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National Aeronautics and  
Space Administration

**John C. Stennis Space Center**  
Stennis Space Center, MS 39529-6000

## COMPLIANCE IS MANDATORY

# John C. Stennis Space Center FACILITIES DRAFTING MANUAL

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## Document History Log

Status/ Change/	Date	Originator/ Phone	Description
Basic	4/18/01	J. Wolfenbarger X-2304	Initial Release – supersedes SSC STD 66-600, with editing and content changes to text and organization throughout the standard.
Admin	6/29/01	J. Wolfenbarger X-2304	Add Notice to cover page to inform readers how to access figure references.
Admin	7/18/03	J. Kellar ext. 8-3043	Reset links for figure reference access to CAD drawings.
A	2/16/06	J. Hughes	5 year review. Change notice to reflect CEF Files Manager application. Changed titles for signatures per NASA SSC organization changes.
B	12/14/09	Scott Andres Ext. 8-2933	Rewrite per NASA mandate to conform to National CADD Standard
B-1	6/14/10	Scott Andres Ext. 8-2933	Appendix A: Title block revised. Added: a. This is an example of SSTD-8070-0002-CONFIG's title block that is to be used site-wide. b. Implementation of this title block shall be completed within six (6) months of SSTD's issuance.
B-2	10/28/11	Scott Andres Ext. 8-2933	Added DDMS to Section 6.1. Appendix A: Added attributes to Title Block and removed "Implementation of this title block shall be completed within six (6) months of SSTD's issuance."
C	06/10/15	Kelly King Ext. 8-2682	Five-year review. Revised cover sheet to reflect approval by CO PMD and E&TD. Updated references and acronyms. Replaced "FOSC"

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			with “NASA or its designee” throughout document. 5.0 Drawing Requirements: Deleted 5.1.1 Back-up Requirements, which had outlined basic record retention protocol. 5.1.1.5.b Graphic Symbols: Reworked sentence to read “Any changes or revisions to an existing drawing shall use the latest NCS graphic symbols.”
C-1	02.12.2016	R. Carol Wolfram 8-1146	Administrative change. Replaced “FOSC” and “NASA or its designee” with “SACOM” throughout document.
D	6.19.2020	Kelly King 8-2682	Five-year review. Updated references. Updated Appendix A, Title Block including revisions to the attributes list and title block font.
E	12.7.2022	Tessa Davis 8-3791	“Facilities Engineering Test Complex Support” changed to “Facilities Engineering Services” on cover sheet and in Section 3.0-a. Updated references to add SSTD-8070-0140. Section 3.0: Added “e. All outside contractors shall adhere to this SSTD with specific regard to Appendices A and B.” Section 5.1.1.1-c: Added “and B”. Appendix A: Amended to clarify file fonts. Title Block image replaced. “Issue Date” and “Issued By” bullets deleted. Added Appendix B, SSC AutoCAD Drafting Standards Guide and Preferences.

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## 1.0 INTRODUCTION

### 1.1 Purpose

This John C. Stennis Space Center (SSC) standard (SSTD) establishes requirements for creating and maintaining drawings and related technical documentation produced and maintained by means of computer aided design and drafting (CADD) to define and document the configuration of facilities at SSC.

### 1.2 Applicability

This SSTD applies to all SSC National Aeronautics and Space Administration (NASA) organizations, resident agencies and contractors involved with design, implementation operation and documentation of facility configuration changes.

### 1.3 Document Control

This SSTD shall be controlled, maintained, and used in accordance with the requirements of SSTD-8070-0005-CONFIG.

### 1.4 Records and Forms

- a. Records and forms identified in this SSTD shall be maintained in accordance with SPR 1440.1. All records and forms are assumed to be the latest version unless otherwise indicated. Forms may be obtained from the SSC electronic forms repository or from the SSC Forms Management Officer.
- b. Forms for this standard are as follows:  
SSC-151, *Engineering Modification Instruction*

## 2.0 REFERENCES AND APPLICABLE DOCUMENTS

References are assumed to be the latest edition, unless otherwise specified.

