



## A-16 - PROJECT CLOSE-OUT PROCEDURE

### Record Document Requirements

The Designer shall provide the following project services toward completion of the project. These requirements are in addition to the deliverable requirements described in the North Carolina–State Construction Manual (NC-SCM). Final payment will not be approved until all deliverables are received in good order. All items are expected to be delivered within sixty days of project acceptance.

### **At project close-out**

The Designer shall provide the following documents to the University Construction project manager. All the following items shall be updated to accurately reflect as-built conditions. Refer to the appropriate Project Close-Out Procedure and Record Document Requirements that follow this Design Guideline. The Facilities PM will inform the designer if they are to reference the Formal Project or Informal Project requirements list.

1. One **Archival Drawing Set** printed. As follows:
  1. This set shall be imaged on Mylar stock
  2. This set shall be made up of loose sheets, NOT bound.
  3. This set includes ALL drawings and illustrations that describe any demolition and construction completed as part of the project.
  4. The drawing set's Table of Contents or Sheet List shall be updated to reflect the final drawing collection.
  5. Formatted per section D below.
2. One **set of CAD Drawing Files** used to produce the printed drawings.
  1. Delivered per section E below.
3. One **Drawings Index** in electronic format.
  1. One line per record document sheet: giving the document sheet number, sheet name and corresponding electronic file name used to produce the record drawing.
  2. Described in section E below.
4. **Specifications Manual set including Addenda** following NC-SCM guidelines:
  1. **One Printed set** per section D below.
  2. **One Electronic set** per section E below.
5. **Final Report** following NC-SCM guidelines – see final report outline at the end.
  1. **One Printed copy** per section D below.
    1. Include a copy of all warranties.
    2. Include a copy of all close-out required affidavits.
  2. **One Electronic** file(s) set per section E below.
    1. Original content only, forms and scans are not required.

### **Printed materials**

1. Shall follow the following standards unless specified otherwise above:
  1. For As-built drawings, document pages must be imaged on Mylar.
  2. All other materials should be imaged on acid-free, white, 18 to 30-pound white paper of bond or rag base with contrasting print.
  3. Covers must be acid-free cover paper, card stock, art board or Mylar.
  4. Plastic (polyvinyl) covers and/or comb binding are NOT permitted.
  5. All text (margins) must be at least  $\frac{3}{4}$  inches from document edge.
  6. Document sets over 1 inch thick shall be split into multiple volumes.



7. The cover of each item, and each drawing sheet, shall include, as applicable:
  1. Phase indication or "Record Document" clearly visible.
  2. Architect and/or engineer's name and State IDs.
  3. Architect and/or engineer's Seal and Signature.  
Note: PE must Seal and Sign As-Built drawings.
  4. State Project Code-Item and State Project ID.
  5. Revision history with revision dates.
  6. A volume identifier, such as "Volume 1 of 3".
8. Materials produced by a reprographics firm shall include a statement of the materials used by the reprographics firm (or receipt) to assure compliance with these UNC standards.

#### Electronic documents

1. May be delivered on: Compact Disk, DVD or Flash Drive media and follow the standards below:
  1. All electronic files shall be named according to their printed sheet name.
  2. File names shall not include space or punctuation characters other than hyphens, periods and underscores.
  3. **Text files** shall be:
    1. Delivered in Rich Text Format, RTF, or Microsoft Word 2000 or later format.
    2. Acrobat PDFs are also acceptable for textual material as long as content are text searchable and selectable.
    3. All documents in printed form must include seal and signature.
  4. **Spreadsheets** shall be:
    1. Delivered in Comma Separated Values, CSV format or Microsoft Excel 2000 or later format.
  5. **Drawing Files** shall be:
    1. Compatible with AutoCAD release 2012.
    2. Each CAD file shall be bound with no external references (XREFs) and purged of unreferenced objects.
    3. Include any non-bindable attachments, custom font (SHX file) and the CTB file used in project.
    4. In editable condition, not protected or locked.

#### Notes

1. Documents will be reviewed by UNC Construction staff for completeness and accuracy before being accepted by the Plan Room.
2. Documents not meeting these requirements when received by the Plan Room Archive will be need to be corrected and resubmitted at the expense of the designer.



## The University of North Carolina at Chapel Hill

### Formal Project Close-out Procedure and Record Document Requirements

November 18, 2021

The Designer shall provide the following project services toward completion of the project. These requirements are in addition to the deliverable requirements described in the North Carolina–State Construction Manual (NC-SCM). Final payment will not be approved until all deliverables are received in good order. All items are expected to be delivered within sixty days of project acceptance.

