculations and data shall be supplied in Adobe “pdf” format.

All As-built drawing files shall be 2D DWG files editable by AutoCAD 2009. Each As-built CAD drawing shall be a separate “dwg” file using the FDCC titleblock; multiple sheets may not be combined into one file.

E. LAYERS

Layers allow for graphic information to be grouped for display and plotting purposes. They are the BASIC CAD tool for managing visual information. Proper use of layers reduces drawing time and improves drawing coordination.

It is absolutely essential that layering is used, and that the naming format standards comply with the latest edition of ***CAD Layer Guidelines*** published by the American Institute of Architects.

F. COLORS AND LINE WEIGHTS

Colors: AutoCAD allows drawings to be plotted based on “Plot Styles” and “Color Dependent” plotting. FDCC uses Style based plotting, but will accept drawings developed for Color Dependent plotting. The A/E must provide their “ctb” file with their drawings files.

Line Weights: Line weights shall be assigned “By Layer” and shall be appropriate to produce a legible and easily read drawing when produced as half-size (11” x 17”).

G. TEXT AND FONTS

Text: The USCG requires the use of ROMANS.shx font for general notes and text entities on Construction Documents. ROMAND.shx may be used for titles and special text where a bold font is needed. All text should be placed to an appropriate LAYER. It is suggested that basic notes be 0.35 line weight. For larger text such as titles, the weight could be thicker. The Multi-line text feature of AutoCAD must be used for multi-line text so that word wrapping can be utilized.

The height of general annotation text when plotted full-size shall be no less than 0.10” high.

H. FILE NAMING & DRAWING NUMBERS

Files shall be named in accordance with the ***FDCC’s Adept File Naming Guide***.

I. PROJECT FILING STRUCTURE

All CAD Model and Sheet files, Xref files and attached or embedded files (jpg, bmp, tiff, etc.) shall be kept in one folder titled “Drawings”.

J. ABBREVIATIONS

The use of abbreviations in notes and annotations is acceptable, however, if they are used, a complete list of abbreviations with their meanings shall be provided on the drawings. Separate abbreviation lists may be used for each discipline as long as none conflict. Common abbreviations shall be used throughout disciplines. Do not use different abbreviations for the same meaning.

K. PROJECT FILING STRUCTURE

All CAD Model and Sheet files, Xref files and attached or embedded files (jpg, bmp, tiff, etc.) shall be kept in one folder.

L. DRAWING UNITS & DIMENSIONS

All discipline drawings shall be drawn and dimensioned in feet and inches, with dimensions rounded to 1/8". The exception is civil and site plans, which shall be decimals of a foot with dimensions rounded to 1/100 of a foot.

M. SYMBOLS & CONVENTIONS

The following symbols and conventions shall be utilized and provided:

1. North Arrow for every plan
2. Graphic scales for every sheet, for every scale used
3. Titles for each object or graphic drawn (e.g. floor plan, elevation, detail, section, etc.)
4. Legends to clearly define each line type, hatch pattern and symbol used
5. Location and vicinity maps shall be provided on the drawing cover/title sheet.
6. Section and detail bubble symbols shall be three-part symbols that provide: a number or letter for the section and detail, sheet number where the detail or section occurs, and at least one sheet where the detail or section is referenced from.

N. USE OF EXTERNAL REFERENCES (XRFES)

External references for site plans and floor plans shall be used to ensure that all sheets that contain the same plan are the same. Xrefed plans shall be used across disciplines (i.e. mechanical, electrical, plumbing and other similar drawings shall utilize the architectural or civil xref plans). Do not use of Xrefs for details and other drawing items that are only used on one drawing sheet. Xrefs shall not have dimensions, text and other similar annotations contained within them; they shall essentially be graphic drafting. The exception to this is that civil Xrefs that contain data populated by survey software is permitted.

Photo images and other graphics (scanned TIFF or JPEG files) may be used where appropriate. External files such as schedules, lengthy text notes, graphs, etc. shall be used unless approved by the FDCC CAD Manager.

