



CRITERIA FOR PROJECT CLOSEOUT SUBMITTALS

PART 1 – GENERAL REQUIREMENTS

The following standards are based on the Standard Operating Procedure prepared by Comfort Systems USA Energy Services and revised 08-19-2014; reformatted 11-28-2023.

1.1 CLOSEOUT FOLIO

- (A) Prepare and furnish the Owner, a digital folio containing project documentation; copies of all warranties, manufacturer's instructions, arrangement drawings, and parts identification details on all plumbing, electrical, or mechanical operable equipment provided in the project and required by the contract documents.
- (B) All deliverables are to be provided on electronic media to the Owner and Commissioning Agent at the close out of the project. Requiring the Owner or Commissioning Agent to download from a construction management site will not be acceptable.
- (C) Additionally, this data will be required to be uploaded to the Owner's cloud-based information management system as the data becomes available.
- (D) If there is a commissioning agent assigned to the project, the commissioning agent will receive the project folder from the contractor for review before forwarding to the owner. The commissioning agent may include commissioning report documentation with the project folder.

1.2 REDLINE DRAWINGS - CONSTRUCTION

- (A) Throughout construction the contractor shall maintain ON SITE a set of redline drawings to reflect document changes as they occur. These redline drawings become the basis of the AS-BUILT drawings.
- (B) The closeout documents shall include a set of the scanned redline drawings (PDF format).

1.3 AS-BUILT DRAWINGS - CLOSEOUT

- (A) Upon conclusion of construction, the General Contractor will provide a complete set of as-built drawings in PDF format.
 - (1) Resolution: 400 dpi or higher
 - (2) Searchable
 - (3) Indexed – Bookmarked by Sheet number and name
- (B) The as-built drawings shall:
 - (1) incorporate all changes as described in the construction REDLINE set
 - (2) be named and organized as described in this SOP
 - (3) have all clouds and revision triangles removed
 - (4) include final room numbers



- (5) As Built utility locations and irrigation plans noted on the site plan.
 - (6) Include shop drawings; fire alarm, fire protection, control dwg's, security, etc
 - (7) Provide critical operation and maintenance documentation:
 - a. See O&M Data Integration
 - b. Accurate panel schedules, and accurate drawings of electrical demo's.
 - c. Accurate list of materials with part numbers on anything that will require replacement, belts, hoses, filters, ceiling tile, carpet squares, etc.
 - d. Location of valves , Breakers , Irrigation control Valves , Cleanouts , and room numbers
 - e. Detailed irrigation drawings.
 - f. Filter sizes & numbers, light fixture and lamps, ceiling tile, floor tile, stair tread.
 - g. Paint codes and colors,
 - h. model and ser. numbers for the LED lighting.
 - i. Fan coils and blower units (they're calling some, blower units or coil fans, etc. now) on the as-builts and an HVAC/Mechanical equipment schedule.
- (C) As built Infrastructure:
- (1) The work shown on the civil site package must be complete and the items on the final punch list completed.
 - (2) Public infrastructure and services shall be surveyed after installation in relation to easements, property lines, and rights-of-way. More than 2 ft deviation of design alignment of shall require new easement dedication or adjustment of the utility/storm drain.
 - (3) Sanitary Sewer, and Storm Drainage elevations must be verified and updated. (Elevations out of design tolerance must be corrected)
 - (4) Street Centerline, Width, Profiles and Cross slopes shall be verified. More than 6 inches deviation of design alignment of shall require new right of way dedication or adjustment of the street section.
 - (5) As-builts should include the following information in a table; Linear Feet of new public streets, sidewalk (categorized by width), waterline, and sanitary sewer. Square feet of newly dedicated right-of-way.
 - (6) Certification that the streets, sidewalk, storm sewer, water, fire line, and sewer lines, etc., were installed per approved plans and City of Fayetteville requirements;
 - (7) Provide all Inspection Reports; approved submittals; Data Forms from Utility Specifications (Including Consultants sewer TV report); compaction test results, etc....
 - (8) The As-Built Final Drainage Report in PDF format updated per as-built invert, slope, inlet opening, road profile, cross slope, etc. Only required for improvements within city right of way.



1.4 RECORD DRAWINGS and SPECIFICATIONS - CLOSEOUT

- (A) **Verify if required by AO contract.**
- (B) Upon conclusion of construction, the Design Professional will prepare a complete set of updated drawings in AutoCAD, PDF, and Revit (where applicable to the project) and specifications in PDF format.
- (C) The updated documents shall reflect the project in its completed state, including all design and construction changes:
 - (1) Original drawings with all addenda, sketches, approved change orders, on-site instructions, and incorporate the “As-Built” drawings.
 - (2) The updated documents will be named and organized as described in this SOP
 - (3) The updated documents are to have all clouds and revision triangles removed

1.5 ROOMS LISTS

A workbook will be provided by the Commissioning Agent to the General Contractor to fill in all room names and descriptions

1.6 EQUIPMENT AND MAINTENANCE SCHEDULES

A workbook will be provided by the Commissioning Agent to the General Contractor to fill in a [list of equipment](#) and basic information about the equipment. It is to include all equipment that is required to have a submittal. All unique equipment is to be listed separately, but where there is multiple identical equipment such as the same model light fixture, it is acceptable to list the equipment once for each type. Basic maintenance information such as filter size, belt size, frequency of lubrication, etc. will be listed with the equipment.