AISC 326, *Detailing for Steel Construction*  
ASME B1.1/B1.2/B1.20.1, *Unified Inch Screw Threads (UN and UNR Thread Form)*  
ASME B1.5, *Acme Screw Threads*  
ASME B1.20.3, *Dryseal Pipe Threads (Inch)*  
ASME B1.20.5, *Gaging for Dryseal Pipe Threads (Inch)*  
ASME B1.20.7, *Hose Coupling Screw Threads (Inch)*  
ASME Y14.38, *Abbreviations and Acronyms for Use in Product Definition and Related Documents*

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SORD DWG 53000-E001, *Standard Electrical Symbols*  
SORD DWG 53000-E002, *Standard Symbols Instrumentation*  
SORD DWG 54000-P001, *Legend for Piping Schematics*  
IEEE STD 315, *Graphic Symbols for Electrical and Electronics Diagrams (Including Reference Designation Letters)*  
NPD 8800.14, *Policy for Real Estate Management*  
SOI-8080-0007, *SSC Test Site Drawings*  
SOI-8080-0015, *SSC Configuration Control of Technical Systems*  
SOI-8080-0027, *Engineering and Test Directorate Operations Work Control*  
SPR 1440.1, *Records Management Program Requirements*  
SSTD-8070-0001-CONFIG, *SSC Facilities Engineering Documentation Standard*  
SSTD-8070-0004-CONFIG, *SSC Preparation of Construction Specifications*  
SSTD-8070-0005-CONFIG, *Preparation, Review, Approval and Release of SSC Standards*  
SSTD-8070-0006-CONFIG, *Component Servicing Processes and Documentation*  
SSTD-8070-0108-IDCODES, *SSC Plate Conduit Identification*  
SSTD-8070-0140, *SSC Creo Model Based Computer-Aided Design Standard*  
United States National CAD Standard

### 3.0 RESPONSIBILITIES

Responsibilities for the maintenance, control, use, and application of this SSTD are as follows:

- a. The NASA SSC Center Operations Facilities Engineering Services is primarily responsible for the content of this SSTD; however, the review, revision, and approval of all changes to this SSTD will be in accordance with SSTD-8070-0005-CONFIG.
- b. Synergy-Achieving Consolidated Operations and Maintenance (SACOM) Engineering Department Technical Writing Team is responsible for the maintenance of this SSTD in accordance with SSTD-8070-0005-CONFIG.
- c. NASA SSC Engineering and Test Directorate (E&TD) Engineering Division is responsible for mechanical and electrical systems design, and analysis and the development and standardization of the Test Site Drawings per SOI-8080-0007. The E&TD Test Director is responsible for maintaining approved Test Site Drawings in accordance with this document, SOI-8080-0015 and SOI-8080-0027. For contractor-operated test support facilities, the NASA site manager is responsible for this work.
- d. CADD supervision and CEF are responsible for maintaining libraries, directories, and procedural guidelines as specified in this SSTD.
- e. All outside contractors shall adhere to this SSTD with specific regard to Appendices A and B.

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#### 4.0 DRAWINGS – GENERAL INFORMATION

All drawings that define and document the configuration of SSC facilities shall be based on the format and procedures of the United States National CAD Standard (NCS).

##### 4.1 Documentation

Documentation of all SSC facility engineering drawings related to configuration control including, but not limited to, numbering systems, documentation revisions and cancellations, shall be handled in accordance with this document and SSTD-8070-0001-CONFIG.

##### 4.2 Facilities Configuration

- a. The design package for construction of new or modified facilities is comprised of the set of drawings based on United States National CAD Standard (NCS) procedures and format.
- b. The construction specification, an engineering document, will provide clear, accurate descriptions of technical requirements for items, materials, utilities, and services, including procedures by which it will be determined that design requirements have been met.
- c. If drawings and specifications conflict, the specifications govern.

##### 4.3 Drawing Types

Various types of drawings are required to define the construction requirements of any sizable facility. Most detailed facilities drawings are prepared to delineate the work of a single contractor or subcontractor. Drawings are also required for installation of associated components, such as conduits and electrical outlets, or for setting sleeves in the floor for pipe penetrations.