As-built/Record CAD DWG files: As mentioned previously, the USCG utilizes a file management and retrieval system that stores as-built/record drawing files. This system requires that each drawing be complete without the use of Xrefs. Therefore, after as-builts are complete, all Xrefs shall be "bound" into the drawing. Image files are an exception to one drawing being contained in one file, unless the images can be converted to "bmp" format and inserted into the drawing as OLE objects.

O. TITLEBLOCK FIELDS

Most Titleblock attribute fields are self-explanatory, but for the sake of clarifying those that are not, the following examples/guidance is provided:

Property Name:	Station building, pier/wharf, administration building, galley/dining, barracks, etc.
Unit Name:	Station XYZ, Base Support Unit XYZ, Training Center XYZ, USCG Academy, etc.
Project Title:	Use the official title of the project as provided by the FDCC Project Manager
Unit Name:	Use abbreviations for states (e.g. VA, NY, FL). Do not spell out the state names.

Project Engineer: [leave blank]
Date Approved: Date FDCC approved Final Drawings
Branch Chief: [leave blank]
Approving Officer: [leave blank]
Project Number: Official USCG Project Number (e.g. 08-L9001, 01-3047134)
Technical Director: [leave blank]
CAD Drawing Number: Number will be provided by FDCC Design Project Manager upon request
Issue Fields: List each submission type and date
Mark: Number (e.g. 1, 2, 3, 4, etc.)
Date: Date of Submission or revision (mm/dd/yyyy)
Description: Type of submittal (e.g. 65% Design, Pre-final Design, Final Design, Revised Final Design, As-Built or Record Drawings, Misc. Revisions, etc.)

P. DRAWING REVISIONS

Revisions to drawings after Final Approval shall be clearly annotated with revision clouds and symbols, and number. Each revision number (Mark), Description and Date shall be entered into the Issue field of the titleblock.

Appendix M

CRITERIA FOR ELECTRONIC DELIVERABLES

A. ACCEPTABLE DIGITAL MEDIA:

All electronic (digital) files shall be delivered on recordable compact disks (CD-R). Files shall not be compressed.

CD Requirements:

Each CD-R shall have an external label noting at a minimum, the Contractor's name, USCG project number, project title, type of submittal and date.

B. FILE FORMATS:

All files shall be saved on the CD-R in an organized manner using separate file folders for drawings, specifications, calculations, data files, permits, etc. Drawings, specifications and permit file names shall be in accordance with ***FDCC's Adept File Naming Guide***. File types shall be saved in the following formats:

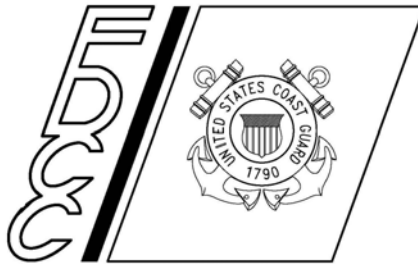
- | | |
|--------------------------|---|
| Specifications | - MS WORD ".doc", and Adobe Acrobat 8 or earlier ".pdf" |
| Calculations and Reports | - Adobe Acrobat 8 or earlier ".pdf" |
| Drawings | - Autodesk ".dwg" Version 2009 or earlier and
Adobe Acrobat 8 or earlier ".pdf" (all submittals) |
| Permit Documents | - Adobe Acrobat 8 or earlier ".pdf" |
| Data files, catalog cuts | - Adobe Acrobat 8 or earlier ".pdf" |

C. PERMIT DOCUMENTS:

Final permit documents shall be optically scanned as individual documents.

FDCC's

ADEPT File Naming GUIDE



Published by:
FDCC
Norfolk, Virginia
Superseded 25 MAY 2006
Revised June 2009

FDCC's Guide to File Naming

Overview

FDCC and other Coast Guard Civil Engineering Units use a file management and electronic file data base system, know as "Adept". This system will provide many benefits to each unit and the U.S. Coast Guard as a whole, with regard to management and access to facilities electronic documents. This Guide is intended to provide a standard system for naming of the different types of electronic files related to facility engineering for Adept.

