Region 03
CAD DELIVERABLES
POLICY

May 31, 2023

U.S. General Services Administration
Mid-Atlantic Region
Public Buildings Service
Philadelphia, PA 19107

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1 GENERAL INFORMATION

1.1. Government Ownership Statement

All drawings and related files, including specifications, shop drawings, renderings, photographs, and other materials generated by the contractor for the project, shall be the property of the General Services Administration upon their delivery to GSA, or at the termination of the contract, whichever occurs first. This applies to content as well as physical media. GSA shall have full and unlimited intellectual property rights, use, and reuse by GSA and its constituents. The government will not accept disclaimers nullifying this requirement.

1.2. Validation Procedures

The Prime A/E is responsible for ensuring that all submissions by sub-contractors meet the Deliverables Policy contained herein. The Prime A/E, prior to the start of the design phase, shall transmit sample electronic submittals to GSA to verify that their software, and that of their subs, complies with the requirements herein.

GSA has developed a software application that now runs as an addin to Autodesk AutoCad2015 for completing some of this validation of CAD Policy compliance which has proved very useful over many years of use. This ruleset can be made available to Prime A/E upon request to GSA PM. Our software is called GSA Drawings Analysis Program 2013(DAP).

1.3. Content Integrity

PBS may provide contractors with existing CAD drawings for convenience. However, these drawings shall be used as a base reference only. Unless otherwise specified by the contract documents, the contractor is responsible for field verification of existing conditions, and ensuring that all electronic deliverables are accurate and comply with this CAD (Computer Aided Design) standard.

1.4. Contacts / Resources

Any questions regarding the Mid-Atlantic Region's CAD Deliverables Policy shall be directed to the project team. If necessary, the project team will contact the appropriate regional staff. This document and the drawings referenced herein are available electronically at: http://www.gsa.gov/midatlanticcadpolicy

The US National CAD Standard, which contains the AIA CAD Layer Guidelines, is published by the National Institute of Building Sciences. https://www.nibs.org/projects/united-states-national-cad-standard-ncs

1.4.1. GSA: PBS-P100 Facilities Standards for the Public Buildings Service: This directive establishes design standards and criteria for requirements to be used in documentation of GSA buildings. The submittal matrix is provided to document the baseline submittal requirements for the four project delivery methods and funding codes.

1.4.2. 2103.2 CIO Controlled Unclassified Information (CUI) Policy: CUI is unclassified information that requires safeguarding and dissemination controls pursuant to law, regulation, or Government-wide policy, as listed in the CUI Registry by the National Archives and Records Administration (NARA).

2 SOFTWARE AND DELIVERABLE MEDIA

2.1. Handling / Physical Media / Transmission Methods

Files submitted to GSA shall not contain computer viruses. Label media with the project title, project number, submission stage, submission date, and any other pertinent information.
All files shall be submitted using one of the following media or transmission methods:
Handling: GSA Order 3490.3 policy authorizes safeguarding and dissemination controls, established by the CUI Program, to be applied to Physical Security information. Not all building information for these buildings is automatically considered CUI. Only specific applicable information that qualifies and is marked as CUI needs to be controlled and protected in accordance with 32 C.F.R. part 2002.
CD-R: May be 650MB or 700MB, but must be closed (i.e. “finalized”). CDs may not contain compressed (ZIP) or self-extracting (EXE) files.
CD-RW: May be 650MB or 700MB. CDs may not contain compressed (ZIP) or self-extracting (EXE) files.
DVD±R: 4.7 GB single layer, single sided; must be closed (i.e. “finalized”). DVDs may not contain compressed (ZIP) or self-extracting (EXE) files.
DVD±RW: 4.7 GB single layer, single sided. (Note that this does not include DVD-RAM) DVDs may not contain compressed (ZIP) or self-extracting (EXE) files.
Project management information system: Use the project management software called Kahua to store and share project information and track the project progress. Usage is required for all contractors and GSA employees, and although not required for our federal agency customers, we encourage you to use it.
Contractors, please follow up with your designated GSA point of contact for specific Kahua usage requirements. Prospective contractors, contact the POC identified in the solicitation.
Email attachments: Including and/or attaching GSA facility information to an email communication sent outside the GSA*IT Firewall is NOT approved for sharing GSA facility information because recipient servers typically do not meet the appropriate U.S. NIST FIPS 140-2 security encryption requirements.
Cloud storage: Use of other online file hosting services such as but not limited to: Apple iCloud, Autodesk A360, Box.net, Dropbox.com, Google Drive, and Microsoft OneDrive… are NOT approved for storing GSA facility information because they typically do not meet the appropriate U.S. NIST FIPS 140-2 security encryption requirements.

2.2. Drawings

2.2.1. All drawings shall be readable by AutoCAD version 2018 and latest, and shall be DWG format files, not DXF, DWF, DWFx, etc. DWG format 2018 and previous formats are not permitted. Being “readable” is constituted by the ability to open a file without any errors, such as proxy errors, font substitution errors, xref resolution errors, image xref resolution errors, etc., and the objects, layers, etc. in the file remaining intact. There is one exception: files that trigger the TrustedDWG message (“This DWG file was saved by a software application not developed or licensed by Autodesk.”) are permitted. This allows the use of other CAD software to create DWGs, so long as the files produced meet the requirements in this policy.

2.2.2. No add-ons which create non-native object types are accepted unless approved in writing by GSA. Special object types created by Autodesk Express Tools are permitted. If AutoCAD Architecture, previously known as ADT (Architectural Desktop), or other add-on which adds non-native objects is used, the non-native objects must be converted to native AutoCAD objects; all proxy entities must be removed. Refer to paragraph 5.12.4. If printed drawings are submitted, they must match prints produced by the electronic drawings.

2.2.3. All drawings submitted to GSA must be done so in a single folder as this will eliminate any duplicate file names. Reminder: The Prime A/E is responsible for ensuring that all submissions by sub-contractors meet the Deliverables Policy contained herein.

2.3. Renditions

In addition to providing the required Autocad (DWG) drawing submission, GSA PBS Facility Standard P-100 requires that construction documents be signed and sealed by the responsible design professional. To meet this requirement, the A/E shall submit a full set of 100% Final Construction Documents in .PDF format. Each drawing sheet, as well as the cover pages of the specifications, any engineering or architectural calculations, shall display the appropriate licensed professional signature and seal.

