

***NATIONAL WEATHER SERVICE INSTRUCTION 30-1202
NOVEMBER 3, 2003***

***Maintenance, Logistics, & Facilities
Configuration and Data Management, NWSPD 30-12***

ENGINEERING DRAWINGS

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SUMMARY OF REVISIONS

This Procedural Directive supercedes National Weather Service Instruction 30-1202, dated September 9, 2002 and includes information on engineering drawings for NWS owned facilities.

Signed by

October 20, 2003

John McNulty, Jr.

Date

Director, Office of Operational Systems

NWS Directives System - Engineering Drawings

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1 Purpose. National Weather Service (NWS) policy 30-12 establishes Configuration Management (CM) responsibilities for operational systems and NWS owned facilities. Leased facilities are exempt from any processes or procedures indicated in this instruction. CM controls the system engineering design through the documentation of the system or facility in engineering drawings and associated lists. An engineering drawing is a document comprised of detailed schematics relating to the design, manufacture, or acceptance of an equipment, facility, or system. This instruction implements National Weather Service Directive System 30-12. It provides guidance and designated responsibilities for preparing, approving, authenticating, revising, and releasing NWS engineering drawings, associated lists, and Engineering Change Notice Forms. The NWS identifies and generates engineering drawings to:

- a. Support NWS equipment under CM control.
- b. Provide CM control during the procurement of new NWS equipment.
- c. Assist with field maintenance repair.
- d. Modify NWS equipment under CM control.
- e. Support the documentation of NWS owned Facilities.

- 2 Scope. Program Managers are responsible for the acquisition of new systems and facilities, as well as lead changes to CM controlled equipment and facilities. In conjunction with engineering drawings, the Program Manager for is responsible for:
- a. Including Engineering Drawings in the Statement of Work (SOW) for systems under CM control, as listed in NWS Instruction 30-1203 Configuration Management for Operational Systems. The SOW must define engineering drawings and associated list levels for Developmental equipment, as well as, for Commercial Off the Shelf (COTS) equipment.
 - b. Including Engineering Drawings in the SOW for NWS owned facility construction projects that are:
 - 1. Over \$100,000 in construction cost.
 - 2. Will result in changes relative to the operations and maintenance of the facility, especially in critical mechanical/electrical/plumbing systems.
 - c. Sending all SOWs specifying new or revised engineering drawings to the Office of Operational Systems (OPS) CM group for review and comment before issuing the SOW. OPS CM will review the SOW to ensure the engineering drawings are delivered or modified in conjunction with the appropriate level of CM control.

OPS CM will provide drafting services for those systems under CM control where:

- a. The equipment procurement excluded engineering drawings and associated lists.
- b. The engineering drawings do not adequately disclose CM, re-procurement and engineering support information required to sustain the equipment over its life cycle.
- c. The Program Manager has funded the configuration documentation support activity within OPS CM.

OPS CM will not generate an initial drawing package for equipment unless otherwise directed by the Director of OPS.

3 Drawing Levels. Program Managers will procure engineering drawings and associated lists for Developed equipment using the MIL-T-31000 definition for the Technical Data Packages (TDP) and ASME Y14.100M for engineering drawing practices. Section four of the ASME Y14.100M specification defines the essential general specifications for drawing types, associated lists, and the revisions of engineering drawings. Program Managers must use this information in all SOWs for Developmental equipment.

Program Managers will specify engineering drawings, specifications, and engineering data for COTS equipment under the same specifications for Developmental items. OPS CM requires it receive commercial drawings in accordance with MIL-T-31000 paragraph 3.6.4 for COTS equipment items. Program Managers must specify ASME Y14.100, paragraph 4.1 ASME

| Y14.24M Control Drawings in all SOWs for COTS equipment. OPS CM requires it receive
| facilities drawings in accordance with National Institute of Building Sciences National CAD
| Standard.

4 Proprietary Drawings and Associated Lists. OPS CM requires contractors claiming proprietary rights to generate control drawings in accordance with ASME Y14.24M to govern the identification, performance, and acceptance criteria for a COTS item.