General

Electronic document names must be unique in order to keep Adept data properly identified. To achieve this, several things will be done. First FDCC and each civil engineering unit will use its SAM identification to insure uniqueness Coast Guard wide. FDCC's SAM identifier is "A". Second, each project is assigned unique number. And thirdly, unique codes and numbers will be included for each electronic file.

CAD "Model (xref)" File Names

Model File Names will be a modified version of the Tri-Services/National CAD Standard (NCS). The first character is FDCC's SAM identification letter "A". The next group of numbers will be the USCG **Project Number**. The next character is the letter "X" for XREF. The next three characters shall consist of a **Drawings Type Code** and **single digit number**.

Drawing Type Codes:

DG	Diagram	DT	Detail	EL	Elevation
FP	Floor Plan	SC	Section	SP	Site Plan

Example:

A60L8001XFP1.dwg

A	= FDCC's SAM Identification
60L8001	= Project Number assigned by USCG
X	= Indicates External Reference (XREF)
FP	= Drawing Type Code (Floor Plan)
1	= Single digit Consecutive Number
.dwg	= default AutoCAD file Extension

CAD "Sheet" File Names

The first character is FDCC's SAM identification letter "A". The next group of numbers will be the USCG **Project Number**. The next four characters shall be the **Discipline Sheet Number** (which shall consist of the Discipline Designator, Sheet Type Designator) and **sheet sequence number**.

Example:

A60L8001M201.dwg

A	= FDCC's SAM Identification
60L8001	= Project Number assigned by USCG
M	= Discipline Designator (see Sheet Number below)
6	= Sheet Type Designator (see Sheet Number below)
01	= Consecutive Number (sheet sequence number)
.dwg	= default AutoCAD file Extension

Discipline Sheet Numbering System

Each drawing SHEET shall be number using a **Discipline Designator**, **Sheet Type Designator** and **sequential numbers**.

Example:

A101

A = Discipline Designator
1 = Sheet Designator for a plan
01 = Consecutive number beginning with 01

Discipline Designators:

G – General	H - Hazardous Materials	C - Civil	L – Landscape
S – Structural	A – Architectural	I – Interiors	Q – Equipment
F - Fire Protection	P – Plumbing	M - Mechanical	E - Electrical
T – Telecommunications	R - Resource		

Sheet Type Designators:

0 – General (symbols, legends)	4 – Large Scale Plans	8 - User Defined
1 – Plans	5 – Details	9 – 3D View (isometrics, photos)
2 – Elevations	6 – Schedules & Diagrams	
3 – Sections	7 – User Defined	

Specifications and Related Text Documents

Construction specification, permits or other text document file names will also use FDCC's SAM identification letter "**A**". The next group of numbers will be the USCG **Project Number**. The next characters are the letter "**SP**" for Specifications. The next characters shall be the **specification section number**.

Example:

A60L8001SP01158.doc

A = FDCC's SAM Identification
60L8001 = Project Number assigned by USCG
SP = Indicates Specifications
01158 = Specification Section number
.doc, pdf = .doc or .pdf document file extension

Photo and Graphic Files

The first character is FDCC's SAM identification letter "**A**". The next group of numbers will be the USCG **Project Number**. The next characters are the letter "**GR**" for graphics. The next three characters shall be consecutive beginning with 001 (one number for each graphic file).

Example:

A60L8001GR001.doc

A = FDCC's SAM Identification
60L8001 = Project Number assigned by USCG
GR = Indicates graphic
001 = Consecutive number
.jpg = graphic file extension (or .bmp, .gif, .wmf, etc.)

Other Documents

The first character is FDCC's SAM identification letter "**A**". The next group of numbers will be the USCG **Project** or **OpFac Number** (obtain guidance from FDCC Project Manager). The next three characters shall be consecutive beginning with 001 (one number for each file).

Example:

A60L8001xx001.xxx

A	= FDCC's SAM Identification
60L8001	= Project or OpFac Number assigned by USCG
001	= Consecutive number or other distinguishing factor
.xxx	= applicable file extension