There are two types of drawings at SSC:

- a. Facilities Drawings
  1. Drawings that are generally applicable to the majority of engineering disciplines and/or to all areas of facilities.
  2. Drawings that deal specifically with a particular engineering discipline.
- b. Test Site Drawings
  1. Drawings that affect day-to-day test facility operations are considered to be Test Site Drawings.
  2. NASA-managed test facilities (e. g. E-Complex).
  3. Support contractor-managed test support facilities (e.g., gas house, etc.).
  4. Test contractor-operated facilities (e.g., B-1 test stand).

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## 4.4 Facilities Drawings

### 4.4.1 Vicinity Map/Drawing Index

- a. The vicinity map and its accompanying Fee Area map are located on the left side of the first drawing sheet and illustrate the SSC site, identifying the main structures on the site and delineating the structure's relationship to features of the surrounding area.
- b. The drawing index is a listing of each drawing included in the set and begins to the right of the vicinity map. These are not required for shop packages unless otherwise specified.

### 4.4.2 Tabulated Drawing

The differences (variables) between the items defined by a tabulated drawing shall be tabulated and fixed (constant) characteristics and depicted or stated only once. For design packages, refer to NCS requirements.

### 4.4.3 Engineering Modification Instruction (EMI) Drawing

EMI drawings establish the requirements for a modification to a facility or a system.

- a. EMIs shall completely define the modification to be made, with sufficient description of the existing facility to ensure continuity between the modified and unchanged areas.
- b. Appropriate methods shall be used to differentiate between the modified and existing facility.
- c. Form SSC-151 series is the primary modification document for EMIs and shall be prepared by the assigned Design Engineer.

### 4.4.4 Vendor Information Drawing

A vendor information drawing is supplied to a vendor to set forth the general requirements of an item to be fabricated. It will not be necessary to repeat circuitry or other detail information on facilities drawings when complete vendor drawings have been furnished.

A vendor information drawing shall show only the dimensions, contour, and design data necessary to meet design requirements.

### 4.4.5 Specification Control Drawing (SCD)

SCDs are prepared to define the specifications required for critical components purchased for SSC. They shall provide adequate information to effectively control the configuration to ensure the component's performance, interchangeability, and reliability.

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#### 4.4.6 Building Plan Drawings

Building plan drawings are maintained to define the latest building configurations and space allocations.

- a. Drawings shall be prepared on the SSC Engineering CADD System in the "F" (28" x 40") size format unless another format is specified.
- b. All text shall be on a separate layer in the CADD database.

#### 4.4.7 Technical Systems Drawings

The technical system drawings include, but are not limited to, advanced schematics, advanced schematics-instrumentation, block diagram, cable and wire schedules, conduit schedules, installation and equipment drawings, interconnection wiring diagrams, wiring diagrams, and wiring termination sheets.

#### 4.4.8 Civil Drawings

Civil drawings are graphic, symbolic representations of existing and/or planned surface features of a region, showing the necessary construction required to develop a site. Natural and manmade features or objects (e.g., hills, streams, buildings and structures, power transmission lines, and railroads) are shown, and their geometric configuration and physical relationship to other structures and boundary lines are indicated. Certain important imaginary lines (e.g., community, property and zoning boundaries) are also indicated for record and reference purposes. In the general planning and layout of construction required to develop a site, drawings are included which depict structure location, grading, roads and paving, underground piping, yard structures, etc.

#### 4.4.9 Architectural Drawings

Architectural drawings graphically display the architectural requirements for buildings and other structures (including the magnitude, appearance, interior and exterior materials, and location); for construction details of walls, partitions, foundations, floors, etc.; and for the location and/or details of equipment such as lockers, shelves, tables, etc. These drawings depict the relationship of all components as well as all other nonstructural details, such as wall and roof materials and application, stair and handrail details, window, and louver installation, suspended or acoustical ceiling details, built-in counters, cabinets, and all other miscellaneous steel and iron work.