A. **At project close-out** the Designer shall provide the following documents to the University Construction Project Manager. All the following items shall be updated to accurately reflect as-built conditions:

1. **One Archival Drawing Set** printed. As follows:
  1. This set shall be imaged on Mylar stock
  2. This set shall be made up of loose sheets, NOT bound.
  3. This set includes ALL drawings and illustrations that describe any demolition and construction completed as part of the project.
  4. The drawing set's Contents or Sheets list shall be updated to reflect the final drawing collection.
  5. Formatted per section B below.
2. **One set of Revit Drawing Files/3D Models** used to produce the printed drawings.
  1. Delivered per section C below.
3. **One set of CAD Drawing Files** used to produce the printed drawings.
  1. Delivered per section C below.
4. **One set of PDF Drawing Files** used to produce the printed drawings.
  1. Delivered per section C below.
5. **One Drawings Index** in electronic format.
  1. One line per record document sheet: giving the document sheet number, sheet name and corresponding electronic file name used to produce the record drawing.
  2. Described in section C below.
6. **Specifications Manual set including Addenda** following NC-SCM guidelines:
  1. **One Printed set** per section B below.
  2. **One Electronic set** per section C below.
7. **Final Report** following UNC guidelines
  1. **One Printed copy** per section B below.
    1. Include a copy of all warranties.
    2. Include a copy of all close-out required affidavits.
  2. **One Electronic file(s)** set per section C below.
    1. Original content only, forms and scans are not required.
8. **O&M Manual**
  1. **One Electronic set** per section C below. (\*Separate requirement from Building Services)
9. **Approved submittals**
  1. **One Electronic set** per section C below
10. **Shop Drawings**
  1. **One Electronic set** per section C below

B. **Printed materials**

1. Shall follow the following standards unless specified otherwise above:
  1. For As-built drawings, document pages must be imaged on Mylar.
  2. All other materials should be imaged on acid-free, white, 18 to 30-pound white paper of bond or rag base with contrasting print.



3. Covers must be acid-free cover paper, card stock, art board or Mylar.
4. Plastic (polyvinyl) covers and/or comb binding are NOT permitted.
5. All text (margins) must be at least  $\frac{3}{4}$  inches from document edge.
6. Document sets over 1 inch thick shall be split into multiple volumes.
7. The cover of each item, and each drawing sheet, shall include, as applicable:
  1. Phase indication or "Record Document" clearly visible.
  2. Architect and/or engineer's name and State IDs.
  3. Architect and/or engineer's Seal and Signature. Note: PE must Seal and Sign As-Built drawings.
  4. State Project Code-Item and State Project ID.
  5. Revision history with revision dates.
  6. A volume identifier, such as "Volume 1 of 3".
8. Materials produced by a reprographics firm shall include a statement of the materials used by the reprographics firm (or receipt) to assure compliance with these UNC standards.

### C. Electronic documents

1. Delivered on Flash Drive media and follow the standards below:
  1. All electronic files shall be named according to their printed sheet name. See Section E.
  2. File names shall not include space or punctuation characters other than hyphens, periods and underscores.
  3. **Text files** shall be:
    1. Delivered in Rich Text Format (RTF) or Microsoft Word 2018 or later format.
    2. Acrobat PDFs are also acceptable for textual material as long as content are text searchable and selectable.
    3. All documents in printed form must include seal and signature.
  4. **PDF Files** shall be:
    1. Paperspace or Sheet view must be setup for full size printing.
    2. One PDF file per sheet/drawings. No multipage files will be accepted.
  5. **Spreadsheets** shall be:
    1. Delivered in Comma Separated Values (CSV) format or Microsoft Excel 2018 or later format.
  6. **Drawing Files for CAD** shall be:
    1. Compatible with AutoCAD release 2020.
    2. Each CAD file shall be bound with no external references (XREFs) and purged of unreferenced objects and unreconciled layers and images.
    3. Include any non-bindable attachments, custom font (SHX file) and the CTB file used in project.
    4. A single CAD file per drawing; multiple sheet tabs are not allowed.
    5. In editable condition, not protected or locked.
    6. Submit eTransmit generated folder containing all associated support file references.
  7. **Drawing Files for Revit** shall be:
    1. Revit version 2020 is to be used
    2. Submit eTransmit generated folder containing all linked .rvt files and associated support file references.

### D. Notes

1. Documents will be reviewed by UNC Construction Management staff for completeness and accuracy before being accepted by the Plan Room.
2. Documents not meeting these requirements when received by the Plan Room Archive will need to be corrected and resubmitted at the expense of the designer.



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**E. File Naming Example**

1. [Sheet Number]\_[Sheet Title/Description]  
C1\_Survey of Francis Owen Lab



## The University of North Carolina at Chapel Hill

### Informal Project Close-out Procedure and Record Document Requirements

November 18, 2021

The Designer shall provide the following project services toward completion of the project. These requirements are in addition to the deliverable requirements described in the North Carolina–State Construction Manual (NC-SCM). Final payment will not be approved until all deliverables are received in good order. All items are expected to be delivered within sixty days of project acceptance.

