

## TOPIC 2. DRAWINGS

### 1. DRAWING MATERIAL AND SIZE

a. Prepare Department of Veterans Affairs (VA) drawings for review submittals, bidding and construction in accordance with instructions in A/E Submittal Guide PG-18-15. Submit record drawings on bond paper, full size one copy and on standard format DVD, two copies. Each of the two electronic copies shall contain .dwg and .pdf files of each drawing, and .doc and .pdf files of each project manual document. Each DVD will be labeled as to station #, project #, date, etc.

b. Standard sheets are Architectural F size, 1069 mm (42 in.) long by 762 mm (30 in.) wide.

c. Electronic files shall conform to National CAD Standard and VA Application Guide.

**2. DRAWING FORMAT:** Computer aided design and drafting (CAD) is the preferred method of presenting drawings. The format to be used in creating the CAD drawings (i.e. layer/level structure, fonts, font sizes, file naming conventions, etc.) shall be the latest edition of the National CAD Standard as amended by VA Application Guide.

**3. SIZE AND SCALE:** Use minimum lettering height of 3 mm (1/8 in.). Computer generated or typewritten notes are preferable to hand lettered. Hold screening, shading, crosshatching and other indications of materials or locations to a minimum. Place symbols and lettering so that they are not confused with dimension lines, arrowheads, or other indications.

### 4. TITLE BLOCK

a. Use VA Standard Title Block for CAD drawings. Follow the format indicated in the Standard Title Block for hand drawn sheets.

b. For Schematics and Design Development Drawings, identify drawings above the title block in large font stating as appropriate either "Schematics ONLY" or "Design Development ONLY", and in small font "NOT for Construction".

### 5. GENERAL INFORMATION

a. Organize and number drawings into technical classifications as listed in **Item 6, Identification of Drawings.**

b. Indicate scales by note for each plan, section and detail on each drawing. Provide graphic scales.

c. Show north arrow indicators on plan sheets.

- d. Orient plans with North toward the top of the drawing.
- e. Note section symbol on the referenced sheet location.
- f. Indicate the relationship of details, plans, elevations, and sections, other than standard details, by cross-reference. Note the sheet number and drawing location of detailed feature on details and sections. Provide key plans on stair-section sheets to indicate the location of the stairs in the buildings.
- g. Provide a key plan to show the location of a portion of a plan or elevation with respect to the total project.
- h. Use legends, abbreviations, and symbols that conform with the National CAD standard as amended by VA Application Guide and VA documents PG-18-4, PG-18-6, and PG-18-14 when developing VA drawings and specifications.
- i. Do not write specification information on contract drawings. Show notes or dimension information on the 1:100 (1/8 in.) scale drawings or 1:50 (1/4 in.) scale drawings, but not on both. Do not repeat drawing information on plans, elevations or details.
- j. Clearly distinguish between new, existing, and replacement items of work.
- k. Locate room names and room numbers within the spaces to which they apply and locate equipment symbols or names adjacent to the equipment shown on the floor plans.
- l. Indicate all smoke barriers and fire-rated partitions on architectural, heating, ventilating, and air-conditioning (HVAC), plumbing, and electrical 1:100 (1/8 in.) scale floor plans.
- m. Show future expansions (both vertical and horizontal) by dotted lines on site plans, architectural floor plans, engineering floor plans, and in elevations and sections.
- n. For buildings which are to be fully sprinklered, place the note "FULLY SPRINKLERED" above the title block, close to the right margin, on each architectural, structural, HVAC, plumbing, and electrical floor plan.

**6. IDENTIFICATION OF DRAWINGS**

a. **General.** Bind all drawings into sets and identify drawing classification, relative order of issue, amendment, and change order by symbols placed on drawing title blocks as described below:

Cover sheet (include Index to Drawings on small projects)	
Index to Drawings start with .....	GI
Critical Path Method start with .....	GC
Site Development start with .....	GS
Sub-Surface Investigation start with .....	BI
Asbestos Removal start with .....	HA
Architectural* start with .....	AS
Architectural Miscellaneous Detail drawings for single building projects shall follow numbers for architectural drawings. Architectural Miscellaneous Detail drawings start with (on projects of two or more buildings) .....	AS
Plumbing start with .....	PL
Sanitary start with .....	CU
Structural start with .....	SS
Heating, Ventilating, Air Conditioning, and Refrigeration start with .....	MH
Steam Generation start with .....	MP
Outside Steam Distribution start with .....	MS
Electrical start with .....	ES
Fire Protection start with .....	FA