5 Drawing Escrow. Drawing escrow accounts protect the NWS and assure full design disclosure is established and maintained in the event the contractor can no longer support the equipment. The Program Manager should implement a drawing escrow account whenever OPS needs full disclosure of an engineering design to maintain the equipment. Also, Program Managers should exercise drawing escrow accounts for proprietary equipment if:

- a. The COTS item is critical for logistic support.
- b. There is a high risk of the contractor not being able to support the equipment over its lifetime.
- c. Technological advances are expected to render the documentation obsolete and the documentation is not maintained by the contractor.
- d. Technological advances are expected, but the NWS cannot upgrade the system design and is required to maintain discontinued equipment.

The NWS must have uninhibited access to escrow TDP for audits at any point in the equipment life cycle. The Program Manager will require a Data List initially generated by the contractor to maintain status accounting of the escrow package. OPS CM should audit and review escrow TDP annually. OPS CM will keep a current data list containing the drawing numbers and revision levels representing each escrow account.

6 Engineering Drawing Review Process. Because multiple organizations handle configuration documentation support and there are differences in system management functions; the engineering drawing review process varies depending on the system. This section will describe engineering drawing review processes used within the NWS.

| 6.1 Configuration Branch (OPS13) Drawing Review Process. For those systems where
| OPS13 has CM responsibility, the Program Manager will serve as the authorization official, and
| will approve engineering drawings and associated lists prior to formal release to the OPS13
| Technical Reference Library. For NWS owned facilities, the Regional Systems Operation
| Division Chief or the OPS15 Facilities Branch Chief will serve as authorization official, and will
| approve facilities engineering drawings prior to the formal release to the OPS13 Technical
| Reference Library. Formal release of the engineering drawings to the OPS13 Technical
| Reference Library constitutes the establishment of a system or facility baseline. Only the OPS13
| Configuration Program Manager can authorize the release of engineering drawings and
| associated lists prior to the establishment of the system or facility baseline. For those systems
| and NWS owned facilities under OPS13 CM control, the NWS uses the Engineering Change
| Notice (ECN) document to modify formally released engineering drawings and associated lists.
| Appendix A details the OPS13 Engineering Drawing procedures for Systems, including

| instructions for generating ECNs. Appendix C details the OPS13 Engineering Drawing
| procedures for NWS owned facilities, including instructions for generating ECNs.

6.2 Program Branch (OPS42) Drawing Review Process. For the WSR88D system where OPS42 has CM responsibility, the responsible Project Team Engineering focal point will review and approve engineering drawings and associated lists prior to formal release into Agile. Agile is an electronic Change Management tool and is the technical reference library and repository for all engineering drawings. Formal release of engineering drawings into Agile constitutes the establishment of a system baseline. For those systems under OPS42 CM control, the NWS uses the Engineering Change Order (ECO) document to modify formally released engineering drawings and associated lists, as well as, release engineering drawings into the baseline for the first time. Appendix B details the OPS42 engineering drawing procedures, including instructions for generating ECOs.

Appendix A - OPS13 Engineering Drawing Procedures for Systems

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1 Purpose of Engineering Change Notices. The Configuration Branch uses the Engineering Change Notice (ECN) as the authorizing document to make updates to the baseline documentation including engineering drawings and their associated parts lists for those systems listed in Section 6 under their CM responsibility. ECNs provide steps for maintaining an orderly audit trail of baseline document changes. To view the ECN form use the url:

<http://cmhome.nws.noaa.gov/ecn/nwsecn1a4.pdf>

2 ECN Responsibilities. The following paragraphs detail the roles and responsibilities in the OPS13 ECN process. Section 6 lists specific organizations, for each system, designated with their responsibilities and established baseline documentation.

2.1 Configuration Program Manager. The Configuration Program Manager determines the appropriate level of review for the ECN, coordinates the review of all ECNs, convenes the ECN Review Meeting, provides CM impact analysis at the ECN Review Meeting, and ensures ECN status accounting.

2.2 Technical Reference Librarian. The Technical Reference Librarian issues the ECN number, and enters the approved ECN into the baseline document repository.

2.3 Drafting Technician. The Drafting Technician is responsible for drafting activities related to the Engineering Drawing. The Drafting Technician originates the ECN, contacts the Technical Reference Librarian for the ECN number, completes all necessary information on the ECN, signs, and attends the ECN Review Meeting.

