



HALCO PRODUCTS COMPANY
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SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 REFERENCES

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) Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings

GREEN SEAL (GS)

GS-37 (2017) Cleaning Products for Industrial and Institutional Use

1.2 DEFINITIONS

1.2.1 As-Built Documents

As-built documents are drawings and models 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 Owner's Agent; designs which are the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as electronic model files and red-lined PDF files. These files serve as the basis for the creation of the record documents.

1.2.2 Record Documents

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

1.3 SOURCE DRAWING FILES

Request the full set of electronic drawings and design models, in the source format, for Record Document 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 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

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Architect or Owner. 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 Architect or Owner, 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 Architect or Owner 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 and BIM files are not construction documents. Differences may exist between the CAD and BIM files and the corresponding construction documents. The Architect or Owner makes no representation regarding the accuracy or completeness of the electronic CAD and BIM 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 Architect or Owner 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, models, and data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

1.4 SUBMITTALS

Architect or owner approval is required for submittals with an "A" designation; submittals not having an "A" designation are for information only. When used, a designation following the "A" designation identifies the office that will review the submittal for the Architect or Owner. Submittals with an "S" are for inclusion in the Sustainability eNotebook, 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

Spare Parts Data

SD-08 Manufacturer's Instructions

Posted Instructions

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; A, AE

SD-11 Closeout Submittals

As-Built Documents; A, AE



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Record Documents; A, AE

As-Built Record of Equipment and Materials

Final Approved Shop Drawings

Construction Contract Specifications

Certification of EPA Designated Items; A, RO

Certification of USDA Designated Items; A, RO

1.5 SPARE PARTS DATA

Submit two 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.

1.6 QUALITY CONTROL

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.

1.7 WARRANTY MANAGEMENT

1.7.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to FAR 52.246-21 Warranty of Construction. At least 30 days before the planned pre-warranty conference, submit one set of the warranty management plan. Include within the warranty management plan all required actions and documents to assure that the Architect or Owner 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 Owner's Agent for approval prior to each monthly pay estimate. Assemble approved information in a binder and turn over to the Architect or Owner 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, Owner's Agent 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,



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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 Architect or Owner.
- 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 Owner's Agent 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 Architect or Owner while performing the work, including, but not limited to administrative expenses.



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- b. In the event sufficient funds are not available to cover the construction warranty work performed by the Architect or Owner at the Contractor's expense, the Owner's Agent 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 Owner's Agent to proceed against the Contractor.

1.7.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Owner's Agent, meet with the Owner's Agent 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 Owner's Agent 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 Architect or Owner 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

Following oral or written notification by the Owner's Agent, 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 Architect or Owner 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:



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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 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.



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(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

At the time of installation, tag each warranted item with a durable, oil and water-resistant tag approved by the Owner's Agent. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also, submit two 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	
WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.	

PART 2 PRODUCTS

2.1 ARCHITECT OR OWNER FURNISHED MATERIALS

The Architect or Owner will provide an optical disc (CD or DVD) at the preconstruction conference, or soonest date of availability, thereafter, containing the following:

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- a. One set of "as-designed" electronic CAD and BIM files in the specified software and format revised to reflect all amendments and the final contract PDF drawings. The CAD and BIM files are provided to enable preparation of as-built or as-constructed documents. If discrepancies exist between the CAD and BIM files and the contract PDF drawings, correct the CAD and BIM 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).
- c. Advanced Modeling Revit (2017), Navisworks, and Autodesk Civil 3D files for use in the development of the As-Built Model.

2.1.1.1 As-Built and Record Documents

For purposes of as-built and record documents, the Architect or Owner will provide the Contractor optical discs (CD or DVD) of Architect or Owner Furnished Architect or Owner Installed (GFGI) equipment and Architect or Owner Furnished Contractor Installed (GFCI) equipment for incorporation into the final record documents and record 3D models by the Contractor. Contractor to request the discs from the Owner's Agent a minimum of 30 calendar days prior to need. The discs will contain the following:

- a. Electronic CAD and BIM files of the record GFGI and GFCI equipment in software formats and versions compatible with the "as-designed" files distributed at the pre-construction conference.

2.2 SYSTEM DESCRIPTION

Prepare the CAD drawing files in AutoCAD Release 2017 format compatible with a Windows operating system.

2.2.1 Additional Drawings

If additional drawings are required, prepare them using the specified electronic file format applying 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 documents 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 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



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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.

2.4 CERTIFICATION OF USDA DESIGNATED ITEMS

Submit the Certification of USDA Designated Items as required by FAR 52-223-1 Bio-based Product Certifications and FAR 52.223-2 Affirmative Procurement of Biobased Products Under Service and Construction Contracts. 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 USDA standards for biobased materials content. The following exemptions may apply to the non-procurement of biobased content materials:

- a. The product does not meet appropriate performance standards;
- b. The product is not available within a reasonable time frame;
- c. The product is not available competitively (from two or more sources);
- d. The product is only available at an unreasonable price (compared with a comparable bio-based content product).