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#### 4.4.10 Structural Drawings

Structural concrete, structural steel and structural shop drawings are engineering drawings that graphically display such items as framing for buildings and other structures, and the construction details for bridges, barges, and many other facilities components. These drawings establish the basis for the construction of the structural components of facilities. The size and placement of beams, reinforcing steel, concrete, rivets, welds and columns are described by the delineation of structural drawings, through the use of symbols, dimensions, specifications, schedules, and reference codes.

#### 4.4.11 Mechanical Drawings

Mechanical flow diagrams, instrument drawings, and pipe drawings graphically display piping to convey solids, liquids, or gases; the construction details for mechanical devices and air-conditioning installations; and the construction details for tanks, and fire protection systems. These drawings establish the requirements for construction and/or planning of interrelated elements of the facility design including pertinent services, equipment, and other features required to ensure the performance of the mechanical equipment. See SSC DWG 54000-P001 for reference.

#### 4.4.12 Electrical Drawings

Electrical drawings provide a basis for showing the general physical location and arrangement of the required wiring system and identifying the physical requirements for various types of materials needed to provide the electrical installation in building.

### 4.5 Test Site Drawings

- a. For NASA-operated test facilities, E&TD personnel are responsible for drawing preparation.
- b. For contractor-operated test support facilities and contractor-operated test facilities, contractor personnel are responsible for drawing preparation.

#### 4.5.1 Mechanical

The mechanical design engineer develops test site drawings (i.e., MSKs and PSKs) through the design, analysis and drafting process, and is responsible for the overall content of the mechanical systems design and mechanical test site drawings. See SSC DWG 54000-P001 and SOI-8080-0007 for reference.

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#### 4.5.2 Electrical

The electrical design engineer develops the electrical, data acquisition, controls and ancillary systems designs (i.e., ESKs) through the design, analysis and drafting process, and is responsible for the overall content of the electrical systems design and electrical test site drawings. See SSC DWG 54000-E001 and SOI-8080-0007 for reference.

### 5.0 DRAWING REQUIREMENTS

A set of drawings shall establish all the interrelated elements of the design, including pertinent services, equipment, utilities, and other engineering features.

General requirements and principles applicable to all drawings shall follow the NCS unless otherwise stated.

#### 5.1 General Requirements

The prime objective of drafting drawings is to convey to the user complete, accurate, concise, and clear information, with a minimum of drafting time. Proper planning, elimination of non-essentials, use of all available tools, and increased knowledge of the purpose of the drawings are the basis of functional drafting; and, when implemented properly, will reduce drafting time and provide drawings that are easily interpreted. The drafter shall use NCS guidelines to ensure that the drawing provides the amount of uniform detail required to convey the design, and to construct.

##### 5.1.1 Drawing Details

- a. CADD supervision shall be responsible for developing standard practices and procedures for the use of layers, colors, and similar devices based on NCS requirements in order to minimize unique and individual approaches to the creation of drawings, parts, and models.
- b. Standard details shall be used, and standard libraries developed and maintained.

##### 5.1.1.1 Size, Format and Title Block

- a. Standard size and design formats shall be developed for CADD use based upon NCS requirements for design packages.
- b. The standard formats shall be stored in a format directory and copied for use as needed.
- c. The title block referenced in Appendices A and B of this document shall be used.

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#### 5.1.1.2 Scales

- a. Drawing delineation shall be to a definite scale(s), with exceptions indicated as not to scale (NTS), in order to quickly convey the true proportions of that which is represented.
- b. Diagram drawings, certain pictorial drawings, and portions of other drawings that are tabulated or contain break lines are exempted.

#### 5.1.1.3 Dimensions and Tolerances

The general principles of dimensioning and tolerancing are used to define the geometric characteristics of objects delineated on facility drawings. Refer to NCS requirements for dimensioning and tolerances.

#### 5.1.1.4 Revision of Drawings

Revising facilities drawings is accomplished by identifying and recording revisions on drawings using the proper requirements and methods.

