

GENERAL REQUIREMENTS FOR DRAWING PREPARATION

1. SCOPE

1.1 Intent. This Standard Specification establishes requirements for the uniform preparation of working drawings and "as-built" drawings using various referenced standards. Drawing preparation may include revision of existing drawings and drafting of new drawings, including new drawings that did not previously exist, and new drawings that are redrawn from existing drawings.

1.2 Acronyms and term definitions. Below are definitions of various acronyms and terms that are used in this standard or may be encountered in work item specifications.

- “CAD”: Computer Aided Design.
- “CG”: Coast Guard.
- “EC/TCTO”: Engineering Change/Time Compliance Technical Order.
- “ESD-TIMB”: Engineering Services Division, Technical Information Management Branch.
- “NE-TIMS”: Naval Engineering Technical Information Management System.
- “SFLC”: Surface Forces Logistics Center.
- “SRD”: Select Record Drawing.

2. REFERENCES

COAST GUARD DRAWINGS

None.

COAST GUARD PUBLICATIONS

Coast Guard Commandant Instruction (COMDTINST) M9085.1 (series), Naval Engineering Computer Aided Design Standards

OTHER REFERENCES

None.

NOTE

In the event of a conflict between the information or options presented in any other drawing discipline specific reference typically used as an industry standard or cited within Coast Guard Commandant Instruction (COMDTINST) M9085.1(series), Naval Engineering Computer Aided Design Standards, COMDTINST M9085.1 (series) shall take precedence.

3. REQUIREMENTS

3.1 Types of drawing preparation. The Contractor shall be aware that the Coast Guard (CG) will provide the Contractor direction in the tasking document. Generally, tasks will fall into the following categories:

3.1.1 New drawings. All new drawings shall be prepared in Computer Aided Design (CAD) format, in accordance with COMDTINST M9085.1(series) and when necessary, utilize any of the additional references cited above that apply to a particular drawing.

3.1.1.1 Drawings may be prepared in any CAD software, but the completed drawings must be submitted, in single-file, multi-sheet format, and delivered in the AutoCAD .dwg format, version 2012 or earlier, along with copies of all files used in the preparation of the drawing sheets, including any product models. Drawings may be distilled from a 3D model into the specified AutoCAD 2-Dimensional format if they meet these same provisions.

3.1.1.2 When in the design phase, all drawings shall begin with a revision designation of "1". Subsequent iterations or resubmissions shall have the revision designation incremented numerically. All numeric revision write-up and triangles will remain until the drawing is completely approved by the CG. At that time, the drawing shall have all revision indicators and entries in the revision block removed and the revision designation shall become "--" to indicate that this is the CG approved base line of the drawing. Once under CG control, future revisions will be annotated with alpha characters.

3.1.1.3 Hand drawn sketches or red-lined reproductions provided as part of a Condition Found Report or a Change Order Request are temporary drawings and are not considered a permanent part of the asset's planset.

3.1.2 Revisions to existing drawings. Revisions may be completed on U.S. Coast Guard supplied master mylar drawings, tracings, or sepias, or, in cases where drawings exist in CAD format, an AutoCAD file will be provided and the "revision" shall be completed in accordance with COMDINST M9085.1(series), with further guidance provided by this standard specification.

3.2 Standard revision practices. The following standard drawing revision practices in conjunction with requirements cited in COMDTINST M9085.1 (series) shall be observed.

3.2.1 Revision to master drawings only. All revisions must be completed on the master file, paper or CAD files. All drawing master files are maintained in the Surface Forces Logistics Center (SFLC), Engineering Services Division Technical Information Management Branch (ESD-TIMB) drawing repository. Revising any copy of a drawing results in the generation of a duplicate drawing and often leads to confusion and improper configuration management of the asset. Master Drawings in hardcopy format shall be stamped in red ink with the following note: THIS DRAWING IS THE MASTER DRAWING ONLY IF THIS NOTE IS IN RED INK. If this stamp is not in red ink, or if a stamp is present saying "FILE COPY", or "SFLC COPY", do not revise without specific direction from SFLC ESD-TIMB. A DRAFT revision to a drawing may be prepared on a reproducible copy, or on a print copy, only if that copy's title block is hatch-marked out and a large-lettered flag stating: "UNOFFICIAL DRAWING: FOR DRAFT REVISION PURPOSES ONLY" is prominently displayed immediately adjacent to the hatched-out title block.

NOTE

Not all Master Drawings in the Coast Guard's files have the Red Ink stamp yet.