1.7 AUTOCAD FILES

- (A) AutoCAD/BIM files should at a minimum include all revisions issued by the Architect but are not expected to incorporate the contractor’s redlines unless negotiated by contract add service.
 - (1) They should be “ISSUED FOR CONSTRUCTION” but the A/E may remove digital seals for security purposes.
 - (2) For AutoCAD drawings, bind all x-refs to each drawing. All construction drawings should be in the latest version of AutoCAD format. It is highly encouraged that BIM be used for major projects. When used, submit as BIM instead of converting to AutoCAD format.
 - (3) BIM Model Requirements: LOD 500 not including non-graphical information, per the AIA E202 Building Information Modeling Protocol Exhibit. Contractor may include non-graphical information that can be pulled into the Universities’ CMMS system.
- (B) Space Plans: Floorplans in the current version of Autocad, cleaned up with only Room Numbers, Dimensions and final locations of walls, doors and windows.



I need these files (dwg's) about one month before we take over the bldg, so that I can try & get building info, room numbers, sq footage into FAMIS & RUSS, it would be helpful if possible to have the room & building sq ft polylines included along with rm numbers, dimensions & final locations of walls, doors & windows.

(C) Comprehensive Set: Provide a complete set of CAD/BIM dwg's for the project

It would also be helpful if the dwg's file name includes the sheet number & sheet title.

PART 2 - STANDARD FORMATTING REQUIREMENTS

2.1 GENERAL INSTRUCTIONS

(A) The following describes the file naming convention and format requirements for all electronic construction turnover documents.

- (4) Use descriptions that match the document title
- (5) Avoid using abbreviations
- (6) Avoid the use of underscores and special characters such as "&" or "@".

(B) Formatting for file types that are not identified herein should be in PDF format whenever possible.

- (1) Grouped by Division\Named by Section Number-Description
- (2) Grouped by Discipline Designators\Named by Sheet Number-Description
- (3) If the file cannot be related specifically to a Division\Section, the description should sufficiently describe the content.

2.2 DRAWINGS – NAMING CONVENTION

(A) Save each drawing as a separate file;

(B) Drawing sheets should be named using the [US National CAD Standard](#) with discipline designators, sheet types, sequence numbers, and sheet description.

Examples:

P102-Plumbing Floor Plan

M601-Mechanical Schedules

EL103-Electrical Lighting Plan

(C) Drawing Files shall be organized in groups (Subfolders) by the Discipline Designators:

- General (G)
 - Code Analysis
 - Emergency Egress Plans
 - Hazardous Materials (H)



- Survey/Mapping (V)
- Geotechnical (B)
- Civil (C) and Landscaping (L)
- Structural (S)
- Architectural (A)
 - Interiors (I)
 - Equipment (Q)
- Fire Protection (F)
- Plumbing (P)
- Mechanical (M)
 - Controls (MC)
- Electrical (E)
- Telecommunications (T)
- Other (X)
- Contractor/Shop Drawings (X)

2.3 SPECIFICATIONS/PROJECT MANUAL – NAMING CONVENTION

- (A) Create combined pdf files composed of all sections within a DIVISION.
- (B) The pdf file shall be formatted with each SECTION indexed/bookmarked by the Section Number with Description.
- (C) Group the DIVISIONS into SUBFOLDERS as follows:
 - SUBGROUP: Procurement and Contracting (00)

 - SUBGROUP: General Requirements (00-01)
 - 01 – General Requirements.pdf
 - SUBGROUP: Facility Construction Subgroup (02-14)
 - 02 – Existing Conditions.pdf
 - 03 – Concrete.pdf
 - 04 – Masonry.pdf
 - 05 – Metals.pdf
 - 06 – Wood, Plastics, and Composites.pdf
 - 07 – Thermal and Moisture Protection.pdf
 - 08 – Openings.pdf
 - 09 – Finishes.pdf
 - 10 – Specialties.pdf
 - 11 – Equipment.pdf
 - 12 – Furnishings.pdf
 - 13 – Special Construction.pdf
 - 14 – Conveying Equipment



SUBGROUP: Facility Services Subgroup (21-28)

- 21 — Fire Suppression.pdf
- 22 — Plumbing.pdf
- 23 — Heating, Ventilating, and Air Conditioning (HVAC).pdf
- 25 — Integrated Automation.pdf
- 26 — Electrical.pdf
- 27 — Communications.pdf
- 28 — Electronic Safety and Security.pdf

SUBGROUP: Site and Infrastructure Subgroup (31-34)

- 31 — Earthwork.pdf
- 32 — Exterior Improvements.pdf
- 33 — Utilities.pdf
- 34 — Transportation.pdf