Record each product used in the project that has a requirement or option of containing 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. Biobased content values may be determined by weight or volume percent, but must be consistent throughout.

PART 3 EXECUTION

3.1 AS-BUILT DOCUMENTS

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. Provide and maintain As-Built Models

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at the same level of detail as provided by the Architect or Owner
Furnished Models and submit to the Owner's Agent monthly

3.1.1.1 As-Built Drawing Markup Guidelines

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 item(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.
 - (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.



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- j. Incorporate all shop and fabrication drawings into the markup drawings.

3.1.2 As-Built Drawings Content

Revise As-Built Drawings and Models in accordance with ERDC/ITL TR-12-1 and ERDC/ITL TR-12-6, and the Advanced Modeling Project Execution Plan (PxP).

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 Owner's Agent 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 Architect or

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Owner property, or if Architect or Owner 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).
- 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

If additional drawings or models are required, prepare them using the specified electronic file format applying ERDC/ITL TR-12-6, ERDC/ITL TR-12-1 and the Advanced Modeling PXP. 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 and/or BIM files. Provide all program files and hardware necessary to prepare final PDF record drawings. The Owner's Agent 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. W912WJ-17-C-0015.DWG) 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.
- 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 3/16-inch-high on the cover sheet drawing. Date RECORD DRAWING AS-BUILTS" drawing revisions in the revision block.
- d. Within 20 days after Architect or Owner approval of all of the working record documents for a phase of work, prepare the final CAD and BIM record documents for that phase of work and submit, source files, PDF drawing files, and two sets of prints for review and approval. The Architect or Owner will promptly return one set of prints annotated with any necessary corrections. Within 10 days revise the CAD and BIM files accordingly at no additional cost and submit one set of source files final prints for the completed phase of



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work to the Architect or Owner. Within 20 days of substantial completion of all phases of work, submit the final record document package for the entire project. Submit one set of electronic CAD and BIM files, and one set of the approved working record PDF files on optical discs with two sets of prints. The CAD and BIM files must be complete in all details and identical in form and function to the CAD and BIM drawing files supplied by the Architect or Owner. Prepare AutoCAD, Revit, Navisworks, and Autodesk Civil 3D files for transmittal using e-Transmit. Make any transactions or adjustments necessary to accomplish this. The Architect or Owner reserves the right to reject any drawing files it deems incompatible with the customer's CAD and BIM system. Paper prints, drawing files and storage media submitted will become the property of the Architect or Owner upon final approval. Failure to submit final record PDF drawing files, CAD and BIM files and marked prints as specified will be cause for withholding any payment due under this contract. Approval and acceptance of final record documents must be accomplished before final payment is made.

3.3 RECORD DOCUMENTS

Prepare final record documents after the completion of each definable 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 BIM and CAD drawing files. Modify the as-built BIM and CAD drawing files to correctly show the features of the project as-built by bringing the working BIM and 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 BIM and 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 Architect or Owner.

- 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 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).



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- (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

Submit the final record BIM, 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 and BIM 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 Architect or Owner.

3.3.1.1 GFGI and GFCI Equipment

Contractor shall incorporate GFGI and GFCI equipment into the record documents utilizing the electronic files received from the Contractor Officer as requested from section 2.1.1. GFGI and GFCI equipment shall be incorporated into the overall building record 3D models and applicable CAD and PDF files.

3.4 FINAL APPROVED SHOP DRAWINGS

Submit final approved project shop drawings 30 days after transfer of the completed facility.

3.5 CONSTRUCTION CONTRACT SPECIFICATIONS

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

3.6 AS-BUILT RECORD OF EQUIPMENT AND MATERIALS

Furnish preliminary record of equipment and materials used on the project 15 days prior to final inspection per 01 99 00, Sustainment Management Systems. This preliminary submittal will be reviewed and returned 2 days after final inspection with Architect or Owner comments. Submit record of equipment and materials 10 days after final inspection.

3.7 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE MANUALS DATA. Provide four electronic copies of the Operation and Maintenance Manual files and two hard copies of the Operation and Maintenance Manuals. Submit to the Owner's Agent for approval within calendar days of the Beneficial Occupancy Date (BOD). Update and resubmit files for final approval at BOD.

3.8 CLEANUP



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Provide final cleaning in accordance with ASTM E1971 and submit two 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. Replace filters of operating equipment. 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 TEMPORARY ENVIRONMENTAL CONTROLS, and 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT.

3.8.1 Extraordinary Cleanup Requirements

The following cleanup requirements apply: 01 74 13.13, CLEAN ZONE CLEANING PROCEDURES.

-- End of Section --