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3.2.2 Retention of historical data. When revising a drawing, details and geometry may be erased. All changes should be detailed in the Revision block with as much clarification as practical. Ideally, it should be possible to reconstruct the previous version of the drawing simply by undoing the changes described in the revision column. Thus the revision column itself should detail every change made, using wording that describes the change as accurately as possible, such as "ADDED DETAIL 9-F", "DELETED REF 16", or "RV-7 SET PRESS WAS 60 PSI". Note in the last case that it would be redundant to say "CHANGED RV-7 SET PRESS FROM 60 TO 75 PSI", because the body of the drawing already shows the set pressure as 75 psi. It is not necessary to hatch out deleted geometry and data. All historical versions of a drawing are maintained by SFLC-ESD-TIMB. Original drawings and prior revisions can be viewed in Naval Engineering Technical Information Management System (NE-TIMS) to ascertain previous configurations.

3.2.3 Reason for revision. For each revision to a drawing, the revision column shall begin by documenting the reason for the revision, such as "TO SUIT EC/TCTO (number if known) TO REPLACE BEARING MATERIAL." in the Revision History Block of the drawing. Additional cross-reference information supporting the reason for revision (Contract, CLIN, Activity, Project #, Service Bulletin, etc), is encouraged to also be entered in revision history.

3.2.4 Additional sheets. An effective way to revise a drawing is to add one (or more) new sheets. This approach is especially effective when large portions of a drawing must be redrawn. The old portions are simply hatched out, and the new sheet(s) can then be drawn in AutoCAD. This approach also retains the old data for historical purposes.

3.2.5 Revision status.

3.2.5.1 On drawings that consist of more than one sheet, it is common practice for each sheet to carry its own revision designator, i.e. all sheets of the drawing do not necessarily carry the same revision, so that only the affected sheets need to be issued when revised. Sheet 1 always carries the latest revision letter, while each remaining sheet carries the revision letter associated with the last revision that happened to affect that particular sheet. The revision letter on any sheet (except sheet 1) can therefore skip letters, such as from D to G.

3.2.5.2 Accordingly, the first sheet of a multi-sheet drawing shall have a Revision Status Table, which shall indicate the revision letter of each sheet of the drawing. A Revision Status Table shall be added if needed to all multi-sheet drawings whenever the drawing is revised for other reasons. With each revision to any part of the drawing, the revision status of sheet 1 shall be updated to the next sequential letter. Likewise, the revision letter of each affected sheet shall be updated to the same letter as sheet 1, and finally the Revision Status Table shall be updated. The revision letter of unaffected sheets shall not be changed.

3.2.5.3 The revision designator for a drawing shall be identified by an upper case letter or letters. The first revision shall be identified by "A", the second revision by "B", and so forth. Successive changes shall use the next sequential letter, except that the letters "I", "O", "Q", "S", "X", and "Z" shall not be used. Upon exhaustion of the alphabet, the next sequential revisions shall be "AA", "AB", etc., and then "BA", "BB", etc.

3.2.5.4 On existing legacy drawings where numbers have been used instead of letters for revision designators, the use of numbers shall be continued in the spirit of an authorized deviation for current convention.

3.2.6 Revision block.

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3.2.6.1 All revision notes for a multi-sheet drawing shall be placed in one revision block or column, beginning on Sheet 1 and continuing to other sheet(s) as needed for space. In addition to revision details, the revision note shall identify the sheet number and applicable panel. However, if existing revisions to a drawing have been noted on the individual sheets, that practice may continue as long as a bold print note on Sheet 1 identifies that "REVISION NOTES ARE DETAILED ON INDIVIDUAL SHEETS". This latter practice shall not be used for revisions to new or previously-unrevised drawings.

3.2.6.2 A triangular revision symbol or identifier shall be placed adjacent to all revised areas, except where the entire sheet has been added by revision. The triangular symbol shall contain the appropriate revision letter. Where multiple items are being revised under the same revision, each item or group of items shall be identified with a superscript number outside the revision symbol that relates to the revision notes in the revision block.

3.2.7 Multi-cutter drawing applicability. Drawings applicable to more than a single cutter may be revised only if changes made do not result in the loss of information describing other cutters. Drawings may include alternative details applicable to different cutters if the applicability is clearly indicated and no alternative detail applicable to any other cutter is erased or crossed out.

3.3 When to revise, supersede, or create new drawing.

3.3.1 Revise an existing drawing if extent of drawing changes are minor and the old data can be easily retained as explained in paragraph 3.2.2 (Retention of historical data.) Adding additional sheets to a drawing (see 3.2.4 (Additional Sheets)) also applies here.