2.4 System Engineer Focal Point. The System Engineer Focal Point reviews ECNs and attends the ECN Review Meeting to provide system engineering impact analysis regarding the change.

2.5 Maintenance Focal Point. The Maintenance Focal Point reviews the ECN and attends the ECN Review Meeting to provide maintenance impact analysis regarding the changes.

2.6 Logistics Focal Point. If applicable, the Logistics Focal Point reviews the ECN and attends the ECN Review Meeting to provide logistics impact analysis regarding the change.

2.7 Regional Focal Point. If applicable, the appropriate Regional Focal Point reviews the ECN for site specific drawings and attends the ECN Review Meeting via conference call to provide regional impact analysis regarding the change.

2.8 Software Focal Point. If applicable, the Software Focal Point reviews the ECN and attends ECN Review Meeting to provide software development impact analysis regarding the change.

2.9 Contractor Focal Point. If applicable, the Contractor Focal Point reviews the ECN and attends the ECN Review Meeting to provide the impact on the contract.

2.10 Authorization Official. The Authorization Official is responsible for certifying the engineering drawing change has been executed properly. The Authorizing Official reviews the ECN and attends the ECN Review Meeting to provide overall approval of the change.

3 ECN Authorizing Signatures. The following paragraphs detail the signature process.

3.1 Drafting Technician (Mandatory). The Drafting Technician, responsible for incorporating the ECN changes, indicates concurrence by signing the appropriate ECN block.

3.2 Configuration Program Manager (Mandatory). The Configuration Manager indicates concurrence by signing the appropriate ECN block. The Configuration Program Manager will ensure the correct signatures appear on each ECN.

3.3 Systems Engineering Focal Point (Mandatory). The System Engineer Focal Point assures the clarity of the change, certifies proper drafting standards have been incorporated into the document, and indicates concurrence by signing the appropriate ECN block.

3.4 Maintenance Focal Point (When Applicable). The Maintenance Focal Point indicates concurrence by signing the appropriate ECN block.

3.5 Logistics Focal Point (When Applicable). The Logistics Focal Point indicates concurrence by signing the appropriate ECN block.

3.6 Region Focal Point (When Applicable). The Regional Focal Point indicates concurrence by signing the appropriate ECN block.

3.7 Software Focal Point (When Applicable). The Software Focal Point indicates concurrence by signing the appropriate ECN block.

3.8 Contractor Focal Point (When Applicable). If a contractor is responsible for incorporating these changes, the Contractor Focal Point signs and indicates concurrence by signing the appropriate ECN block.

3.9 Authorization Signature (Mandatory). The ECN Authorizing Official signs and dates the appropriate ECN block. If necessary, the Authorizing Official enters special instructions in the "Instruction" block. The Authorization Signature indicates completion of the ECN. The Authorization Official returns the approved ECN to the Technical Reference Librarian.

4 OPS13 Drawing Numbers. All Engineering Drawings under OPS13 CM control have a drawing number. NWS Program Managers may request a block of drawing numbers from OPS13 to be used in engineering drawings during the acquisition of new equipment.

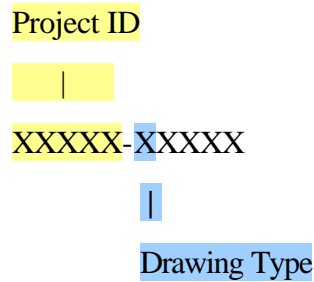
OPS13 will designate drawing block suffixes. For example:

- a. 40000 = Assembly Drawings
- b. 30000 = Schematics
- c. 90000 = Control Drawings

OPS13 will designate the prefix of the Program identifier defined by OPS. For example:

- (1) J700 = Radiosonde Replacement System/Telemetry Receiver System

OPS13 will use the following drawing number scheme:



5 OPS13 Dash Numbering System. Program Managers should ensure new equipment contracts use the standard OPS13 dash numbering system for items and assemblies when generating engineering drawings. The following sections describe this numbering system.

5.1 Detailed Item Dash Numbers. Use sequential dash numbers on all defined detail items. Because they are reserved for assemblies, do not use dash numbers ending in "0". Figure A-1 demonstrates this numbering system.