- a. Revisions shall be authorized by a properly designated individual before changes to the drawing are initiated.
- b. The formal drawing change procedure shall follow the NCS.

#### 5.1.1.5 Graphic Symbols

- a. Graphic symbols shall be used in accordance with NCS to avoid misinterpretation.
- b. Any changes or revisions to an existing drawing shall use the latest NCS graphic symbols. For symbol legends, refer to NCS requirements.

#### 5.1.1.6 Drawing Sets

Drawings prepared for the various craft work are supplementary to each other and are assembled in groups that correspond to the engineering discipline or to the engineering function to which they apply. When joined with the vicinity map/drawing index and numerically arranged using the NCS numbering system, they constitute a facilities drawing set. Drawings are customarily bound in sets prior to release for bidding or other purposes.

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## 6.0 ACRONYMS, ABBREVIATIONS AND DEFINITIONS

### 6.1 Acronyms, Abbreviations

&	And
A & E	Architectural & Engineering
A-E	Architect-engineer
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
C of E	Corps of Engineers
CADD	Computer-Aided Design and Drafting
CEF	Central Engineering Files
DDMS	Data Design Management System
Doc.	Document
EMI	Engineering Modification Instruction
E&TD	Engineering and Test Directorate (NASA)
HVAC	Heating, Ventilating and Air Conditioning
“	inch
IEEE	Institute of Electrical and Electronics Engineers
LEED	Leadership in Energy and Environmental Design
MIL	Military
NASA	National Aeronautics and Space Administration
NCS	United States National CAD Standard
NPD	NASA Policy Directive
NTS	not to scale
PMD	Project Management Division (NASA)
SACOM	Synergy-Achieving Consolidated Operations and Maintenance
SCD	Specification Control Drawing
SOI	John C. Stennis Space Center Organizational Instruction
SORD	Site-wide Operation Repair Documentation
SPR	John C. Stennis Space Center Procedural Requirement
SSC	John C. Stennis Space Center
SSTD	John C. Stennis Space Center Technical Standard
STD	Standard
USGBC	United States Green Building Council
USGS	United States Geological Survey

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## 6.2 Definitions

Architectural Drawing:	A graphic display of the architectural requirements for buildings and other structures.
Building Plan:	Defines the latest building configurations and space allocations.
Civil Drawing:	Graphic, symbolic representation of existing and/or planned surface features of a region showing the necessary construction required to develop a site.
Drawing Index:	A listing of each drawing included in the set
Electrical Drawing:	Shows the general physical location and arrangement of the required wiring system; and identifies the physical requirements for various types of materials needed to provide the electrical installation for a structure.
Electrical Sketches (ESKs):	Includes electrical plans, panel arrangements, advanced schematics, cabling diagrams, wiring diagrams, facility wiring diagrams, and wire termination sheets for the Test Site.
Mechanical Drawing:	A graphic display of piping to convey solids, liquids, or gases, the construction details for mechanical devices and air-conditioning installations, and the construction details for tanks, fire protection systems, etc.
Mechanical Sketches (MSKs):	Includes detailed mechanical fabrication drawings, piping, pipe supports and structural drawings for the Test Site.
Modification Drawing (EMI):	Shows the modification to be made, with sufficient description of the existing facility to ensure continuity between the modified and unchanged areas.
Piping Sketches (PSKs):	Process piping drawings for the Test Site; also referred to as P&IDs.
Structural Concrete Drawing:	Graphically displays facility components constructed of concrete.

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Specification Control Drawing (SCD):	Shows the specifications required for critical components purchased.
Structural Steel Plan:	A plan that shows the primary and secondary structural steel.
Tabulated Drawing:	The variables between items shall be tabulated, and constant characteristics shall be depicted or stated only once in this drawing.
Tolerance:	The total amount by which a specific dimension may vary from design size.
Vendor Information Drawing:	Supplied to a vendor to set forth the general requirements of an item to be fabricated.

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### Appendix A: Title Block

Following is an example of SSTD-8070-0002-CONFIG's title block that shall be used site-wide.

