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USACE / NAVFAC / AFCEC / NASA UFGS-01 78 00 (August 2011)  
Change 1 - 05/15  
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Preparing Activity: USACE Superseding  
UFGS-01 78 00 (May 2010)

## UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated April 2015

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ATTACHMENTS:

draft DD FORM 1354

-- End of Section Table of Contents --

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### SECTION 01 78 00

#### CLOSEOUT SUBMITTALS 08/11

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NOTE: This guide specification covers the requirements for closeout submittals including: revised project documents, warranty management, testing, adjusting and balancing, O & M manuals, and cleanup.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

This guide specification includes tailoring options for DESIGN-BID-BUILD (DBB), DESIGN-BUILD (DB), ARMY, NAVY, AIR FORCE and NASA projects. Selection or deselection of a tailoring option will include or exclude that option in the section, but editing the resulting section to fit the project is still required.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments and suggestions on this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

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## PART 1 GENERAL

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NOTE: Coordinate with the customer regarding special warranty requirements and options.

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## 1.1 REFERENCES

\*\*\*\*\*  
**NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest guide specification. Use of SpecsIntact automated reference checking is recommended for projects based on older guide specifications.**  
\*\*\*\*\*

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

### ASTM INTERNATIONAL (ASTM)

ASTM E1971 (2005; R 2011) Stewardship for the Cleaning of Commercial and Institutional Buildings

### GREEN SEAL (GS)

GS-37 (2012) Cleaning Products for Industrial and Institutional Use

### U.S. ARMY CORPS OF ENGINEERS (USACE)

ERDC/ITL TR-12-1 (2012) CAD Drafting Standard

ERDC/ITL TR-12-6 (2012) A/E/C CAD Standard - Release 5.0

### U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N (2014) Navy and Marine Corps Design Procedures

UFC 1-300-08 (2009, with Change 2) Criteria for Transfer and Acceptance of DoD Real Property

## 1.2 DEFINITIONS

### 1.2.1 As-Built Drawings

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**NOTE: All Navy project use first set of brackets. The second set of brackets are tailored options for use on Army or NASA projects only.**  
\*\*\*\*\*

As-built drawings are developed and maintained by the Contractor and depict actual conditions, including deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: contract modifications; official responses to Contractor submitted Requests for Information; direction from the Contracting Officer; designs which are the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as[ red-lined

hard copies on site][ and][ or][ red-lined PDF files]. As-built drawings are further defined in NFAS 5252.236-9310. These files serve as the basis for the creation of the record drawings.

#### 1.2.2 Record Drawings

The record drawings are the final compilation of actual conditions reflected in the as-built drawings.

#### 1.3 SOURCE DRAWING FILES

\*\*\*\*\*  
**NOTE: Use this paragraph if Contractor is providing  
the Record Drawings. This paragraph is tailored for  
NAVY use only.**  
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Request the full set of electronic drawings, in the source format, for Record Drawing preparation, after award and at least 30 days prior to required use.

##### 1.3.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction [drawings and ]data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CAD drawing files are not construction documents. Differences may exist between the CAD files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic CAD files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished Source drawing files, the signed and sealed construction documents govern. The Contractor is responsible for determining if any conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction [drawings and ]data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

#### 1.4 SUBMITTALS

\*\*\*\*\*  
**NOTE: Review submittal description (SD) definitions  
in Section 01 33 00 SUBMITTAL PROCEDURES and edit**

the following list to reflect only the submittals required for the project.