2.4. Graphic Files

Graphic files other than DWGs may also be submitted. Graphic files referenced inside of drawings must also be submitted in the same directory as the drawing submittal. These may be photos, conceptual sketches, renderings, or a duplicate set of drawings in an alternate format. This is not to indicate that graphic files will be accepted in lieu of DWG files. They must be of sufficient resolution that they legibly show the content. Multipage raster files and multipage PDFs are not permitted for drawings, but are permitted for other types of documents such as word processing and spreadsheets. They may be in any of the following formats:

- TIF - uncompressed, packbits, group III, group IV, or LZW
- GIF - interlaced or noninterlaced.
- JPG - standard only; no progressive; any compression level
- BMP - any
- PNG - any
- PDF - if generated from CAD files, the PDFs shall be vector files, to reduce file size and allow the text to be searchable. If the source information is not CAD, the PDFs may be raster files.
- PLT - must be HP-GL/2 format
- DWF - any

2.5. BIM Models

BIM Models are not specifically required by this CAD standard but may be required elsewhere in the contract. BIM models may be submitted in addition to CAD files, but submission of a BIM model will not be accepted in lieu of Sheet Drawings in the form of DWG files, in cases where this CAD standard is a contract requirement. Refer to the GSA National 3D-4D-BIM Program's BIM Guide Series for requirements for the BIM model.

2.6. Third Party Software

A written request must be submitted to GSA and permission granted by GSA to submit electronic data in a format other than those specifically named above, or any AutoCAD add-on application which leaves non-native objects in the drawings. This also applies to AutoCAD-integrated applications, such as AutoCAD Architecture, (previously known as Architectural Desktop). When it is considered in the best interest of the Government, third party software may be permitted by the Contracting Officer. All third-party software used which modifies or creates layers in AutoCAD shall adhere to the layering requirements in this standard.

3 DRAWING SETUP

3.1. Project Phase Name Codes:

Phase Name Codes may be used anywhere in electronic submittal including: titleblock attributes, filename suffix, folder name field, and transmittal form descriptions.

3.2. Cover Sheets

All submissions except for sample submissions shall have a cover sheet. The cover sheet shall include a vicinity map, location map, and drawing index. If all that information does not fit on a single sheet, it can be placed on additional informational sheets that follow the cover sheet. If there are multiple volumes, each volume shall have its own cover with drawing index.

3.3. Tolerance and Precision Drafting

3.3.1. **Tolerance**: If there is a stated tolerance set in the contact, use that. But if no tolerance is specified in the contract or other guidance, choose a tolerance that is sufficient to clearly define the work, allow accurate bidding and ordering of materials, and allow for acceptable fit and finish of the work. Use the most accurate source information available. If field measurements are required by contract, take field measurements accurate to the tolerance. State the tolerance used in the README. Contractors are responsible for the accuracy of all CAD drawings delivered to GSA, regardless of the accuracy of CAD drawings of previous projects furnished by GSA as a convenience to the contractor.

3.3.2. **Precision Drafting**: Regardless of tolerance, all CAD drawings shall be drafted using precision input. For all drawing entities, object snaps are required; line endpoints shall meet exactly, tangents intersect at a single point, vertical lines are at exactly 90°, etc.

3.4. Drawing Scales

Follow the GSA Metric Design Guide (PBS PQ260) for all projects subject to PBS P100, which is primarily design and construction. Imperial units are required for spatial assignment drawings. The base drawing unit for metric drawings shall be millimeter. The base drawing unit for imperial drawings shall be inch.

The following drawings shall be drawn full size (1:1); that is, all drawing elements shall be drawn to the exact dimensions of the object they represent. Drawing objects in imperial units in model space then scaling them to metric in a paper space viewport is also not acceptable. If you are working from imperial unit source CAD documents, you must scale them to full size in metric if the deliverables are required to be metric. There are special cases where unit systems may be mixed; if a project requires both design & construction drawings and spatial assignment drawings, there may be mixed units.

- Architectural Plans
- Mechanical Plans
- Electrical Plans
- Plumbing Plans
- Structural Plans
- Site Plans
- Topographical Drawings
- The following types of drawings may be drawn to any scale (or no scale):
- Schedules
- Riser Diagrams
- Industrial Engineering Drawings
- Environmental Drawings
- Waste Treatment Drawings
- Details
- Sections
- Elevations

Schematic Diagrams

- Single Line Diagrams

3.5. Title Blocks

The following is an explanation of GSA provided title blocks and layer seed files, and a suggested method for setting up drawings. This method saves the time it would take to fill in all project-level information on each sheet separately, as well as ensuring consistency of spelling and nomenclature. The directions refer to AutoCAD commands and conventions and may differ if you are using a different platform. These title blocks are compliant with PBS 3490.3; each title block contains the disclaimer for each page, and the cover page inserts contain the disclaimer for cover pages.

3.5.1. GSA Provided Title blocks

GSA provides A through F size title blocks in 2 unit systems and 2 orientations, and model file information blocks. For convenience, each contains a title block already inserted in the required location. Each sheet file also contains a viewport, and the following paper space layout settings were set: paper size, plot units, scale, plot area, plot offset, plot options.

The horizontal A size sheet may be used for the convenience of printing a small drawing on a letter-size printer. The A size sheet may only be used for “information only” drawings, e.g. sketches. The A size sheet may not be used for official drawing submissions.

3.5.2. To Set Up a Model File Template

a. Open the GSA provided model file title block with the units desired.
b. Use the **DDATTE** command to edit the attributes of the information block located in paper space. Fill in the project level information; leave the drawing level information blank.
c. Set up any conventions common to all model files, such as layers, layer properties, text styles, etc. You can use the seed layer templates provided by simply inserting one or more of them, and/or manually enter any additional valid AIA layers.
d. Save the template as a DWG or DWT. There is no naming convention for this, as it is not a deliverable.

3.5.3. To Set Up a Sheet File Template

a. Open the GSA provided title block with the units, size & orientation desired.
b. Use the **DDATTE** command to edit the attributes of the title block located in paper space. Fill in the project level information; leave the drawing level information blank.
c. Set up any conventions common to all sheet files, such as layers, layer properties, text styles, etc. These would typically be layers and test styles for titles and notes.
d. Save the template as a DWG or DWT. There is no naming convention for this, as it is not a deliverable.

3.5.4. To Begin Drafting a Model File

a. Open the template model just created the project level information filled in.
b. Save the model file as a DWG according to the model file naming convention.
c. Use the **DDATTE** command to edit the attributes of the information block located in paper space. Fill in the drawing level information.
d. Create additional layers needed for this drawing. You can use the seed layer templates provided by simply inserting the drawing, and/or manually enter any additional valid AIA layers.
e. Switch to model space and draft content.

3.5.5. To Begin Drafting a Sheet File

a. Open the template sheet just created the project level information filled in.
b. Save the sheet file as a DWG according to the sheet file naming convention.

c. Use the **DDATTE** command to edit the attributes of the title block located in paper space. Fill in the drawing level information.
d. Create any additional layers needed for this drawing.
e. Switch to model space and xref in the appropriate model file. If this sheet is for tabular information, symbology, etc, the content may be drafted in model space or paper space, or xrefed in from a model file.
f. If there is model space content, configure the paper space viewport(s).
g. Add titles, notes, etc.

Note: The A size title block does not contain a blocked title block; fill in the blanks with regular text.