The title block font shall be:

- a. Calibri.ttf in AutoCAD and Revit, and
- b. Arial.ttf in Creo, per SSTD-8070-0140.

AUTHORIZATION									
SYM	ZONE	DESCRIPTION							
<b>REVISIONS</b>									
SIGNATURES			DATE		 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION		JOHN C. STENNIS SPACE CENTER SSC, MS 39529-6000		
DRAWN DRAWN_BY			DRAWN_DATE						
CHECKED CHECKED_BY			CHECKED_DATE		DESCRIPTION <b>TITLE1</b> <b>TITLE2</b> <b>TITLE3</b> <b>TITLE4</b> <b>TITLE5</b>				
ENGINEER ENGINEER1			ENGINEER_DATE1						
ENGINEER ENGINEER2			ENGINEER_DATE2						
ENGINEER/ENVIRONMENTAL ENGINEER_ENVIRONMENTAL			ENGINEER_ENVIRONMENTAL_DATE3						
SITE MANAGER/FACILITY MANAGER SITE MANAGER			SITE_MANAGER_DATE						
CONCURRENCE CONCURRENCE			CONCURRENCE_DATE						
SUBMITTED SUBMITTED_BY			SUBMITTED_DATE						
SAFETY SAFETY			SAFETY_DATE		DWG NO. <b>DRAWING_NUM</b>		SHEET NO. <b>SHT</b>		REV <b>REV</b>
APPROVED APPROVED			APPROVED_DATE		ISSUED_CEF_DATE		AUTHORITY <b>AUTHORITY_NAME</b>		SHEET <b>1_OF</b>
3 REF_INFO			2		1				

- SYSTEM
  - SUBSYSTEM
  - FACILITY
  - BUILDING NUMBER
  - PROJECT
  - DRAWING TYPE
  - AFSCODE
  - RETENTIONSCHEDULE
  - RECORDISPO
  - DESCRIPTION
  - DRAWING NUMBER
  - AUTHORIZATION
- *Signifies hidden attributes and will not be viewed or printed on final hardcopy drawing sheet. These are primarily being used for Design and Data Management System (DDMS) search capabilities.*

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## **Appendix B: SSC AutoCAD Drafting Standards Guide and Preferences**

The following standards and preferences are to be adhered to during all phases of a project, unless otherwise specified. This applies to outside contractors performing designs for SSC.

### **Files To Be Sent to Outside Contractors shall be the latest versions of the following:**

- SSC FORMAT.dwg (Block)
- SSC F SIZE FORMAT.dwt (Template)
- acad\_black.ctb
- G-001 (Cover Sheet)
- SSTD-8070-0002-CONFIG

### **GENERAL:**

- Final deliverable drawings submitted by outside contractors shall be in AutoCAD 2018 format (unless otherwise specified) and contain no proxy graphics. Drawings containing proxy graphics shall be sent back to the outside contractor for rework.
- Designs done in Civil 3D or Revit shall submit a model file along with fully converted AutoCAD 2018 files for each drawing sheet unless specified otherwise.
- Drawing files shall be named the same as the drawing. (ex. EMI XXXXX-XX G-001)
- Drawing files shall be individual files. Drawing sheets should not be combined into one file.
- Signatures and dates for Drafter/Checker (engineer if applicable) shall be manually input in final deliverable drawing sheets.
- Cover page drawing (G-001) shall not be renamed or altered other than to add title block information, drawing index content and project area.
- Use “Page Setup Manager” to set the proper layout view and CTB plot style to acad\_black.
- “Zoom Extents” before saving each drawing file to ensure full drawing sheet is displayed for proper upload and viewing in NASA data management system.
- Drawing sheets shall be clearly marked with the 30%/60%/90% review stamp at the time of submittal. Drawing sheets for final submittal shall not contain a stamp unless specified otherwise.
- All external reference drawings shall be “bound” within each drawing file. No drawings shall have external references outside of plot stamps and/or images.
- No drawing information (charts, notes, content) shall be saved outside of the drawing layout.