The Guide Specification technical editors have designated those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item, if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

An "S" following a submittal item indicates that the submittal is required for the Sustainability Notebook to fulfill federally mandated sustainable requirements in accordance with Section 01 33 29 SUSTAINABILITY REPORTING.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.][information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the Sustainability Notebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

- Warranty Management Plan
- Warranty Tags
- Final Cleaning
- Spare Parts Data

SD-08 Manufacturer's Instructions

- Preventative Maintenance
- Condition Monitoring (Predictive Testing)
- Inspection
- Posted Instructions

## SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G[, [\_\_\_\_]]

## SD-11 Closeout Submittals

As-Built Drawings; G[, [\_\_\_\_]]  
Record Drawings; G[, [\_\_\_\_]]  
As-Built Record of Equipment and Materials  
FINAL APPROVED SHOP DRAWINGS  
CONSTRUCTION CONTRACT SPECIFICATIONS  
[ Certification of EPA Designated Items; G[, [\_\_\_\_]]  
] Interim DD FORM 1354; G[, [\_\_\_\_]]  
Checklist for DD FORM 1354; G[, [\_\_\_\_]]  
NAVFAC Sustainable & Energy Data Record Card; G

## 1.5 SPARE PARTS DATA

\*\*\*\*\*  
**NOTE: Following sentence contains tailoring for  
NAVFAC NW for four copies.**  
\*\*\*\*\*

Submit [two][\_\_\_\_][four] copies of the Spare Parts Data list.

- a. Indicate manufacturer's name, part number, nomenclature, and stock level required for maintenance and repair. List those items that may be standard to the normal maintenance of the system.

\*\*\*\*\*  
**NOTE: Delete subparagraph b for NAVY projects.**  
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- b. Supply [\_\_\_\_] items of each part for spare parts inventory. Provision of spare parts does not relieve the Contractor of responsibilities listed under the contract guarantee provisions.

## 1.6 QUALITY CONTROL

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**NOTE: This subpart is tailored for ARMY and NASA  
use only. Do not use this paragraph for NAVY  
projects.**  
\*\*\*\*\*

Additions and corrections to the contract drawings must be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols must [conform to ERDC/ITL TR-12-6][be the same as the original line colors, line weights, lettering, layering conventions, and symbols].

## 1.7 WARRANTY MANAGEMENT

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**NOTE: A warranty package based on a cost/benefit  
determination will be established with the customer  
at the beginning of a project. Coordinate with the  
customer regarding special warranty requirements and  
options.**

\*\*\*\*\*  
\*\*\*\*\*  
NOTE: Use four sets for NAVFAC NW.  
\*\*\*\*\*

#### 1.7.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to the clause Warranty of Construction in [\_\_\_\_\_]. At least 30 days before the planned pre-warranty conference, submit [one set] [[\_\_\_\_\_]][four sets] of the warranty management plan. Include within the warranty management plan all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan must be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below must include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase must be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Assemble approved information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period will begin on the date of project acceptance and continue for the full product warranty period. A joint 4 month and 9 month warranty inspection will be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Include within the warranty management plan , but not limited to, the following:

- a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subContractors, manufacturers or suppliers involved.
- b. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.
- c. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.
- d. A list for each warranted equipment, item, feature of construction or system indicating:
  - (1) Name of item.
  - (2) Model and serial numbers.
  - (3) Location where installed.
  - (4) Name and phone numbers of manufacturers or suppliers.
  - (5) Names, addresses and telephone numbers of sources of spare parts.
  - (6) Warranties and terms of warranty. Include one-year overall warranty of construction, including the starting date of warranty of construction. Items which have extended warranties must be indicated with separate warranty expiration dates.
  - (7) Cross-reference to warranty certificates as applicable.
  - (8) Starting point and duration of warranty period.
  - (9) Summary of maintenance procedures required to continue the warranty in force.



- (10) Cross-reference to specific pertinent Operation and Maintenance manuals.
  - (11) Organization, names and phone numbers of persons to call for warranty service.
  - (12) Typical response time and repair time expected for various warranted equipment.
- e. The plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.
  - f. Procedure and status of tagging of all equipment covered by extended warranties.
  - g. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

#### 1.7.2 Performance Bond

The Performance Bond [must remain effective throughout the construction period] [\_\_\_\_\_].

- a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.
- b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.
- c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure to respond will be cause for the Contracting Officer to proceed against the Contractor.