3.5.6. Layer Seed Drawing

Layer seed drawing has been provided containing each major discipline. It contains commonly used AIA layernames. You may add these AIA layernames to your project drawing by simply inserting this layer seed drawing provided. If you create them manually make sure to assign colors, linetypes, lineweights, and other properties to match. Follow the United States National CAD Standards(NCS).

3.5.7. GSA Provided Cover Sheets

The following is a list of the GSA provided cover sheet drawings.

H-covr-imperial.dwg	Horizontal imperial size cover sheet drawing
H-covr-metric.dwg	Horizontal metric size cover sheet drawing
V-covr-imperial.dwg	Vertical imperial size cover sheet drawing
V-covr-metric.dwg	Vertical metric size cover sheet drawing

Insert the appropriate horizontal or vertical cover sheet drawing into a sheet file which is to serve as the cover sheet.
These are sized for E size drawings. If you are not using E size sheets, it will be necessary to scale the cover sheet to the size of the title block. When you scale the cover sheet you should use the **REFERENCE** function within the **SCALE** command to ensure that it fits properly.

3.5.8. General Title block Requirements

These requirements apply to both sheet file title blocks and model file title blocks unless otherwise noted.
a. Each sheet file shall contain a sheet file title block in paper space.
b. Each xref (model file) shall contain a model file information block. It shall be thawed and reside in paper space.
c. The title block may not be submitted exploded.
d. The block name may not be changed.
e. The sheet file title block may not be scaled; they are sized to fit standard paper sizes.
f. The title block attributes may not be brought in as an xref.
g. The title block attributes may not be nested within another block
h. None of the attributes may be deleted or the tags renamed.
i. The title block may not be moved to a different layer.
j. Each drawing file may contain no more than one block insert called titleblock.
k. Older versions of the Region 3 title blocks are not acceptable under this policy.
l. The cover sheet drawing may not be xrefed in.
m. The viewport may be deleted or altered.
n. All viewports' display locked property shall be set to ON / YES.

o. Viewports shall reside on a locked layer.

3.5.9. Requirements for Title Block Attribute Values

a. Fill in all attributes which are known and applicable. If an attribute has no value, make it blank; do not leave the default value.
b. Do not include a hyphen or a space in the GSA project number. If there is no GSA project or lease number assigned to the project, ask the GSA Project Manager what to use.
c. Do not enter more than one building number into each building number attribute. Building numbers shall be 6 digits, (not 8), with no spaces or hyphens, and with letters capitalized.
d. For the building name attribute in the title blocks and model file information blocks, do not use a non-descript name, such as “US Courthouse & Federal Building”, or “Federal Office Building”, or the building’s address. Use a descriptive name, such as “Clarkson S Fisher Courthouse”.
e. There is no restriction on how the floors are named in the drawing title, but use the floor number codes for the floor number attribute. Enter only floor number. If the drawing refers to multiple floors or does not pertain to floors, leave it blank.
f. Include the extension (.DWG) with the file name. For convenience, the title blocks provided have a field inserted to automatically fill in the file name. If using a CAD client which does not support fields, it is not required that the field be submitted; it can be submitted as plain attribute text.
g. Do not enter values that extend beyond the edge of the title block area.

3.5.10. CAD File Information

A box on the title blocks has been created for CAD File Information; it is located next to, or below the KEY PLAN box. This box shall contain the following if they apply:

a. The names of any xrefs used in the drawing (including nested xrefs).
b. A list of multiple-drawings per file if the drawing file contains more than one.
c. Any miscellaneous information necessary for GSA (drawing content information shall not be listed here).

4 FILE NAMES AND STRUCTURES

4.1. Xref Assembly

4.1.1. Drawings are required to utilize xrefs and be assembled in a particular way. “Sheet file” drawings are the “complete” drawings, which are plotted, as opposed to “model file” drawings, which are xrefed into the sheet files. The xrefs, (model files), contain the drawing content, (the floor plans), drawn full size in model space.

4.1.2. There may be zero, one, or more model files for each sheet file. Special purpose sheets with no graphical content, such as the cover or a lighting schedule, do not require model files. Sheets with graphical content, like floor plans, require one or more model files.

4.1.3. Content from different disciplines may be grouped in a single model file or separated into different model files. In the case where disciplines are in separate files, drawings shall utilize a nested assembly model. A nested assembly model has a model file of one discipline xrefed into a model file of another discipline, and that is xrefed into the sheet. It is permitted have 2 or more model files xrefed directly into the same sheet when the information does not overlay. For example, the first and second floor plans could be shown in the same sheet; they would each be xrefed in from a separate model file. In cases where the content is overlaid, the model files shall be nested.

4.1.4. Model file(s) are xrefed into the sheet file at full size, into model space. The objects are then scaled through one (or more) paper space viewport(s), and seen in paper space at the size they will have on the printed page.

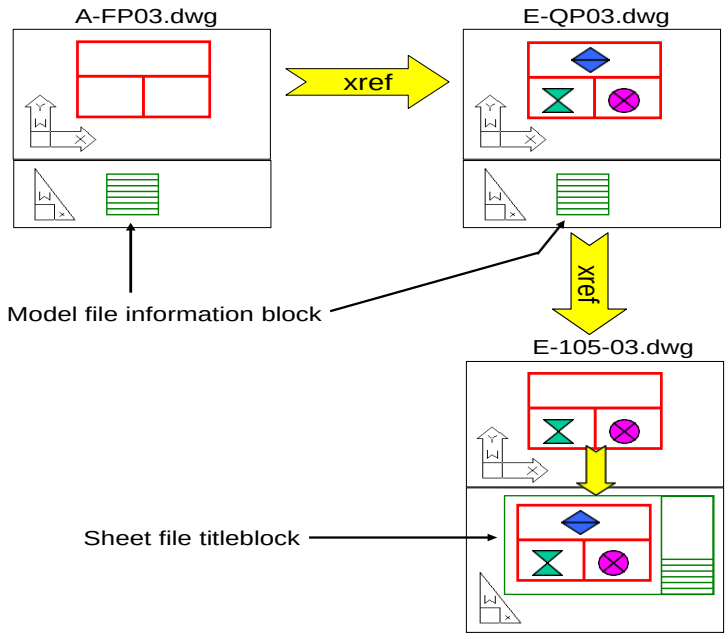
4.1.5. The drawing shall be plotted from paper space at a scale of 1 to 1, in the units the drawing was drawn in. For example, if the drawing is in metric, it shall be plotted from paper space at a scale of 1 drawing unit = 1 mm on paper, not 1 drawing unit = 1 inch on paper. (There may be a special type of assembly used for assignment drawings, and additional requirements will be issued if that formatting is required.)

4.1.6. Include the model file title block in all model files (xrefs).

4.1.7. [DELETED REQUIREMENT]

4.1.8. The sheet file title block and the model file information block shall reside in paper space.

4.1.9. The following diagram illustrates the nested assembly model:



ż t file(s) which reference them.