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- Dimensions shall have clear points of contact and should leave no questions of their points of origin. Using phantom/center lines (as required) set to a gray layer is recommended to clear up any confusion. Make sure all dimensions and callouts are clearly visible, e.g., not covered by a part of the drawing content, not overlapping each other, and not condensed to the point they cannot be read clearly.

### **TITLE BLOCK GUIDELINES:**

- The “SSC FORMAT” shall be inserted into the paper space of the drawing.
- The “SSC FORMAT” block shall not be renamed.
- The “SSC FORMAT” block shall not be exploded.
- Title blocks should be filled out correctly and completely including required hidden attribute fields. (See references below.)
- Title blocks should be set to the “FORMAT” layer.
- Company stamps and/or logos shall not be connected to or touching the “SSC FORMAT” title block.
- Spell check the title block information.

### **DRAWING LAYERS:**

- Shall follow NCS unless otherwise stated.
- All line types, colors, line scale, line weight, thickness, and material shall be BYLAYER.
- All text, including dimensions, shall be set to color 7 (white).
- Color 2 (yellow) and color 4 (cyan) shall not be used as options for drawing layer colors.
- Color 1 (red) and color 3 (green) are set to bold and shall be used for new objects.
- Grays (colors 8, 9, 250-255) are set to varying light shades and shall be used for existing objects. Color 8 is most commonly used.
- All other colors are set to default settings.

### **Example Layers:**

0 = "catch-all," color = black/white

G-CL1/CL2 = center line (center/center2), color = #8

G-DIM1 = dimensions, color = #7

G-Existing1 = continuous line, color = #8 - To ref. existing structure, piping, etc.

G-Existing2 = continuous line, color = #9 – Typically used for shading area but not limited to.

G-PHN1/PHN2 = phantom line (phantom/phantom2), color = #8 – Used to show adjacent position of related parts or assemblies.

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G-PHN3 = phantom line, color = red – Used to define the detail area.

FORMAT = format, rev block and drafting stamps, color = black/white

G-HID1/HID2 = hidden line (hidden/hidden2), color = #8

G-PRIM1 = primary object layer, color = red, (New Objects, Title Call-Outs, ETC.)

G-PRIM2 = primary object layer, color = green, (New Objects where Prim1 is too thick or for Secondary Object layer)

G-TEXT = text, callouts, Detail Bubbles, Section Cuts, layer, color = white/black

G-VPRT = vport layer, color = yellow, (Set to not plot.)

G-NOTE = general notes and flag notes layer, color = white/black

### **TEXT / NOTES:**

- All text shall be in CAPS - no lower case with exceptions for special symbols/electrical or sizing (ex: 4mm; 4"x4"x1/4")
- General text height is 1/8” with exception of titles; drawing view title text height is 1/4”. Text width is set to 1. If smaller text is needed for special concerns, 3/32” is the minimum height allowed.
- All text shall be either middle left (ML), middle right (MR) or middle center (MC) justified.
- All leader lines for call-outs shall have landings and shall be projected from the ML or MR of text.
- All list headings and drawing view title text shall be underlined.
- Calibri.ttf font shall be used for all text in AutoCAD and Revit designs. Arial.ttf font shall be used for all text in Creo designs.
- All text shall be spell checked.


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**REFERENCE:**

\*See Appendix A for SSC FORMAT (Title Block) Information.

Example 1: Filled out SSC Title Block before signatures are added.

SYM	ZONE	DESCRIPTION			
		<b>REVISIONS</b>			
SIGNATURES		DATE		 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  <b>NAVIGATION LOCK MITER GATE REHABILITATION LOWER GATE ISOMETRIC VIEW</b>	
DRAWN					
CHECKED					
ENGINEER					
ENGINEER					
ENGINEER/ENVIRONMENTAL					
SITE MANAGER/FACILITY MANAGER					
CONCURRENCE					
SUBMITTED					
SAFETY					
APPROVED					
		SIZE <b>F</b>	DWS NO. <b>EMI 21B395-01</b>	SHEET NO. <b>S-301</b>	REV <b>0</b>
		ISSUED	AUTHORITY <b>IAA# NNS19AA0B03A</b>	SHEET	
3		2		1	

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Example 2: Enhanced Attribute Editor filled out for SSC Title Block including hidden attribute fields.