2.4 VIDEOS – NAMING CONVENTION

- (A) Save each training section as a separate file. File size shall be limited to a maximum of one gigabyte.
- (B) Videos shall be recorded in one of the following formats: wmv, avi, or mpg.
- (C) Video files shall be labeled per the following:
 - (1) Section-Description.file-type (26 09 23 Lighting Controls.mpg)
 - (2) Description shall be sufficient to describe the equipment or system and type of training.
 - (3) Organize files by Subgroup\Division\File

2.5 PRODUCT DATA (SUBMITTALS) – NAMING CONVENTION

- (A) Product Data Submittals should only include the approved and installed products.
- (B) Submittal files are to be broken out per system or equipment in a PDF format, labeled by Section-Description.pdf
- (C) Organize files by Subgroup\Division\File

2.6 FOLDER STRUCTURE

- (A) The following describes the folder structure required for all electronic construction closeout documents. The folder structure is intended to be used as the starting point for the organization of design and construction data. Additional sub-folders may be added as needed. Primary Folder Structure



MAIN FOLDER	SUBGROUP 1	SUBGROUP 2
01 30 00 Project Management	<ul style="list-style-type: none"> ➤ Meeting Notes ➤ Workplans ➤ Schedules ➤ Permits ➤ Pay Applications 	
01 78 00 Closeout Forms	➤ Correction Lists	
	➤ Certificates	<ul style="list-style-type: none"> ▪ Substantial Completion Certificate ▪ Consent of Surety ▪ Release of Liens ▪ Certificate of Occupancy
01 78 23 Operations and Maintenance Data	➤ O&M Manuals	➤ Subfolders shall be organized in groups by SUBGROUP\DIVISION
	➤ Training Videos	➤ Subfolders shall be organized in groups by SUBGROUP\DIVISION
	➤ Other OM Data	<ul style="list-style-type: none"> ▪ Equipment Maintenance Schedule ▪ Zone Maps ▪ Systems Flow Diagrams ▪ Trouble-Shooting Trees ▪ CMMS Equipment Data Workbook
01 78 36 Warranties	<ul style="list-style-type: none"> ➤ Workmanship ➤ Manufacturer 	➤ Subfolders shall be organized in groups by SUBGROUP\DIVISION
01 78 39 Record Set	➤ Available Information	<ul style="list-style-type: none"> ➤ Surveys ➤ Environmental Assessments ➤ Geotechnical Data
	➤ Contracting Documents	<ul style="list-style-type: none"> ➤ Bid Forms ➤ Certifications ➤ Signed O/C Agreements ➤ Insurance and Bonding
	➤ Record Revisions	<ul style="list-style-type: none"> ➤ Precontract Revisions <ul style="list-style-type: none"> ○ Addenda ○ Bid/Proposal Revisions ➤ Record Clarifications <ul style="list-style-type: none"> ○ RFI ○ Proposal Requests ➤ Record Modifications <ul style="list-style-type: none"> ○ Supplemental Instructions ○ Field Orders



		<ul style="list-style-type: none"> ○ Amendments ○ Change Directives ○ Change Orders
	➤ As-Designed Specifications (Prints shall incorporate all Addenda and ASI)	➤ Subfolders shall be organized in groups by SUBGROUP\DIVISION
	➤ As-Built Drawings (Prints shall incorporate all Addenda and ASI)	➤ Subfolders shall be organized in groups by the Discipline Designators
	➤ Redline Scans	➤ Subfolders shall be organized in groups by the Discipline Designators
	➤ Drawing Files (.dwg format)	
	➤ Revit Models (.rvt format)	
	➤ Product Data	Subfolders shall be organized in groups by SUBGROUP\DIVISION
	➤ Field Reports	<ul style="list-style-type: none"> ➤ Site Observations & Photos ➤ Equipment Startup Reports ➤ Test & Balance Report ➤ Hydronic Systems Flush-out Reports ➤ Refrigerant Systems Charge Reports ➤ Other folders as needed ➤ Pressure Test Reports <ul style="list-style-type: none"> ▪ Air Duct Systems ▪ Hydronic Piping Systems ▪ Fire Sprinkler Piping Systems ▪ Refrigerant Piping Systems
01 91 00 Commissioning	➤ Management Plans	<ul style="list-style-type: none"> ➤ Programming Document ➤ Commissioning Plan ➤ IAQ Management Plan ➤ M&V Plan ➤ Control Drawings / SOOs ➤ LEED / GG Application / Filing ➤ 1494 Remediation Plan (if applicable)
	➤ Energy Models	<ul style="list-style-type: none"> ➤ Design Energy Model ➤ Construction Energy Model (includes all VE impacts)



		➤ As-built / Calibrated Energy Model
	➤ CloseOut Documents	<ul style="list-style-type: none"> ➤ TAB Report ➤ OPR ➤ Completed Checklists ➤ Systems Manual ➤ Initial Cx Final Report ➤ LEED Online Uploads (if applicable)
	➤ Quarterly Reports	<ul style="list-style-type: none"> ➤ Meeting Notes ➤ M&V Reports ➤ Trending Analysis and Occupant Survey Report ➤ 10th month inspection report ➤ 1494 Energy Report ➤ Year 1 User IAQ Survey