4.1.11. Xrefs shall not include a path (relative or absolute).

4.1.12. Xref assemblies shall not have circular references.

4.1.13. Xrefs shall not be nested more than 5 levels deep.

4.1.14. Either type of xref (attachment or overlay) may be used.

4.1.15. Model files shall be saved with tiled model space (TILEMODE = 1) as the current view. Sheet files shall be saved with paper space (TILEMODE = 0 and PSPACE) as the current view, not floating model space.

4.1.16. **NEW REQUIREMENT:** Contractor may use xrefs during every phase of project however for deliverable to GSA at project phases CD and AB a set of sheet drawing DWGs where the xrefs are bound as blocks is now required as well. In Autodesk AutoCad the correct command is BindType=1 “Insert” NOT BindType=0 “Bind”. Also do NOT explode resulting Block definition. In Autodesk DWG TrueView there is a function under File called TrueConvert which can bind insert xrefs in batch mode which is also very useful for this purpose and is free.

4.2. Sheet Drawing Numbers

All sheet drawings shall be numbered using the following convention: (Also, all files names must correspond to their respective drawing numbers.)

- -	-	- -
one or two letters	one number	two numbers
DISCIPLINE CODE	SHEET DRAWING TYPE	SEQUENCE NUMBER

Discipline Code = See Table A or Table B.
Sheet Drawing Type = See Table C
Sequence Number = See below comment.

SOME EXAMPLES OF SHEET DRAWING NUMBERS:
Note: Sheet Drawing File Names are described further in Section 4.4.1 below.

This Sheet Drawing Number indicates…General[Discipline Code] General[Sheet Drawing Type] Second Sheet:

Titleblock Attributes	G	0	02
	DISCIPLINE CODE	SHEET DRAWING TYPE	SEQUENCE NUMBER

Equivalent filename described in Section 4.4.1 would be: **G-002.DWG**

This Sheet Drawing Number indicates…Architectural Detail Twelfth Sheet:

Titleblock Attributes	A	5	12
	DISCIPLINE CODE	SHEET DRAWING TYPE	SEQUENCE NUMBER

Equivalent filename described in Section 4.4.1 would be: **A-512.DWG**

This Sheet Drawing Number indicates…Civil Plan Second Sheet:

Titleblock Attributes	C	1	02
	DISCIPLINE CODE	SHEET DRAWING TYPE	SEQUENCE NUMBER

Equivalent filename described in Section 4.4.1 would be: **C-102.DWG**

Table A - Level 1 Discipline Designator Codes

Small projects may be fine classifying drawing elements using only Level 1 Discipline Designator Codes which comprise of only one character.

- NCS4AIA2007 contains 20 Level1 Discipline Designators.
- NCS5AIA2011 contains 21 Level1 Discipline Designators.

Designator	Description
A	Architectural
B	Geotechnical
C	Civil
D	Process
E	Electrical
F	Fire Protection
G	General
H	Hazardous Materials
I	Interior
L	Landscape
M	Mechanical
O	Operations
P	Plumbing
Q	Equipment
R	Resource
S	Structural
T	Telecommunications
V	Survey / Mapping
W	Distributed Energy
X	Other Disciplines
Z	Contractor/Shop Drawings

Note: FYI: GSA has many legacy drawings that used W for Civil Work.

Use of following letters must be clearly documented in your Project Document and Drawings Form:
U is typically set aside as a User defined Level 1 Discipline Designator Code.
J, K, N, and Y are available for project specific defined Level 1 Discipline Designator Codes but are not encouraged.

Table B - Level 2 Discipline Designator Codes(See attached):

Larger projects may benefit from taking advantage of Level 2 Discipline Designator Codes which comprise of two characters.

- NCS4AIA2007 contains 143 Level2 Discipline Designator which includes 5 new.

For full list see Attachment A: NCS4_AIA2007_CADlayerGuidelines.xlsx

- NCS5AIA2011 contains 157 Level2 Discipline Designators which includes 14 new.

For full list see Attachment A: NCS5_AIA2011_CADlayerGuidelines.xlsx

- NCS_V6_AIA_CAD_Layer_Guidlelines.xlsx for latest NCS6 Guidelines.

Use of project specific defined Level 2 Discipline Designator Codes are discouraged and must be clearly documented in your Project Document and Drawings Form.

Table C – Sheet Drawing Type:

Shall be a code from the table below that most aptly describes the type of drawing.

SHEET DRAWING TYPE	CODE
General (cover sheets, symbols, legends, notes, etc.)	0 (zero)
Plans (horizontal views)	1
Elevations (vertical views)	2
Sections (sectional views)	3
Large Scale (plans, elevations, or sections that are not details)	4
Details	5
Schedules and Diagrams	6
User Defined	7
User Defined	8
3D Views (isometric, perspectives, photographs)	9

Sequence Number:

Sequence Number shall be a two-digit number indicating the sequence of drawings within a series, 01 through 99. “00” is not valid. For drawing numbers 1 through 9, a 0 shall be the first digit.

4.3. Design Model Numbers

Model file names are comprised of a one character discipline code, followed by a two-letter drawing type, followed by a two-character floor number code (if applicable). Note that model files do not use level 2 discipline designators, as sheet files do. A floor number code is not required if it is not applicable, as with a detail drawing or door schedule, for example. If a drawing shows multiple floors, leave the floor number blank.

-	- -	- -
one letter	two letters	two numbers
DISCIPLINE CODE	DESIGN MODEL TYPE	FLOOR NUMBER

Discipline Code = see Table A only not Table B.
Design Model Type = see Table D or Table E
Floor Number = see Table F

SOME EXAMPLES OF DESIGN MODEL NUMBERS:
Note: Design Model File Names are described further in Section 4.4.2 below.

Infoblock Attributes	A	FP	B1
	DISCIPLINE CODE	DESIGN MODEL TYPE	STORY CODE

Equivalent filename described in Section 4.4.2 would be: **A-FPB1.DWG**

Infoblock Attributes	A	SC	NN
	DISCIPLINE CODE	DESIGN MODEL TYPE	STORY CODE

Equivalent filename described in Section 4.4.2 would be: **A-SCNN.DWG**

Infoblock Attributes	M	DT	XX
	DISCIPLINE CODE	DESIGN MODEL TYPE	STORY CODE

Equivalent filename described in Section 4.4.2 would be: **M-DTXX.DWG**

Table D – Design Model Type Codes – Apply to All Disciplines

*-FP	Floor Plan
*-SP	Site Plan
*-DP	Demolition Plan
*-QP	Equipment Plan
*-XP	Existing Plan
*-RO	Roof plan
*-EL	Elevation
*-SC	Section
*-DT	Detail
*-SH	Schedule
*-3D	Isometric/3D
*-DG	Diagrams