#### 1.7.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty will be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, be continuously available, and be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

#### 1.7.4 Contractor's Response to Construction Warranty Service Requirements

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**NOTE: This subpart is tailored for ARMY and NASA  
only. Delete this paragraph for NAVY projects.**  
\*\*\*\*\*

Following oral or written notification by the Contracting Officer, respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. Submit a report on any warranty item that has been repaired during the warranty period. Include within the report the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframe specified, the Government will perform the work and back charge the construction warranty payment item established.

- a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.
- b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.
- c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.

- d. The "Construction Warranty Service Priority List" is as follows:

##### Code 1-Life Safety Systems

- (1) Fire suppression systems.
- (2) Fire alarm system(s) in place in the building.

##### Code 1-Air Conditioning Systems

- (1) Recreational support.
- (2) Air conditioning leak in part of building, if causing damage.
- (3) Air conditioning system not cooling properly.

##### Code 1-Doors

- (1) Overhead doors not operational, causing a security, fire, or safety problem.
- (2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

##### Code 3-Doors

- (1) Overhead doors not operational.
- (2) Interior/exterior personnel doors or hardware not functioning properly.

##### Code 1-Electrical

- (1) Power failure (entire area or any building operational after 1600 hours).
- (2) Security lights
- (3) Smoke detectors

##### Code 2-Electrical

- (1) Power failure (no power to a room or part of building).
- (2) Receptacle and lights (in a room or part of building).

Code 3-Electrical  
Street lights.

Code 1-Gas  
(1) Leaks and breaks.  
(2) No gas to family housing unit or cantonment area.

Code 1-Heat  
(1) Area power failure affecting heat.  
(2) Heater in unit not working.

Code 2-Kitchen Equipment  
(1) Dishwasher not operating properly.  
(2) All other equipment hampering preparation of a meal.

Code 1-Plumbing  
(1) Hot water heater failure.  
(2) Leaking water supply pipes.

Code 2-Plumbing  
(1) Flush valves not operating properly.  
(2) Fixture drain, supply line to commode, or any water pipe leaking.  
(3) Commode leaking at base.

Code 3 -Plumbing  
Leaky faucets.

Code 3-Interior  
(1) Floors damaged.  
(2) Paint chipping or peeling.  
(3) Casework.

Code 1-Roof Leaks  
Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks  
Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2-Water (Exterior)  
No water to facility.

Code 2-Water (Hot)  
No hot water in portion of building listed.

Code 3-All other work not listed above.

#### 1.7.5 Warranty Tags

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**NOTE: Paragraph below contains tailoring for NAVFAC  
NW for four copies.**  
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At the time of installation, tag each warranted item with a durable, oil and water resistant tag approved by the Contracting Officer. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also,

submit [two][\_\_\_\_\_] [four] record copies of the warranty tags showing the layout and design. The date of acceptance and the QC signature must remain blank until the project is accepted for beneficial occupancy. Show the following information on the tag.

Type of product/material	
Model number	
Serial number	
Contract number	
Warranty period from/to	
Inspector's signature	
Construction Contractor	
Address	
Telephone number	
Warranty contact	
Address	
Telephone number	
Warranty response time priority code	
WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.	

## PART 2 PRODUCTS

### 2.1 GOVERNMENT FURNISHED MATERIALS

\*\*\*\*\*  
**NOTE: Use this paragraph for ARMY and NASA only.**  
**Do not use for NAVY projects. This paragraph is**  
**tailored for ARMY and NASA.**  
 \*\*\*\*\*

The Government will provide an optical disc (CD or DVD) at the preconstruction conference that contains the following:

- a. One set of "as-designed" electronic CAD files in the specified software and format revised to reflect all amendments and the final contract PDF drawings. The CAD files are provided to enable preparation of as-built

or as-constructed drawings. If discrepancies exist between the CAD files and the contract PDF drawings, correct the CAD files to show the contract PDF drawings.

- b. A submittal register data file in comma separated value (CSV) format for import into the Resident Management System (RMS).

## 2.2 SYSTEM DESCRIPTION

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**NOTE: This paragraph is tailored for ARMY and NASA only. Do not use for NAVY projects.**  
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\*\*\*\*\*  
**NOTE: Use and edit this paragraph to specify CAD files compatible with the customers CAD system.**  
\*\*\*\*\*

Prepare the CAD drawing files in AutoCAD Release [2013][\_\_\_\_\_]MicroStation [J][V8][\_\_\_\_\_] format compatible with a [Windows 7][\_\_\_\_\_] operating system.