5.2 Assembly Dash Numbers. Use dash numbers beginning with a digit(s) (1-9) in multiples of 10, and ending with "0" for all defined assemblies. Figure A-2 demonstrates this numbering system.

Figure A-2. Detail Parts Numbering System

Detail Parts
-01
-02
-03
-04

-05
-06
-07
-08
-09 (do not use dash numbers ending in 0)
-11
etc.

Figure A-3. Detail Parts Numbering System

Assemblies
-10
-20
-30
-40
-50
etc.

5.3 OPS13 Drawing Requirements Manual (DRM). Drafting Technician Staff or Contractors must use the following DRM to prepare or to make changes to system engineering drawings under its responsibility:

Drawing Requirements Manual
 Ninth Edition (or later)
 Global Engineering Documents
 15 Inverness Way East
 Englewood, CO 80112 USA
 800-854-7179

6 ECN Responsible Organizations. The following table lists organizations with ECN responsibility for each system under OPS13 CM control having an established Engineering Drawing Baseline.

Figure A-4. ECN Responsibility

ECN Responsibility	ASOS	AWIPS	RRS
Drafting Technician	OPS11 or OPS13	OPS13	OPS13
Configuration Program Manager	OPS13	OPS13	OPS13
Technical Reference Librarian	OPS13	OPS13	OPS13
Systems Engineering Focal Point	OST1 or OPS11	OST3	OPS11
Maintenance Focal Point	OPS12	OPS12	OPS12
Logistics Focal Point	OPS14	OST11	OPS14
Authorization Signature	OPS11	OST11	OST11

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3	ECO Authorizing Signatures	B-3
3.1	Project Team Engineer (<i>Mandatory</i>)	B-3
3.2	Configuration Management Team (CMT) (<i>Mandatory</i>)	B-3
3.3	Documentation Team (<i>Mandatory</i>)	B-3
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6.1 Drawing Requirements Manual (DRM) B-6
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1 Purpose of Engineering Change Orders. The CM Team uses the Engineering Change Order (ECO) as the authorizing document to make updates to the baseline documentation including engineering drawings and their associated parts lists for those systems listed in Section 6 under their CM responsibility. ECOs provide steps for maintaining an orderly audit trail of baseline document changes.

The OPS42 Engineering Drawing process is performed using a team approach and conducted electronically using Agile. After a configuration change has been determined, a Project Team is formed to determine logistics, maintenance, software, system documentation, and engineering drawing impacts. The team meets periodically to discuss progress. ECOs and new engineering drawings are routed for comments and approval electronically using the “send” function in Agile. The “send” function permanently records the team member’s comments and is therefore used as an electronic signature. For ECOs on formerly released engineering drawings, the team approves the ECO including all redline drawings and Bills of Material (BOM), but only the Project Engineer is required to approve the final updated drawing. For new engineering drawings, the team approves the ECO and new engineering drawing.

2 ECO Responsibilities. The following paragraphs detail the participating organizations and their roles in the OPS42 ECO process.

2.1 Project Team Engineer. The OPS43 Project Team Engineer is responsible for preparing ECOs to generate new drawings and change existing drawings. This includes both manual and automated rough sketches, electronics diagrams for initial drawings, redlines to existing drawings and Bill of Materials (BOMs), and producing initial part lists for new drawings. The Project Team Engineer is the team leader for WSR-88D Engineering Change Proposals (ECPs). The Project Team Engineer calls team meetings and coordinates ECP project related tasks.

2.2 Configuration Management Team (CMT). The OPS42 CMT member is responsible for reviewing, approving ECOs and new drawings and releasing them in Agile, ensuring they meet the requirement of the Baseline Specs, Configuration Change Requests, and Engineering Change Proposals that defined them and providing CM impact analysis.

2.3 Documentation Team. The OPS42 Documentation Team member is responsible for reviewing and approving ECOs and new drawings, ensuring that they concur with the Technical Manual Suite and maintenance philosophies.

2.4 Retrofit Management Team (RMT). The OPS42 RMT member is responsible for reviewing and approving ECOs and new drawings; ensuring the items are procurable and providing logistics and maintenance impact analysis regarding the change.