Table E – Design Model Type Codes – Specific to Particular Disciplines

Architectural

A-EP	Enlarged Plans
A-CP	Ceiling Plans
A-RP	Furniture Plans
A-NP	Finish Plans

Interiors

I-EP	Enlarged Plans
I-CP	Ceiling Plans
I-RP	Furniture Plans
I-NP	Finish Plans

Structural

S-FP	Framing Plans
S-NP	Foundation Plans

Mechanical

M-HP	HVAC Ductwork Plans
M-PP	Piping Plans
M-CP	Control Plans

Plumbing

P-PP	Plumbing Plans

Fire Protection

F-KP	Sprinkler Plan
*-VP	Evacuation Plan

Electrical

E-LP	Lighting
E-PP	Power
E-GP	Grounding
E-CP	Communication

Telecommunications

T-TP	Telephone
T-DP	Data

Civil

C-RP	Roads/TOPO
C-GP	Grading
C-UP	Utility
C-EP	Environmental
C-SV	Survey

Table F – Floor Number Codes

synonyms singular: **Story**(preferred term), Storey, Level, Floor
synonyms plural: **StorieS**(preferred term), Storeys, Levels, Floors

Story Codes shall be two characters only; and will be according to this list which is a collated greatest hits of many industry reference documents.

Primary Story Codes arranged by height hierarchy within the building:

R0	Mashup of all Roof Levels	Useful for showing all in one view Note: this is a unique concept not found in any CAD Standards reviewed thus far.
R1,R2,R3... R9	Roof Levels 1, 2, 3…9	Higher number is higher up. Note: this is a unique concept not found in any CAD Standards reviewed thus far.
P1,P2,P3... P9	Penthouse 1, 2, 3…9	Optional. Not a full floor plate due to smaller exterior footprint than a story below.
M1,M2,M3... M9	Mezzanine 1,2,3…9	Optional. Not a full floor plate due to adjoining interior cathedral space. Is more than 50% of story below.
02,03...99	Story 2 to Story 99	This shall include interstitial space stories and dedicated mechanical stories. 01 is never to be placed above GF, when applicable 02 should be used above GF
01 or GF	Story 1 or Ground Floor.	First full floor plate fully above ground. Above ground meaning finish floor within approximately one meter/three feet of finish grade at main front entrance. Not approved for use: 1, M, or LM.
SP	Site Plan	<--Note larger than building footprint.
L1,L2,L3	Lower Story 1, 2, 3	A floor plate partially above and partially below ground for example on sloping lot. Higher number further down.
B1	Basement 1	First full floor plate fully under ground.
B2,B3...B9	Basement 2, 3…9	Higher number is further down. Not approved for use: negative numbers such as B-2, B-3, etc...
SB	Sub-Basement	Optional. Not the full footprint of the building. Below lowest B#.

Not approved for use: R, P, M, 1, 2, 3, 4, 5, 6, 7, 8, 9, L, B.
Other industry acronyms not approved: D, LG, LL, MM(ie 13), U, UG.

Additional Story Codes that are height hierarchy independent:

LT	Loft	Optional. Story that has only two or less exterior walls.
K1,K2,K3…K9	Parking 1, 2, 3…9	Higher number is higher up.

Not approved for use: K.
Other industry acronyms not approved: B, C, G.

Special Story Codes: If drawing/model content does not apply to any story or it refers to more than one story AND you want to exercise the right to use the Optional Suffix mentioned in the US NCS on page UDS-01.17 then you must use:

XX	No stories	Used for G series, most Details, etc.
NN	More than one story	Used for stacking in large building model files, exterior elevations, etc.

Note: this is a unique concept not found in any CAD Standards reviewed thus far.
These two Codes may prove rather important for document management efforts going forward.

4.4. File Names

All drawing file names shall correspond to their respective drawing number. The file names of other file types, such as spreadsheets or specifications, shall indicate the content of the file. All file names shall be no more than 32 characters plus the dot and 3 character extension. No two files in the same submission set may have the same name. File names may be upper or lower case.

4.4.1. SHEET DRAWING FILE NAMES:

Sheet Drawing file names shall follow this convention:

U-WXX-YY-ZZZ.DWG or UVWXX-YY-ZZZ.DWG

U	=	Level 1 Discipline Code (see Table A)
- or V	=	Hyphen* or Level 2 Discipline Code (see Table B)
W	=	Sheet Drawing Type Code (see Table C)
XX	=	Drawing Sequence (01-99)
-	=	Hyphen* (if anything else is to follow)
YY	=	Floor Number Code (if applicable) (see Table F)
-	=	Hyphen* (if anything else is to follow)
ZZZ	=	User Defined Code (optional; may be more than 3 characters) i.e. Submission Phase, Revision No., etc

Examples with all fields except user defined suffix:

A-101-01.dwg	1st floor architectural plan
A-101-02.dwg	2nd floor architectural plan
M-501-03.dwg	3rd floor mechanical detail drawing

Example with all fields including user defined suffix:

A-512-04-R1.DWG First revision of 12th Architectural details drawing of the 4th floor

If two character discipline code is used then do NOT use a delimiter for next field.

Examples with two character discipline code and floor:

AD101-B1.DWG	Architectural Demolition Plan of the basement
AD101-02.dwg	2nd floor, architectural demolition plan
MH501-03.dwg	3rd floor, mechanical, duct work, detail drawing

A floor number code is not required if it is not applicable as with a detail drawing.

Examples with one character discipline code no floor:

A-301.dwg	multiple floor architectural sections
A-501.dwg	multiple floor architectural details
F-101.dwg	1st and 2nd floor fire protection drawing

Example with two character discipline code no floor:

FX101.dwg 1st and 2nd floor fire protection sprinkler drawing

If there is no floor number, but there is a user defined code, 2 hyphens shall follow the sequence number, then the user defined code.

Example with one character discipline code, no floor, and user defined field:

G-002--90.dwg Cover sheet, 2nd sheet, 90% submission.

Examples with two character discipline code, no floor, and user defined field:

FX101--90.dwg 1st and 2nd floor fire protection sprinkler drawing, 90% submission.

AF508--R2.dwg Second revision of the 8th Architectural Finish Details drawing, not specific to any floor

4.4.2. DESIGN MODEL FILE NAMES:

Design Model file names shall follow this convention:
W-XXYY-ZZZ.DWG

W	=	Level 1 Discipline Code (see Table A)
-	=	Second character must be a hyphen*
XX	=	Design Model Type Code (see Table D or Table E)
YY	=	Floor Number Code (see Table F)
-	=	Hyphen* (if anything else is to follow)
ZZZ	=	User Defined Code (optional; may be more than 3 characters)

Examples with all fields except user defined suffix:

A-FP01.dwg	architectural floor plan 1st floor
A FP02.dwg	architectural floor plan 2nd floor
M-FP03.dwg	mechanical floor plan 3rd floor

Example with all fields including user defined suffix:

A-FP04-R1.DWG	architectural floor plan 4th floor revision one

If two character discipline code is used then do NOT use a delimiter for next field.