### 2.2.1 Additional Drawings

If additional drawings are required, prepare them using the specified electronic file format applying [the same graphic standards specified for original drawings][ERDC/ITL TR-12-6 and ERDC/ITL TR-12-1]. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings.

#### 2.2.1.1 Sheet Numbers and File Names

If a sheet needs to be added between two sequential sheets, append a Supplemental Drawing Designator in accordance with ERDC/ITL TR-12-6 Adding a drawing sheet, and ERDC/ITL TR-12-1 Adding or deleting drawing sheets and index sheet procedures.

## 2.3 CERTIFICATION OF EPA DESIGNATED ITEMS

Submit the Certification of EPA Designated Items as required by FAR 52.223-9, "Certification and Estimate of Percentage of Recovered Material Content for EPA Designated Items". Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. ["I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current EPA standards for recycled/recovered materials content. The following exemptions may apply to the non-procurement of recycled/recovered content materials:

- 1) The product does not meet appropriate performance standards;
- 2) The product is not available within a reasonable time frame;
- 3) The product is not available competitively (from two or more sources);
- 4) The product is only available at an unreasonable price (compared with a comparable non-recycled content product)."[\_\_\_\_\_] ]

Record each product used in the project that has a requirement or option of containing recycled[ or biobased] content in accordance with SECTION

01 33 29 SUSTAINABILITY REPORTING, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content,[ total value of biobased content,] exemptions (1, 2, 3, or 4, as indicated), and comments. Recycled[ and biobased] content values may be determined by weight or volume percent, but must be consistent throughout.

## PART 3 EXECUTION

### 3.1 AS-BUILT DRAWINGS

\*\*\*\*\*  
NOTE: Paragraph below contains tailoring for ARMY  
NASA, and NAVY. Use first sentence in paragraph  
below for ARMY and NASA projects and delete second.  
Delete first sentence and use last sentence for NAVY  
projects.  
\*\*\*\*\*

Provide and maintain two black line print copies of the PDF contract drawings for As-Built Drawings. Provide and maintain As-Built Drawings in accordance with NFAS 5252.236-9310. Submit As-Built Drawings 30 days prior to Beneficial Occupancy Date(BOD).

#### 3.1.1 Markup Guidelines

\*\*\*\*\*  
NOTE: The following information is provided to  
improve the quality of the markup prints and  
facilitate preparation of final as-built drawings.  
The most important guideline is that the markup  
changes on the prints are complete and  
understandable. Complete and understandable markup  
prints will minimize effort to transfer information  
to CAD files.  
\*\*\*\*\*

Make comments and markup the drawings complete without reference to letters, memos, or materials that are not part of the As-Built drawing. Show what was changed, how it was changed, where items(s) were relocated and change related details. These working as-built markup prints must be neat, legible and accurate as follows:

- a. Use base colors of red, green, and blue. Color code for changes as follows:

- (1) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

[

\*\*\*\*\*  
NOTE: Delete subparagraphs (2) and (3) for NAVFAC  
SE projects.  
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- (2) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

- (3) Additions (Green) - Added items, lettering in notes and leaders.

- ] b. Provide a legend if colors other than the "base" colors of red, green,

and blue are used.

- c. Add and denote any additional equipment or material facilities, service lines, incorporated under As-Built Revisions if not already shown in legend.
- d. Use frequent written explanations on markup drawings to describe changes. Do not totally rely on graphic means to convey the revision.
- e. Use legible lettering and precise and clear digital values when marking prints. Clarify ambiguities concerning the nature and application of change involved.
- f. Wherever a revision is made, also make changes to related section views, details, legend, profiles, plans and elevation views, schedules, notes and call out designations, and mark accordingly to avoid conflicting data on all other sheets.
- g. For deletions, cross out all features, data and captions that relate to that revision.
- h. For changes on small-scale drawings and in restricted areas, provide large-scale inserts, with leaders to the applicable location.
- i. Indicate one of the following when attaching a print or sketch to a markup print:
  - 1) Add an entire drawing to contract drawings
  - 2) Change the contract drawing to show
  - 3) Provided for reference only to further detail the initial design.
- j. Incorporate all shop and fabrication drawings into the markup drawings.