2.5 Drafting. The OPS42 Drafter is responsible for:

- a. Assigning drawing, part and ECO numbers.
- b. Creating the object for documents, parts, BOMs, and ECOs in Agile.
- c. Creating the original drawing, attaching and incorporating it in Agile.
- d. Updating drawings from ECOs and redline drawings.
- e. Routing new drawings and ECOs for approval.

2.6 Software Engineering. If applicable, the OPS43 Software Engineer is responsible for reviewing the ECO and new engineering drawings and providing software development impact analysis regarding the change.

2.7 Hotline. If applicable, the OPS41 Hotline member is responsible for reviewing the ECO and new engineering drawings and providing troubleshooting impact analysis regarding the change.

3 ECO Authorizing Signatures. The following paragraphs detail the signature authorization process.

3.1 Project Team Engineer (Mandatory). The Project Team Engineer assures the clarity of the change, certifies proper drafting standards have been incorporated into the document, and indicates concurrence by sending approval in Agile. The Project Team Engineer is the only authority required for approving formerly released engineering drawings.

3.2 Configuration Management Team (CMT) (Mandatory). The CMT member indicates concurrence by sending approval in Agile. The CMT member will approve ECOs for both formerly released engineering drawings (approving the redline drawings and BOMs) and new engineering drawings.

3.3 Documentation Team (Mandatory). The Documentation Team member indicates concurrence by sending approval in Agile. The Documentation Team member will approve ECOs for both formerly released engineering drawings (approving the redline drawings and BOMs) and new engineering drawings.

3.4 Retrofit Management Team (RMT) (Mandatory). The RMT member indicates concurrence by sending approval in Agile. The RMT member will approve ECOs for both formerly released engineering drawings (approving the redline drawings and BOMs) and new engineering drawings.

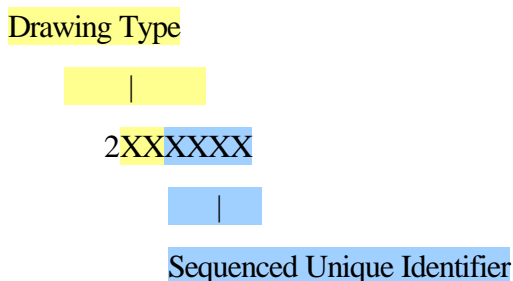
3.5 Drafting (Mandatory on New Engineering Drawings). The Drafter does not approve the engineering drawings, however the Drafter's name will appear in the "DWN" box in the title block on all new engineering drawings. After approval of the engineering drawing in Agile, the Drafter will add all of the Project Team members names and dates to the title block of the new engineering drawings. The Drafter will also add the Project Team Engineers name and date to the revision history block on formerly released engineering drawings.

3.6 Software Engineering. If applicable, the Software Engineering member indicates concurrence by sending approval in Agile. The Software Engineering member will approve ECOs for both formerly released engineering drawings (approving the redline drawings and BOMs) and new engineering drawings.

3.7 Hotline. If applicable, the OPS41 Hotline member is responsible for reviewing the ECO and new engineering drawings and providing troubleshooting impact analysis regarding the change. The Software Engineering member will approve ECOs for both formerly released engineering drawings (approving the redline drawings and BOMs) and new engineering drawings. The Hotline member's name will not appear on the engineering drawing, but will be recorded in the History tab in Agile.

4 OPS42 Drawing Numbers. All engineering drawings under OPS42 CM control have a drawing number. All OPS42 engineering drawing numbers are assigned in accordance with ROC Design Practice Instruction DPI-5. All OPS42 engineering drawing numbers consist of a combination of seven numbers that uniquely identify drawings, associated lists, and referenced documents. OPS42 engineering drawing numbers begin with the number 2, the second and third digits describe the type of document and the fourth through the seventh are sequenced unique identifiers.

OPS42 will use the following drawing number scheme:



Examples of Drawing Type codes are:

- a. 00 = Interconnection Diagram
- b. 01 = Schematic Diagram
- c. 10 = Detail Drawing

- d. 20 = Vendor Item Drawing
- e. 21 = Source Control Drawing
- f. 30 = Assembly Drawing
- g. 32 = Cable Assembly Drawing

Example Engineering Drawing numbers are:

- a. 2000000 = Interconnection Diagram
- b. 2010000 = Schematic Diagram
- c. 2100000 = Detail Drawings
- d. 2200000 = Vendor Item Drawings
- e. 2210000 = Source Control Drawing
- f. 2300000 = Assembly Drawings
- g. 2320000 = Cable Assembly Drawing

5 OPS42 Dash Numbering System. OPS42 uses a three-digit dash numbering system. The dash numbers represent different configurations of the same item and are also considered the PIN (Part Identifying Number).