3.3.2 Supersede an existing drawing if extensive revisions are required, if the quality of the existing Master Drawing is poor (torn, faded, smeared, etc.), or if conversion (digitalization) of the drawing to AutoCAD is in order. The following steps shall be followed:

3.3.2.1 The (old) superseded Master Drawing shall have its title block hatched out, and a bold flag near the title block shall state: **THIS DRAWING IS SUPERSEDED BY USCG DWG(S) XYZ**. Increase this drawing's revision letter by one letter.

3.3.2.2 The (new) superseding Master Drawing shall carry a new United States Coast Guard (USCG) drawing number as assigned by SFLC-ESD-TIMB, and provided to the Contractor by the requiring office. The superseded drawing title, approval names (text format) and approval dates shall be carried over to the new drawing. The new drawing shall be a "clean" drawing; i.e. revision symbols, cross-outs, and the revision block from the old superseded drawing shall not be reconstructed on the new superseding drawing. The following bold face note shall be placed immediately adjacent to the title block: **THIS DRAWING SUPERSEDES USCG DWG XXX**. The original issue of this drawing shall be REV A, and the revision column shall begin as follows: **THIS DRAWING WAS CREATED BECAUSE** (give reason). If redrawn with substantive change from what was shown on the superseded drawing, describe the change and the reason for the change in the revision column as per normal revision practices. The revision approval date shall be the current date.

3.3.2.3 If the superseding drawing is a re-draw of a vendor-furnished drawing, retain as much of the original title block as possible, including the vendor's original drawing number, all rights legends and any corporate information. Revisions by the vendor shall be kept separate from revisions by the Coast Guard.

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3.3.3 Create a new drawing with a new USCG drawing number if the data to be presented involves an entirely new system, new equipment or cannot otherwise be appropriately integrated (by revision or by being superseded) into the existing drawing set.

3.4 Cancellation of drawings. If a drawing no longer contains any currently useful or applicable information, such as an entire system being removed from a cutter, the Coast Guard may authorize cancellation of the drawing. Hatch mark out the title block and place the following bold face note immediately adjacent to the title block: **THIS DRAWING HAS BEEN CANCELLED**. Increase the revision letter by one letter, and give the reason for the drawing cancellation in the revision column.

3.5 Revisions when Master Select Record Drawing (SRD) is unavailable. This situation arises for example when Master SRD Drawings have not yet been received from the shipbuilder and changes need to be made to certain systems, the following actions should be taken:

3.5.1 A single, new Master Drawing for each appropriate set of drawings shall be created, which may be based from current, but un-editable vendor drawings, for the purpose of documenting needed changes. This drawing will have a special branching drawing number, issued by ESD-TIMB, which identifies it as an addendum to the original vendor's master drawing. This new Master Drawing will be available for depicting various needed changes until the complete Master Drawings are received from the shipyard. At such time, the two drawings shall be incorporated back into one class SRD drawing per Section 3.5.4 below.

3.5.2 The title of this new Master Drawing shall be "CHANGES TO (Original Title)", and the following note shall be displayed prominently on sheet one near the title block: "THIS DRAWING WAS CREATED FOR THE PURPOSE OF DOCUMENTING CHANGES WHEN THE ORIGINAL MASTER DRAWINGS WERE NOT AVAILABLE FOR REVISION."

3.5.3 It is mandatory that this new Master Drawing make reference (by drawing number in a List of References on Sheet 1) to the (absent) system drawing. The List of References will be used as a "tickler" to update the absent Master Drawings when received.

3.5.4 When the (previously-absent) Master SRD Drawing becomes available, it is mandatory to revise the vendor's master class drawing with the addendum drawing. The applicable Product Line will be responsible to fund the maintenance/repair contractor to modify the SRD drawing if it becomes available during the availability timeframe. However, once the maintenance/repair contract is complete, the PL will be responsible to incorporate the changes, to contract work to outside vendors qualified to perform the work, or to initiate and negotiate activities with SFLC-ESD-NAME to perform the required engineering/CAD services.

3.6 General drawing practices.

3.6.1 Drawing sheet size. Drawing templates of USCG approved sizes are available at <http://www.uscg.mil/sflc/drawings.asp>

3.6.2 Prints of drawing and reproduction. Prints of drawings shall be folded to a size of 11-inches vertical by 8-inches horizontal, with the title block exposed in the lower right-hand corner, unless otherwise directed.

4. NOTES

This section is not applicable.