### 3.1.2 As-Built Drawings Content

\*\*\*\*\*  
**NOTE: The following subpart contains tailoring for  
ARMY and NASA. For Navy, only use the last sentence  
in paragraph below, and the items following, which  
are not tailored.**  
\*\*\*\*\*

Revise As-Built Drawings in accordance with ERDC/ITL TR-12-1[ and ][  
ERDC/ITL TR-12-6]. Provide [2][\_\_\_\_\_] sets of paper copies from PDF  
drawings to show the as-built conditions by red-line process during the  
execution of the project. Keep these working as-built markup drawings  
current on a weekly basis and at least one set available on the jobsite at  
all times. Changes from the contract drawings which are made during  
construction or additional information which might be uncovered in the  
course of construction must be accurately and neatly recorded as they occur  
by means of details and notes. Submit the working as-built markup drawings  
for approval prior to submission of each monthly pay estimate. For failure  
to maintain the working and final record drawings as specified herein, the  
Contracting Officer will withhold [10][\_\_\_\_\_] percent of the monthly  
progress payment until approval of updated drawings. Show on the as-built  
drawings, but not limited to, the following information:

- a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.
- b. The location and dimensions of any changes within the building structure.
- c. Layout and schematic drawings of electrical circuits and piping.
- d. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.
- e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to shop drawings, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- f. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.
- g. Changes or Revisions which result from the final inspection.
- h. Where contract drawings or specifications present options, show only the option selected for construction on the working as-built markup drawings.
- i. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.
- j. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.
- k. Changes in location of equipment and architectural features.
- j. Modifications (include within change order price the cost to change working as-built markup drawings to reflect modifications) and compliance with FC 1-300-09N procedures.
- l. Actual location of anchors, construction and control joints, etc., in concrete.
- m. Unusual or uncharted obstructions that are encountered in the contract work area during construction.
- n. Location, extent, thickness, and size of stone protection particularly where it will be normally submerged by water.

### 3.2 RECORD DRAWING FILES

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**NOTE: Use this paragraph for ARMY and NASA only.  
Do not use for NAVY projects. Paragraph is tailored  
for ARMY and NASA.**

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**NOTE: Edit this paragraph to specify CAD drawings  
compatible with the customer's CAD system, providing  
the version where applicable.**

\*\*\*\*\*

If additional drawings are required, prepare them using the specified electronic file format applying [the same graphic standards specified for original drawings][ERDC/ITL TR-12-6 and ERDC/ITL TR-12-1]. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings. Accomplish additions and corrections to the contract drawings using CAD files. Provide all program files and hardware necessary to prepare final PDF record drawings. The Contracting Officer will review final PDF record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

### 3.2.1 Rename the CAD Drawing files

Rename the CAD Drawing files using the contract number as the Project Code field,(e.g., W91238-15-C-10A-102.DWGDGN) as instructed in the Pre-Construction conference. Use only those renamed files for the Marked-up changes. Make all changes on the layer/level as the original item.

- a. For AutoCAD files (DWG), enter all as-built delta changes and notations on the AS-BUILT layer. MicroStation files (DGN), enter all as-built delta changes and notations on:
  - Level #63
  - Level/Layer Name contains: ANNO-REVS
  - Level/Layer Description: Revisions
- c. When final revisions have been completed, show the wording "RECORD DRAWING AS-BUILTS" followed by the name of the Contractor in letters at least 5 mm 3/16 inch high on the cover sheet drawing. Date RECORD DRAWING AS-BUILTS" drawing revisions in the revision block.
- d. Within [1020][\_\_\_\_\_] days after Government approval of all of the working record drawings for a phase of work, prepare the final CAD record drawings for that phase of work and submit PDF drawing files and two sets of prints for review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within [710][\_\_\_\_\_] days revise the CAD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within [1020][\_\_\_\_\_] days of substantial completion of all phases of work, submit the final record drawing package for the entire project. Submit one set of electronic CAD files, and one set of the approved working record PDF files on [an][three] optical disc[s] with two sets of prints. The CAD files must be complete in all details and identical in form and function to the CAD drawing files supplied by the Government. Prepare AutoCAD files for transmittal using e-Transmit. Prepare MicroStation