5.1 Reference Item Dash Numbers. Dash numbers for reference items are always 000, and when specified on a drawing or a parts list the dash numbers (000) are not specified. Reference items are items that do not represent parts and therefore do not have dash numbers. Examples of a reference item would be a Schematic Diagram or Interconnection Diagram.

5.2 Detailed Item Dash Numbers. Dash numbers for detail parts are assigned sequentially, starting with 101, and ending with 199. When dashes are numerous enough to exhaust 199, the next sequence will be 800 through 899.

5.3 Purchase Item Dash Numbers. Dash numbers for purchased parts are assigned sequentially, starting with 201, and ending with 299. When dashes are numerous enough to exhaust 299, the next sequence will be 400 through 499, and the next 600 through 699.

5.4 Assembly Dash Numbers. Dash numbers for assemblies are assigned sequentially, starting with 301, and ending with 399. When dashes are numerous enough to exhaust 399, the next sequence will be 500 through 599, and the next 700 through 799.

| Example Engineering Drawing dash numbers are:

- a. 2000000-000 = Interconnection Diagram

- b. 2010000-000 = Schematic Diagram
- c. 2100000-101 = Detail Drawings
- d. 2200000-201 = Vendor Item Drawings
- e. 2210000-201 = Source Control Drawing
- f. 2300000-301 = Assembly Drawings
- g. 2320000-301 = Cable Assembly Drawing

6 OPS42 Engineering Drawing Procedures.

6.1 Drawing Requirements Manual (DRM). OPS42 Drafting Staff uses the following DRM to prepare or revise engineering drawings or to make changes to engineering drawings under its responsibility:

Drawing Requirements Manual
 Ninth Edition (or later)
 Global Engineering Documents
 15 Inverness Way East
 Englewood, CO 80112 USA
 800-854-7179

6.2 Design Practice Instruction (DPI) and Work Practice Instruction (WPI). In addition to the above listed DRM, OPS42 maintains a series of Design and Work Practice Instructions. These instructions are designed to define unique OPS42 procedures, such as assigning engineering drawing numbers and adding the drawing numbers to Agile. The following table compiles a complete list of the current DPIs and WPIs:

Table 6-1. List of DPIs and WPIs

DPI0001	DRAFTING PRACTICES
DPI0002	TYPES OF DRAWINGS
DPI0003	DRAWING SHEET SIZE AND FORMAT
DPI0005	DRAWING AND PART NUMBERING SYSTEM
DPI0006	DRAWING TITLES
DPI0007	DRAWING NOTES
DPI0010	REVISION OF ENGINEERING DRAWINGS
DPI0014	AGILE - ENTERING NEW DOCUMENTS AND PARTS
DPI0015	AGILE - ENTERING, SUBMITTING, SENDING AND RELEASING ECOS (DRAFTING/HWCM FUNCTIONS)

DPI0016	AGILE - ENTERING NEW HANDBOOKS, FIGURES AND ARTWORKS
DPI0017	ENGINEERING DRAWING DEVELOPMENT/UPDATE PROCESS
WPI0009	AGILE - REDLINING ATTACHMENTS IN AGILE
WPI0010	AGILE - (ENGINEERING) ECO ORIGINATOR INSTRUCTIONS

Appendix C - OPS13 Engineering Drawing Procedures for NWS Owned Facilities

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1 Purpose of Engineering Change Notices. The Configuration Branch uses the Engineering
| Change Notice (ECN) as the authorizing document to make updates to NWS owned facilities
| drawings. ECNs provide steps for maintaining an orderly audit trail of baseline document changes. To
| view the ECN form use the url:

| <http://cmhome.nws.noaa.gov/ecn/nwsecn1a4.pdf>

2 ECN Responsibilities. The following paragraphs detail the roles and responsibilities in the
| OPS13 ECN process. Section 6 lists specific organizations designated with these responsibilities for
| each system with established baseline documentation.