Examples with two character discipline code and floor:

ADDPB1.DWG	architectural demolition demo plan basement
ADDP02.dwg	architectural demolition demo plan 2nd floor
MHHP03.dwg	mechanical HVAC HVAC plan 3rd floor

A floor number code is not required if it is not applicable as with a detail drawing.

Examples with one character discipline code no floor:

A-FP.dwg	architectural floor plan
F-FP.dwg	fire protection floor plan

Example with two character discipline code no floor:

FXFP.dwg	fire suppression floor plan

If there is no floor number, but there is a user defined code, 2 hyphens shall follow the sequence number, then the user defined code.

Example with one character discipline code, no floor, and user defined field:

G-DT-90.dwg	general detail 90% submission

Examples with two character discipline code, no floor, and user defined field:

FXFP-90.dwg	fire suppression floor plan 90% submission
AFDT-R2.dwg	architectural finishes detail revision two

4.5. Layouts

4.5.1. Suggested Layout Naming Convention: It is suggested, but not required, that layouts of sheet drawing files be named with the sheet drawing number.

4.5.2. Multiple Sheet Drawings Per File: One unique sheet drawing per DWG is required as this is how we will store files in our EDMS. Multiple unique sheet drawings (for example using multiple paperspace layout tabs) within a single file is therefore not allowed.

4.5.3. Reduced Size Drawings: Separate layouts may be used for plotting different sizes of the same sheet drawing within the same file, such as half size. If there is a reduced size layout, it is suggested that an identifier such as “full size” or “half size” follow the sheet drawing number. Layout names may be upper or lower case.

4.5.4. Unused Layouts: Do not leave any unused layout tabs.

5 DATA STRUCTURE

5.1. Layers

5.1.1. Layering Systems

All drawing files shall be produced using the long form layering conventions. The most recent version is preferred (US National CAD Standard v6), but the other versions are acceptable.

©2011 AIA CAD Layer Guidelines is a component of the US National CAD Standard v5 NCS5_AIA2011_CADlayerGuidelines.xls is provided for your convenience within AttachmentA.

©2007 AIA CAD Layer Guidelines is a component of the US National CAD Standard v4 NCS4_AIA2007_CADlayerGuidelines.xls is provided for your convenience within AttachmentA.

a. Specify which version was used in the README file.
b. Mixing layers from different AIA layering standards is not permitted.
c. Do not use major or minor groups in conjunction with disciplines under which they are not listed. For example, E-WALL is not a valid layer name; use A-WALL.
d. There are non-compliant layers listed in AIA 2005; these may not be used. Page CGL-4 limits the number of characters to 19, but there are layers that exceed 19 characters, such as L-ANNO-CURV-TABL-BRDR.

5.1.2. **Special Acceptable Layers**: Layers “G-ANNO-TTLB-TEXT” and "G-ANNO-TTLB-SYMB" are acceptable as they are referenced in the title block. In addition, layers “0” and “DEFPOINTS” are acceptable since they are part of AutoCAD. Layer 0 is a special layer which can be used to draw block definition entities on. Since the AIA Layer Guidelines do not define any use for layer 0, do not place any objects on layer 0. The “DEFPOINTS” layer is automatically created by AutoCAD when dimensioning is used.

5.1.3. **Agency Layers**: The 4-digit agency/bureau code may be used as the first or second minor group in any AIA layer. These special agency layers can be used to group text, furniture, etc, associated with agencies.

5.1.4. **Xref and Viewport Layers**: Viewports shall reside on a locked layer. It is suggested, but not required, that viewports be placed on G-ANNO-NPLT. It is suggested, but not required, that xrefs be placed on any REFR layer, such as G-ANNO-REFR. If using AIA 1997, REFR will be an acceptable first or second minor group for any layer.

5.1.5. **Layer Lineweights**: Every layer shall have an assigned lineweight, not “default”. Any lineweight, any linetype, and any color may be assigned to any layer.

5.1.6. **Layer Plot Style Names**: In the case of drawings that use Named Plot Styles, only the following plot style names (as defined in the standard GSA plot styles) may be assigned to layers: Normal, 90% Screen, 80% Screen, 70% Screen, 60% Screen, 50% Screen, 40% Screen, 30% Screen, 20% Screen, 10% Screen. Normal is 100% screening, or solid.

5.1.7. **Case**: Layer names may be upper or lower case.

5.1.8. **Custom Layers**: If you would like to include custom user-defined layers, permission must be granted by GSA, and a list and description of such layers must be submitted to GSA along with the drawing submission.

5.1.9. **GSA Approved Minor Group Codes**: MEDT, THIK, THIN, XTHK, OPTI

5.2. Object Properties

5.2.1. Any color, linetype, and lineweight may be assigned to any graphical entity. They may be **BYLAYER**, but do not have to be.

5.2.2. In the case of drawings that use Named Plot Styles, only the following plot style names (as defined in the standard GSA plot styles) may be assigned to objects: ByLayer, ByBlock, Normal, 90% Screen, 80% Screen, 70% Screen, 60% Screen, 50% Screen, 40% Screen, 30% Screen, 20% Screen, 10% Screen. Normal is 100% screening, or solid.

5.3. Blocks

5.3.1. **Use of Blocks**: It is suggested, but not required, that any group of entities that occurs repeatedly in a drawing should be made into a block, as it is good drafting practice. But the following is required: Do not block the entire drawing or large portions of the drawing.

5.3.2. **Block Layering**: Draw objects used to create blocks on layer 0. The title block is an exception. Do not insert blocks on layer 0; insert them on the layer appropriate to their content.

5.3.3. **Nested Blocks**: Nested blocks are blocks inside other blocks. It is preferred that nested blocks not be used, but if deemed necessary, they shall be documented in the README.DOC file. Nested xrefs are permitted.

5.3.4. **Block Insertion Points**: Block insertion points shall be located on the block at an intersection, end point, or mid point, or, for circles, at the center or a quadrant.

5.4. Dimensioning

Associative dimensioning is preferred, but not required. (In this case, “associative” means “self correcting”, not “linked to model space objects from paper space”; that type of associative dimensioning is also permitted.)

5.5. Hatching

Hatching shall be on its own layer(s), which shall have a “**PATT**” as the first or second minor group. Do not explode hatch, as this increases file size. User-defined hatch patterns shall not be used. If user-defined are to be used, permission must be granted by GSA and the definition file must be included with the submission.

5.6. Object Linking and Embedding (OLE)

5.6.1. Raster images may be incorporated into drawings to display renderings, maps, logos, etc. Images may be brought in with the **IMAGEATTACH** command (which produces a link, much like and xref), or by the **INSERTOBJ** command, which can produce a linked or embedded OLE object, or by the **PASTE** command, which produces an embedded OLE object.

5.6.2. Linked files shall be submitted in the same file directory as the drawing(s) to which they are linked.

5.7. Internal Drawing Security

Drawings are permitted to contain digital signatures, but they are not required. Individual drawing files are not permitted to be password protected.