**NOTE:** Normally Equipment Drawings are shown as part of the Architectural set.

(1) Building number shall precede the classification identification (Building No. 20 as example) 20-BI 1, 20-GS 1, 20-AS 1, 20-SS 1. When a drawing reflects work that is associated with several buildings or the station in general, such as details sheets and exterior utility distributions systems, no building number will precede the symbol which identifies the classification.

(2) Number the drawings in sequence within each classification, for example 1-SS 1, first structural sheet Building No. 1; 1-SS 2, second structural sheet, etc. Directly below the drawing number, show the position within the series that each drawing occupies, for example, sheet 1 of 30 (structural sheets), sheet 2 of 30 (structural sheets), etc.

(3) Drawings for each new project shall begin with number one. Distinguish the drawings by their project titles and dates.

(4) The preferred method for classifying drawings is by identification of technical information shown on drawing, for example, Architectural or Electrical. However, an exception is made when one design discipline has limited work. Show this limited work on a drawing with another classification. The drawing number shall show the symbol for the major work classification;

indicate that other work is shown on the same drawing by a description, such as "Plumbing", above the title block.

(5) When work including two or more buildings is described on a single drawing, the sheet shall bear the number of the building involving the work of the major magnitude; indicate that work on other buildings is shown on the same drawing by a note above the title block.

**b. Amendment Construction Drawings**

(1) Issue a drawing which is produced to supersede an original working drawing as a corrected plot of the CAD file or as a photocopy reproduction of the original drawing, on vellum or mylar. Identify the number of this amendment drawing with the number of the sheet it replaces plus the suffix "R". Identify additional replacements of the same drawing as - "R2"- "R3", etc. Note the revisions dates. Place the words "Amendment Drawing" above the Title block with a statement of the original drawing which it supersedes.

(2) Give a drawing, which supersedes a portion of an original working drawing, a new number in sequence with other drawing numbers. Place the notation "Amendment Drawing" above the title block with a statement of the drawing number of the original drawing it modifies. Insert the date of the amendment on the drawing. Place a cross reference note, on the superseded drawing, calling attention to the amendments.

**c. Change Order Construction Drawings.** Give a drawing, which describes the work involved in a "Change Order", a number in sequence with the original drawings. Place the words "CHANGE ORDER" above the title block with a statement of the drawing that it modifies or supersedes. Insert the date of the change order on the drawing. Place a cross-reference note calling attention to the change order on the superseded or modified drawing. For reference prints in Central Office or on the project site in the possession of the Resident Engineer, stamp drawings with; "See Change Order Drawing No. \_\_\_\_\_, dated \_\_\_\_\_."

**d. Reissue Construction Drawings**

(1) When a complete set of working drawings is to be reissued without change, remove the original date and insert the new date of the reissue.

(2) When a complete set of working drawings is to be reissued with changes, replot the changed drawings, or provide a photocopy vellum or mylar reproduction of the original drawings, where feasible, with changes incorporated. These reproductions (or drawings) shall retain original dates and drawing numbers with the suffix - "R", but the reissue date shall appear in the Revision column.

(3) When some drawings only of an entire set are changed, the entire set shall retain original dates and drawing numbers with the suffix "R" added; and the reissue date shall appear in Revision column of the changed drawings only.

e. Completion Item Construction Drawings. Completion Items are additional work required beyond the original contract and after its completion.

(1) Provide drawings prepared to describe Completion Items with drawing numbers in sequence with last working drawing of a series, i.e., "Architectural", "Structural", "Electrical", etc., and earlier Change Order and Completion Item drawings. Insert the words, "COMPLETION ITEM NO. \_\_\_\_\_" above the title block. The VA Project Manager shall assign the Completion Item numbers and drawing numbers.

(2) In the title blocks of Completion Item drawings, show the same project titles and project numbers as the original working drawings. Show a sheet title in the top spaces of the title block. Date the drawings to reflect the date on which the completion item drawings were ordered by the VA Project Manager.