files for transmittal using the Packager (Archive). Make any transactions or adjustments necessary to accomplish this. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CAD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final record PDF drawing files, CAD files and marked prints as specified will be cause for withholding any payment due under this contract. Approval and acceptance of final record drawings must be accomplished before final payment is made.

### 3.3 RECORD DRAWINGS

\*\*\*\*\*  
NOTE: Use the following paragraph for Navy Projects only. Only use this paragraph if Contractor is providing the Record Drawings. Paragraph is tailored for NAVY.  
\*\*\*\*\*

Prepare and provide Record Drawings in accordance with FC 1-300-09N. Provide [2][\_\_\_\_\_] copies of Record Drawings on two separate CDs or DVDs [30][\_\_\_\_\_] days after BOD.

\*\*\*\*\*  
NOTE: Use the following paragraphs for ARMY and NASA projects only. Do not use for NAVY projects. Paragraphs are tailored for ARMY and NASA.  
\*\*\*\*\*

\*\*\*\*\*  
NOTE: The USACE policy on Record (As-Built) drawings is as follows:  
  
a. Method of Preparation for DoD Projects. The construction Contractor must prepare the final Record drawings in PDF from the CAD files.  
  
b. Method of Preparation for Civil Works Projects. The preferred method of preparing the final Record drawings is by the construction Contractor. The management plan for the project must justify the preparation of the final Record drawings by any other method, such as by in-house personnel. Two such exceptions are "emergency construction" and operations work performed with hired labor. Revise the following specification paragraphs if as-builts are not to be done by the Contractor.  
  
c. Customer Coordination. Discuss the method of producing the record drawings and format with the customer at the beginning of a project, and record it in the Memorandum of Understanding with the customer (if applicable) and the Project Management Plan.  
\*\*\*\*\*

Prepare final record drawings after the completion of each definable

[feature][phase] of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). Transfer the changes from the approved working as-built markup drawings to the original electronic CAD drawing files. Modify the as-built CAD drawing files to correctly show the features of the project as-built by bringing the working CAD drawing set into agreement with approved working as-built markup drawings, and adding such additional drawings as may be necessary. Refer to ERDC/ITL TR-12-1 Chapter 11 Drawing Revisions. Jointly review the working as-built markup drawings with printouts from working as-built CAD drawing PDF files for accuracy and completeness. Monthly review of working as-built CAD drawing PDF file printouts must cover all sheets revised since the previous review. These PDF drawing files are part of the permanent records of this project. Any drawings damaged or lost must be satisfactorily replaced at no expense to the Government.

a. Drawing revisions (include within change order price the cost to change working and final record drawings to reflect revisions) and compliance with the following procedures.

- (1) Follow directions in the revision for posting descriptive changes.
- (2) The revision delta size must be 8 mm 5/16 inch unless the area where the delta is to be placed is crowded. Use a smaller size delta for crowded areas.
- (3) Place a revision delta at the location of each deletion.
- (4) For new details or sections which are added to a drawing, place a revision delta by the detail or section title.
- (5) For minor changes, place a revision delta by the area changed on the drawing (each location).
- (6) For major changes to a drawing, place a revision delta by the title of the affected plan, section, or detail at each location.
- (7) For changes to schedules or drawings, place a revision delta either by the schedule heading or by the change in the schedule.