5.8. Drawing Fonts

5.8.1. Text elements must be rendered using embedded fonts.

5.8.2. Published text must be legible at one-half scale of original drawing scale.

5.8.3. Preferred Windows natively supported Postscript outline font formats include:

.CFF	Adobe Type 2
.CFF	Microsoft OpenType

5.8.4. Less desirable Windows GDI-enabled Postscript outline font formats include:

.TTF	Apple TrueType
.PFB .PFM	Adobe Type 1
.OTF .TTF	Microsoft OpenType

5.9. Special Fonts:

5.9.1. Monotype Grotesque 1(aka Grotesque MT) is official GSA font.

5.9.2. Special non-standard font that is part of a logo or some other similar small amount of text graphics that are reused should be exploded/demoted to geometry.

5.9.3. Drawings may reference SHX fonts as well. Only SHX fonts included in default installation of AutoCad are suggested. Project custom SHX font would have to be included in your submittal as a minor variation of conformance.

5.9.4. Big fonts are extended character sets that can be assigned to supplement SHX fonts. Only big fonts included in default installation of AutoCad are suggested. Project custom Big font would have to be included in your submittal as a minor variation of conformance.

5.10. Drawing Variables

Drawing variables shall be set as follows:

- GRIDMODE shall be set to 0
- SNAPMODE shall be set to 0
- PDMODE shall be set to 0
- PDSIZE shall be set to 0
- QTEXTMODE shall be set to 0
- ATTMODE shall be set to 1
- PSTYLEMODE shall be set to 1 if the drawing is to be plotted with CTB plot styles; PSTYLEMODE shall be set to 0 if the drawing is to be plotted with STB plot styles. GSA's STB styles allow screening, whereas the CTB styles do not.
- For metric drawings, set LUNITS to 2. For imperial drawings, set LUNITS to 4.
- ISAVEPERCENT shall be set to 0; (this is a system variable, and is only set once per installation)

Note: PSTYLEMODE indicates whether a drawing plots in a color-dependent mode using CTB plot styles, or in a named plot style mode using STB plot styles. This variable cannot be changed directly. To change PSTYLEMODE from 0 to 1, use the CONVERTPSTYLES command. To change PSTYLEMODE from 1 to 0, use the CONVERTCTB command, then the CONVERTPSTYLES command.

5.11. Plotting Parameters

Submitted hard copies are not required to be plotted from AutoCAD, but the electronic drawings are required to be able to accurately reproduce those hard copies when plotted from AutoCAD using HDI drivers and the following settings. It is not required that electronic drawings display seals or signatures shown on the hard copy drawings.

5.11.1. **GSA Provided Plot Styles**: It is required that one of the following plot styles be able to accurately reproduce the drawing sheets: **standard r2000 b&&w.ctb**, **standard r2000 color.ctb**, **standard-mono.stb**, or **standard-color.stb**. Release 14 pen tables (**standard r14 b&&w.ctb** and **standard r14 color.ctb**) are only provided since some of the background drawings GSA provides may be in r14 or earlier, although submissions of release 14 drawings and use of those 2 plot styles for new drawings are not permitted under this policy. They are:

standard r2013 b&w.ctb	for plotting monochromatic r2013 & later drawings without screening in r2013 & later
standard r2013 color.ctb	for plotting color r2013 & later drawings without screening in r2013 & later
standard-mono.stb	for plotting monochromatic r2013 & later drawings with screening in r2013 & later
standard-color.stb	for plotting color r2013 & later drawings with screening in r2013 & later

(the “&&” will appear as “&” in the pop list)
Specify the plot style used in the README file. The same plot style may be used for the entire set, but this is not required.

5.11.2. R2000 and Later Plotting Parameters

Scale lineweights when making half size drawings so that the line weights are not exaggerated. (Scale Lineweights has no effect when the plot scale is 1:1, as it should always be, except in the case of half size drawings.) Make sure the Plot with Plot Styles option is checked in the Plot dialog box.
Set plot style table settings as follows:

Style Table Parameter	Setting
plot color	For B&W plots: set all to 7 For color plots: set all to use object color
dither	off
grayscale	off
pen number	automatic (unless required by your plotter)
virtual pen	automatic (unless required by your plotter)
screening	For CTB plot styles: 100 For STB plot styles: ##% Screening or Normal
linetype	use object linetype
adaptive	on
lineweight	use object lineweight
line end style	use object end style
line join style	use object join style
fill style	use object fill style

5.12. Efficiency and Usability

5.12.1. Internal Errors: Audit the drawings to ensure that there are no internal errors.

5.12.2. Purge the drawings of unused block definitions, layers, linetypes, etc.

5.12.3. Remove any extraneous data outside the drawing extents to keep file size to a minimum. (This does not include entities created to position the title block on the paper.)

5.12.4. 3-dimensional objects are permitted but confine all objects to the Z=0 plane unless 3 dimensional drawings are specifically required by GSA. 3-dimensional drawings can cause incorrect distance measurements, due to the difference in elevation, which the person measuring may not be aware of, and can also make the drawing unnecessarily large.

5.12.5. Purging Non-Native Entities

Non-native objects cause proxy errors in AutoCAD and other CAD clients. Drawings that contain non-native entities are not permitted, because they cause errors, usually don't display properly, and usually can't be edited. They can be purged by different methods, depending on the client used. Some of these methods are listed below. These methods will not necessarily work on all types of non-natives. Note that these methods may strip out a substantial amount of encoded information, including but not limited to: groups, embedded ADE information, certain dictionaries, etc. GSA is not responsible for the safety or effectiveness of these procedures. Back up the files and consult the documentation before attempting these procedures, as they may produce undesirable results. After using any of these procedures: Check to make sure that the drawing still looks the same; graphical non-native entities may be missing entirely. If this happens, the procedure should be repeated after those entities are exploded, or if AutoCAD will not allow that, redrawn using native AutoCAD entities, or "primitives".

5.12.6. Programs: Approval is required from the GSA project manager to embed macros in DWGs or submit DVB or LSP files.

5.13. Sheet Set Files

Sheet Set Files (DSTs) are NOT permitted for any deliverable all project phases. We do not find them useful because we require all drawings that might be referenced within a sheet set file to reside in one directory to ensure the viability of reference paths when the files are transmitted to us and stored on our server.

If you choose to use sheet sets and not deliver them you must purge the association to the sheet set from each DWG prior to submission to avoid a lost set association error on our systems. To remove the association, open the drawing in the absence of the sheet set file, and select remove on the **Lost Set Association** dialog, and then resave.

5.14. Fields

Fields are permitted. Also, fields may be embedded inside the attribute values of the title block. All DWGs that use fields must be opened and saved just prior to submission so that all current field values are cached inside the drawing files. This will ensure that viewers can read the current field values, and that the current field values can be read in the absence of a sheet set file. The **Resave All Sheets** command in the sheet set manager provides a convenient method for doing this.