2.1 Configuration Program Manager. The Configuration Program Manager determines the
| appropriate level of review for the ECN, coordinates the review of all ECNs, convenes the ECN
| Review Meeting, provides CM impact analysis at the ECN Review Meeting, and ensures ECN status
| accounting.

2.2 Technical Reference Librarian. The Technical Reference Librarian issues the ECN number,
| and enters the approved ECN into the baseline document repository.

2.3 Facilities Engineer. The Regional Facilities Engineer reviews ECNs, and attends the ECN
| Review Meeting via conference call to provide facilities related impact analysis regarding the change.

2.4 Drafting Technician. The Drafting Technician is responsible for drafting activities related to the
| Engineering Drawing. The Drafting Technician originates the ECN, completes all necessary information
| on the ECN, signs, and attends the ECN Review Meeting.

2.5 Regional Facilities Branch Chief. If a Region has established this position, the Regional
| Facilities Branch Chief reviews the ECN, and attends the ECN Review Meeting via conference call to
| provide Regional impact analysis regarding the change.

2.6 Contractor Focal Point. If it has been determined ECN participation is necessary by a
| contractor implementing the change, the Contractor Focal Point reviews the ECN, attends the ECN
| Review Meeting via conference call to clarify all issues, and provides any impact to the contract.

2.7 Authorization Official. The Authorization Official is responsible for certifying the engineering
| drawing change has been executed properly. The Authorization Official reviews the ECN, and attends
| the ECN Review Meeting to provide overall approval of the change.

3 ECN Authorizing Signatures. The following paragraphs detail the signature process.

3.1 Drafting Technician (Mandatory). The Drafting Technician, responsible for incorporating the
| ECN changes, indicates concurrence by signing the appropriate ECN block.

3.2 Configuration Program Manager (Mandatory). The Configuration Program Manager indicates concurrence by signing the appropriate ECN block. The Configuration Program Manager will ensure the correct signatures appears on each ECN.

3.3 Facilities Engineer (Mandatory). The Regional Facilities Engineer assures the clarity of the change, certifies proper drafting standards have been incorporated into the document, and indicates concurrence by signing the appropriate ECN block.

3.4 Region Facilities Branch Chief (When applicable). The Regional Facilities Branch indicates concurrence by signing the appropriate ECN block.

3.5 Contractor Focal Point (When Applicable). If a contractor is responsible for incorporating these changes, the Contractor Focal Point indicates concurrence by signing the appropriate ECN block

3.6 Authorization Signature (Mandatory). The ECN Authorizing Official signs and dates the appropriate ECN block. If necessary, the Authorizing Official enters special instructions in the "Instruction" block. The Authorization Signature indicates completion of the ECN. The authorizing official must return the approved ECN to the Technical Reference Librarian.

4 OPS13 Drawing Numbers. All Facility Drawings under OPS13 CM control have a drawing number. Program Managers should request a block of drawing numbers from OPS13 to be used in engineering drawings during the construction and/or modification of a facility, prior to issuing the SOW.

OPS13 will designate the prefix of the facility drawing to be the Site Identifier (SID) listed in the NWS Location Identifier System (NWSLI). For example:

ABR = Aberdeen, SD WFO Facility

OPS13 will designate drawing block suffixes in accordance with the National Institute of Building Sciences National CAD Standard.

OPS13 will use the following drawing number scheme:

WFO ID

XXX-X(XX)XX

- Numbering Series

- Drawing Type Code

5 National CAD Standard. Facilities Engineers, Drafting Technicians, or contractors must use the following National CAD Standard to prepare or revise Facility Engineering Drawings under its responsibility:

The National CAD Standard
National Institute of Building Sciences
1090 Vermont Avenue, NW, Suite 700
Washington, DC 20005-4905
Phone: (202) 289-7800; Fax: (202) 289-1092
www.nationalcadstandard.org

6 Branch Signature Responsibilities. The following table lists organizations with ECN responsibility for Facilities Engineering Drawings.

ECN Responsibility	Organization
Drafting Technician	OPS13 or Region Staff
Configuration Program Manager	OPS13
Technical Reference Librarian	OPS13
Facilities Engineer	Region or OPS15
Authorization Signature	Region System Operation Division Chief or OPS15 Branch Chief