### 3.3.1 Final Record Drawing Package

\*\*\*\*\*  
**NOTE: This subpart is tailored for ARMY and NASA only. Do not use on NAVY projects.**  
\*\*\*\*\*

Submit the final record PDF and CAD drawings package for the entire project within 20 days of substantial completion of all phases of work. Submit one set of ANSI D size PDF and CAD files on optical disc, read-only memory (ROM), two sets of ANSI D size prints and one set of the approved working record drawings. The package must be complete in all details and identical in form and function to the contract drawing files supplied by the Government.

### 3.4 FINAL APPROVED SHOP DRAWINGS

\*\*\*\*\*  
**NOTE: This paragraph is tailored for ARMY and NASA**

only. Do not use for NAVY projects. Delete this subpart if Section 01 78 23 OPERATION AND MAINTENANCE DATA is in the job.

\*\*\*\*\*

Submit final approved project shop drawings [30][\_\_\_\_\_] days after transfer of the completed facility.

### 3.5 CONSTRUCTION CONTRACT SPECIFICATIONS

\*\*\*\*\*

NOTE: This paragraph is tailored for ARMY and NASA projects. Do not use for NAVY projects.

\*\*\*\*\*

Submit final PDF file record construction contract specifications, including revisions thereto, [30][\_\_\_\_\_] days after transfer of the completed facility.

### 3.6 EQUIPMENT

\*\*\*\*\*

NOTE: This subpart is tailored for ARMY and NASA use only. Do not use for NAVY projects.

\*\*\*\*\*

#### 3.6.1 As-Built Record of Equipment and Materials

\*\*\*\*\*

NOTE: This paragraph is intended to provide data on equipment and materials incorporated in the construction of the project that cannot readily be determined after completion of construction. The data is expected to be of value for future maintenance, alteration, and repair work. The designer should predetermine the items on which data is required and list them in the DESCRIPTION column of the following form. A typical list of items would include such things as: roofing, insulation, and special wall coverings.

\*\*\*\*\*

Furnish [one copy][[\_\_\_\_\_]copies] of preliminary record of equipment and materials used on the project [15][\_\_\_\_\_] days prior to final inspection. This preliminary submittal will be reviewed and returned [2][\_\_\_\_\_] days after final inspection with Government comments. Submit [Two][\_\_\_\_\_] sets of final record of equipment and materials [10][\_\_\_\_\_] days after final inspection. Key the designations to the related area depicted on the contract drawings. List the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA				
Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used

### 3.6.2 Real Property Equipment

Submit a list of installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. In the Equipment-In-Place List include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. Submit a draft list at time of transfer. Submit the final list [30] [\_\_\_\_\_] days after transfer of the completed facility.

### 3.7 OPERATION AND MAINTENANCE MANUALS

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**NOTE: The first sentence is tailored for NAVY use only. Do not use for ARMY and NASA projects.**  
 \*\*\*\*\*

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE MANUALS.

Submit one PDF file and [6] [\_\_\_\_\_] hard copies of the project operation and maintenance manuals 30 calendar days prior to testing the system involved. Update and resubmit data for final approval no later than 30 calendar days prior to contract completionBOD.

#### 3.7.1 Configuration

Operation and Maintenance Manuals must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions. Provide manufacturer's PDF files of above and bind information in manual format and grouped by technical sections. Organize data by separate index and tabbed sheets for vendor data and manuals. Test data must be legible and of good quality. Caution and warning indications must be clearly labeled.[ Hard copy pages must have 10 millimeter 0.39-inch holes and be bound in 3-ring, loose-leaf binders. Binder must lie flat with printed sheets that are easy to read.]

#### 3.7.2 Training and Instruction

Submit classroom and field instructions in the operation and maintenance of systems equipment where required by the technical provisions. These services must be directed by the Contractor, using the manufacturer's factory-trained personnel or qualified representatives. Contracting

Officer will be given 7 calendar days written notice of scheduled instructional services. Instructional materials belonging to the manufacturer or vendor, such as lists, static exhibits, and visual aids, must be made available to the Contracting Officer.

### 3.8 CLEANUP

\*\*\*\*\*

**NOTE: Natural cleaning materials include:**

- a. abrasive cleaners: substitute 1/2 lemon dipped in borax.
- b. ammonia: substitute vinegar, salt and water mixture, or baking soda and water.
- c. disinfectants: substitute 1/2 cup borax in gallon water.
- d. drain cleaners: substitute 1/4 cup baking soda and 1/4 cup vinegar in boiling water.
- e. upholstery cleaners: substitute dry cornstarch.