**A** Enhanced Attribute Editor

Block: SSC FORMAT		
Tag: RECORDDISPO		
Attribute   Text Options   Properties		
Tag	Prompt	Value
DESCRIPTION	FULL TITLE	NAVIGATION LOCK MITER GATE REHABILITATION - LOWER GATE AND GATE MONOLITHS ISOMETRIC VIEW
DRAWING_NUMBER	DRAWING_NUMBER	EMI 21B395-01 S-301
TITLE1	Title 1	NAVIGATION LOCK
TITLE2	Title 2	MITER GATE REHABILITATION
TITLE3	Title 3	LOWER GATE
TITLE4	Title 4	GATE AND GATE MONOLITHS
TITLE5	Title 5	ISOMETRIC VIEW
DRAWING_NUM	Drawing No.	EMI 21B395-01
SHT	SHEET NUMBER	S-301
DRAWN_BY	Drawn by	
DRAWN_DATE	Drawn date	
CHECKED_BY	Checked by	
CHECKED_DATE	Checked date	
ENGINEER1	Engineered by	
ENGINEER_DATE1	Engineered date	
ENGINEER2	Engineered by	
ENGINEER_DATE2	Engineered date	
ENGINEER_ENVIRONME...	Engineer/Environme...	
ENGINEER_ENVIRONME...	Engineer/Environme...	
SITE_MANAGER	SITE FACILITY MN...	
SITE_MANAGER_DATE	Site manager/Facility...	
CONCURRENCE	CONCURRENCE	
CONCURRENCE_DATE	CONCURRENCE_D...	
SUBMITTED_BY	Submitted by	
SUBMITTED_DATE	Submitted date	
SAFETY	Safety	
SAFETY_DATE	Safety date	
APPROVED	Approved by	
APPROVED_DATE	Approved date	
1_OF	Sheet No.	
REV	Revision	0
AUTHORITY_NAME	Authority	NNS19AA0B03A
AUTHORIZATION	AUTHORIZATION	
ISSUED_CEF_DATE	ISSUED CEF DATE	
REF_INFO	REF INFO:	
SYSTEM	SYSTEM	
SUBSYSTEM	SUB-SYSTEM	
FACILITY	FACILITY	
BUILDING_NUMBER	BUILDING NUMBER	
PROJECT	PROJECT	
DRAWING_TYPE	DRAWING TYPE	
AFSCODE	AFS CODE	8820
RETENTIONSCHEDULE	RETENTION SCHE...	SCH8 ITEM 53D
RECORDDISPO	RECORDS DEPOSI...	PERMANENT

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## EMI PROJECTS - DRAWING SHEET NUMBERING

	<p><b><u>A-1 01</u></b></p> <p>↓</p> <p>Sequence Numbering</p>	
<b>Discipline Designators:</b>		<b>Sheet Type Designators:</b>
A - Architectural		<b>0</b> General (symbols legend, notes, etc.)
B - Geotechnical		<b>1</b> Plans (horizontal views)
C - Civil		<b>2</b> Elevations (vertical views)
D - Process		<b>3</b> Sections (sectional views, wall sections)
E - Electrical		<b>4</b> Large-Scale Views (plans, elevations, stair sections, or sections that are not details)
F - Fire Protection		<b>5</b> Details
G - General		<b>6</b> Schedules and Diagrams
H - Hazardous Materials		<b>7</b> User Defined (for types that do not fall in other categories, including typical detail sheets)
I - Interiors		<b>8</b> User Defined (for types that do not fall in other categories)
J - EMCS		<b>9</b> 3D Representations (isometrics, perspectives, photographs)
L - Landscape		
M - Mechanical		
O - Operations		
P - Plumbing		
Q - Equipment		
R - Resource		
S - Structural		
T - Telecommunications		
V - Survey/Mapping		
X - Other Disciplines		
Z - Contractors/Shop Drawings		

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