6 PROJECT AND DRAWING DOCUMENTATION

6.1. General

At the Contracting Officer's discretion, a submission containing one or more drawing files that do not meet the standard may be rejected. Note: Specifications shall be the current version of CSI MasterFormat at the time of contract award; or MasterFormat2010Update is preferred.

6.2. GSA ELECTRONIC DELIVERABLE SUBMITTAL TRANSMITTAL FORM

Every submission of electronic drawings shall include this information which shall be readable by MS Word or MS Excel. The file shall include the information provided in Appendix A.

6.3. DRAWING AUDIT CHECKLIST

For convenience, a checklist of items to verify before submission is provided:

- Ensure Region 3 provided title blocks / information blocks are in all sheet and model files
- AUDIT the drawing to ensure it is free of internal errors
- PURGE drawing of unused blocks, layers, linetypes, etc.
- Delete any extraneous objects outside the title block unless they are there to position the title block on the paper.
- Nothing is on layer 0 unless it is required to be.
- Delete any unused layout tabs.
- Delete any xref paths.
- GRIDMODE shall be set to 0
- SNAPMODE shall be set to 0
- PDMODE shall be set to 0
- PDSIZE shall be set to 0
- QTEXTMODE shall be set to 0
- ATTMODE shall be set to 1
- PSTYLEMODE shall be set to 1 if the drawing is to be plotted with CTB plot styles; PSTYLEMODE shall be set to 0 if the drawing is to be plotted with STB plot styles
- For metric drawings, set LUNITS to 2. For imperial drawings, set LUNITS to 4.
- ISAVEPERCENT shall be set to 0; (this is a system variable, and is only set once)
- Set the current space of model files to tiled model space, and current space of sheet files to paper space
- ZOOM to EXTENTS and save drawing
- If deviations are approved by GSA, include all drawing reference files, such as nonstandard fonts, user-defined hatch patterns, nonstandard plot styles, etc. AutoCAD has commands (which vary from release to release) which assist in identifying and collecting reference files. It is not necessary to include fonts which are listed in this policy, plot styles which are listed in this policy, or standard hatch patterns, etc.
- Create a README.DOC
- Scan all media using current virus scanning software prior to submission

6.4. NCS+GSA DISCLOSURE STATEMENT OF SUBSTANTIAL CONFORMANANCE

On June 1, 2010 the GSA Public Building Service's Department of Design and Construction officially adopted the US National CAD Standard. Therefore every submission of electronic drawings shall include the US National CAD Standard requirement to provide a Statement of Substantial Conformance. The file shall include the information provided in Appendix B.

APPENDIX A

GSA ELECTRONIC DELIVERABLE SUBMITTAL TRANSMITTAL FORM

Every submission of electronic drawings shall include this information which shall be readable by MS Word or MS Excel.

A.1. BUILDING INFORMATION

BUILDING NUMBER:
BUILDING NAME:
BUILDING ADDRESS; BUILDING CITY; and BUILDING ZIPCODE:

A.2. PROJECT INFORMATION

GSA PROJECT CONTROL NUMBER:
GSA PROJECT TITLE:
GSA PROJECT MANAGER:
PRIME AECO CONTRACT NUMBER:
PRIME AECO CONTRACTOR FIRM:
PRIME AECO CONTRACTOR ADDRESS:
PRIME AECO CONTRACTOR CITY:
PRIME AECO CONTRACTOR ZIP:
PRIME AECO CONTRACTOR PROJECT MANAGER:

A.3. SUBMITTAL INFORMATION

SUBMITTAL PHASE:
SUBMITTAL DATE:
VERSION OF R03 CAD Deliverables Policy USED IF NOT February 21, 2015.:
VERSION OF United States National CAD Standard USED IF NOT VERSION5:
SOFTWARE RELEASE AND FILE FORMAT VERSION USED IF NOT AutoCad2015/DWG2013:
TOLERANCE:

A.4. FILE LIST

All Sheet Drawing Filenames
All Reference filenames
All Other Submittal Filenames.

A.5. Third Party Applications

Please let us know any software that you used that we may not currently have a license for.

APPENDIX B

NCS+GSA DISCLOSURE STATEMENT OF SUBSTANTIAL CONFORMANANCE

B.1. SUBSTANTIAL CONFORMANCE STATEMENT

We have carefully considered the requirements, options, and recommendations of both the United States National CAD Standard version5(NCS5) and R03 CAD Deliverables Policy February 21, 2015(R03 Policy) and submit that the following statements are true as a professional response to GSA request for substantial conformance

GSA Project Contract Number: _____

Prime AECO Contractor Firm: _____

Prime AECO Contractor Representative: _____

Circled here are the NCS5 section topics that we believe meet full conformance for this electronic deliverable:

- Drawing Set Organization
- Sheet Organization
- Schedules
- Drafting Conventions
- Terms and Abbreviations
- Symbols
- Notations
- Code Conventions
- Black/White/Gray Plotting
- Color Plotting
- Line Width Plotting

Circled here are the R03 Policy section topics that we believe meet full conformance for this electronic deliverable

- General Information
- Software and Delivery Media
- Drawing Setup
- Filenames and Structures
- Data Structure
- Project and Drawing Documentation

Signature: _____

Date: _____

B.2. MINOR VARIATIONS STATEMENT

Every submission of electronic drawings shall include this information which shall be readable by MS Word or MS Excel.

Here is list of all minor variations to NCS5 full conformance that we are aware of and descriptions of reasons for having employed them within this electronic deliverable:

NCS5 Section/Topic	Variation	Description	Reason
Example: AIA5.1.3 Layername Formatting	A-WALL-EXT Rather than A-WALL-FULL-EXT	User-defined Suffix used as Minor Field to represent building exterior shell: -EXT	Project specific standard
Example: AIA5.1.3 Layername Formatting	P-FIXT	Trade partner placed plumbing fixtures on this project rather than designer using A-FIXT	Discipline specific industry standard

Here is list of NCS5 section topics that we believe do not apply to this electronic deliverable:

NCS5 Section/Topic	Reason
Example: Color Plotting	Project used only Black/White/Gray Plotting
Example: BIM Implementation	Project used a CAD workflow not a BIM workflow.

Here is list of all minor variations to R03 Policy full conformance that we are aware of and descriptions of reasons for having employed them within this electronic deliverable:

R03 CAD Policy Section/Topic	Variation	Description	Reason
Example: 2.2.3 Single Folder	Three Subfolders provided.	Logical separation of files.	VERY large submittal. Subfolder represents each Engineering discipline.
Example: 5.9.3 Autodesk provided SHX Fonts	Project provided SHX font	CustomFont.shx	Copyrighted material for XYZ Details from UVW Vendor on Sheet 123.DWG

Here is list of R03 Policy section topics that we believe do not apply to this electronic deliverable:

R03 CAD Policy Section/Topic	Reason
Example: Software and Delivery Media	