\*\*\*\*\*

Provide final cleaning in accordance with ASTM E1971 and submit [two] [four] [\_\_\_\_\_] copies of the listing of completed final clean-up items. Leave premises "broom clean." Comply with GS-37 for general purpose cleaning and bathroom cleaning. Use only nonhazardous cleaning materials, including natural cleaning materials, in the final cleanup. Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. [Clean][Replace] filters of operating equipment and comply with the Indoor Air Quality (IAQ) Management Plan. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site. Recycle, salvage, and return construction and demolition waste from project in accordance with Section 01 57 19.00 20 TEMPORARY ENVIRONMENTAL CONTROLS, and 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT.

#### [3.8.1 Extraordinary Cleanup Requirements

\*\*\*\*\*

**NOTE: Do not add information related to facility regulations which are of a routine nature. Include unusual cleanup requirements.**

\*\*\*\*\*

The following cleanup requirements apply: [\_\_\_\_\_] .

#### ]3.9 PREVENTATIVE MAINTENANCE

Submit Preventative Maintenance, Condition Monitoring (Predictive Testing) and Inspection schedules with instructions that state when systems should be retested.

- a. Define the anticipated length of each test, test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a signoff blank for the Contractor and Contracting Officer for each test feature; e.g., liter per second, rpm, kilopascal gpm, rpm, psi. Include a remarks column for the testing

validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventative maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize corrective maintenance and repair.

- b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.

### 3.10 REAL PROPERTY RECORD

\*\*\*\*\*

**NOTE: All DoD projects require Form DD1354 to be completed, made final, and submitted for entry into the applicable service database of real property. The Designer of Record must complete and attach a draft version of DDFORM 1354 (with cost data deleted) to the end of this section for subsequent revision by the construction Contractor, or US Naval Construction Forces, whichever is appropriate. Complete procedural instructions for design and construction government forces are provided at the checklist URL below.**

\*\*\*\*\*

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**NOTE: Modify paragraph below if Command requires the activity contracting office to complete the form instead of the Contractor.**

\*\*\*\*\*

Near the completion of Project, but a minimum of 60 days prior to final acceptance of the work, complete[, update draft DD FORM 1354 attached to this section,] and submit an accounting of all installed property with Interim DD FORM 1354. Include any additional assets, improvements, and alterations from the Draft DD FORM 1354. Contact the Contracting Officer for any project specific information necessary to complete the DD FORM 1354. Refer to UFC 1-300-08 for instruction on completing the DD FORM 1354. For information purposes, a blank fillable PDF DD FORM 1354 may be obtained at the following:

<http://www.dtic.mil/whs/directives/forms/eforms/dd1354.pdf>

Submit the completed Checklist for DD FORM 1354 of Installed Building Equipment items. Attach this list to the updated DD FORM 1354.

### 3.11 NAVFAC SUSTAINABLE & ENERGY DATA RECORD CARD

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**NOTE: All NAVFAC projects require this Form to be completed and submitted to NAVFAC for records keeping.**

\*\*\*\*\*

Within 60 days of the completion of Project, complete an electronic copy of the NAVFAC Sustainable & Energy Data Record Card, and submit to the

Contracting Officer. Draft Record card for this project should be available from Designer of Record (DOR) or Contracting Officer. Instructions and a blank DD Form (fill-able) in ADOBE (PDF) may be obtained at the Whole Building Design Guide web site by navigating:  
Home > Participating Agencies > Department of Defense (DoD) > NAVFAC Sustainable Development Program > Contract Documents > NAVFAC Sustainable & Energy Data Record Card; or directly at  
[http://www.wbdg.org/pdfs/navfac\\_sustainable\\_energy\\_data\\_record\\_card.pdf](http://www.wbdg.org/pdfs/navfac_sustainable_energy_data_record_card.pdf).

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