- A. **At project close-out** the Designer shall provide the following documents to the University project manager. All items shall be updated to accurately reflect as-built conditions:

1. One **set of CAD Drawing Files**
2. One **set of PDF Drawing Files**
3. One **PDF Specifications Manual including Addenda** following NC-SCM guidelines
4. One **PDF Final Report** following UNC Design Guidelines
5. One **set of Revit files** if Revit software was utilized for the project. Submitted file must be created using eTransmit tool containing all linked .rvt files and associated support file references
6. One **set of PDF O&M Manuals**
7. One **set of PDF Shop Drawings**
8. All **approved submittals** in electronic file format

B. **Electronic documents**

1. May be delivered on Flash Drive media and follow the standards below:
  1. All electronic files shall be named according to their printed sheet name. See Section D.
  2. File names shall not include space or punctuation characters other than hyphens, periods and underscores.
  3. **Text files** shall be:
    1. Delivered in Rich Text Format (RTF) or Microsoft Word 2000 or later format.
    2. Acrobat PDFs are also acceptable for textual material as long as content are text searchable and selectable.
    3. All documents in printed form must include seal and signature.
  4. **PDF Files** shall be:
    1. Paperspace or Sheet view must be setup for full size printing.
    2. One PDF file per sheet/drawings. No multipage files will be accepted.
  5. **Spreadsheets** shall be:
    1. Delivered in Comma Separated Values (CSV) format or Microsoft Excel 2018 or later format.
  6. **Drawing Files for CAD** shall be:
    1. Compatible with AutoCAD release 2020.
    2. Each CAD file shall be bound with no external references (XREFs) and purged of unreferenced objects and unreconciled layers and images.
    3. Include any non-bindable attachments, custom font (SHX file) and the CTB file used in project.
    4. A single CAD file per drawing; multiple sheet tabs are not allowed.
    5. In editable condition, not protected or locked.
    6. Submit eTransmit generated folder containing all associated support file references.
  7. **Drawing Files for Revit** shall be:
    1. Revit version 2020 is to be used
    2. Submit eTransmit generated folder containing all linked .rvt files and associated support file references.



**C. Notes**

1. Documents will be reviewed by UNC Facilities Planning & Design or Engineering Services staff for completeness and accuracy before being accepted by the Plan Room.
2. Documents not meeting these requirements when received by the Plan Room Archive will need to be corrected and resubmitted at the expense of the designer.

**D. File Naming Example**

1. [Sheet Number]\_[Sheet Title/Description]  
C1\_Survey of Francis Owen Lab

## FINAL REPORT

1. The Final Report Cover Sheet shall have the following information:

FINAL REPORT  
Project Title  
Project Location  
Owning Agency  
SCO State ID Number  
Code & Item  
Designer's Information/Address/Phone Number/Email Address  
Date Submitted  
Designer of Record Seal/Signature

2. A Table of Contents comes next with the tab/page numbers associated with each section clearly marked.
3. SCO Final Inspection for Owner Occupancy Form: This form is generated at the time of final inspection of project. Verify all required signatures and dates are filled out.
4. Contract Dates:

- a) Bid Opening Date
- b) Award Date
- c) Begin Work Date
- d) Final Inspection Date
- e) Project Acceptance Date
- f) Warranty Expiration Date

5. Exhibit "A" – Project Description

A complete description of the building stating the type of occupancy, location of building in relation to other buildings, or its occupancy relation to any adjacent building or its relation as a building in a group or complex. List subparagraphs as follows:

- a) Architectural:

Square Footage Figures - Set forth the floor area for each floor and total floor area in gross square feet. Calculate actual inside room dimensions, areas divided as follows:

- Office space, classroom, atrium, auditorium or dormitory room space
- Supply or storage area
- Corridors and lobbies
- Stairs and elevator shafts
- Toilets and restrooms

Porches or loading docks without roofs shall be computed at one-third. Unfinished interior areas shall be computed at one-half. Give the total floor area in net square feet.



In a parallel column, give the percentage of the total net area each division represents. Under this, set forth the equation of the total gross area figure minus the total net area figure, multiplied by 100 and divided by the gross area figure to show the percent difference between gross and net area.

**NOTE:** Many projects are not applicable or relative to a square footage breakdown. On these type projects, the report format should follow the same generalized outline as noted above in order to present the project descriptively. Identify the units as utilized in the report. Set forth the type of architecture used in the design, shape of the building, major features of construction, number of stories, gross square feet and finished or unfinished basement or unexcavated area under first floor. Then, in order in succeeding paragraphs beginning with the basement, give a brief description of the arrangement and primary use of each floor. In case of dormitories, state the number of student rooms and number of students for which the structure is designed; in case of office buildings, state the number of offices provided or any other such pertinent information; in case of hospital-type buildings, state the number of patient beds; in case of classroom buildings, list the number of classrooms and the capacity of each, and the number of offices.

Exterior Design - Under the subhead Exterior Design, state the general exterior finish; that is, of common brick, face brick, limestone, granite, etc., and the backing of this exterior. Give a general description of the trim around the buildings; that is, the belt courses, window sills, jack arches, copings, or any ornamentation that might be included in the design. State the type of exterior doors, kinds of entrances provided, the type of windows, the kind of sash; that is, wood or steel, projected type or double hung type, and describe any special entrance or exit provisions.

The roof shall be briefly described as to materials used, type of roof structure, U-factor and type of insulation, the type of flashing, arrangement of gutters and downspouts.

All waterproofing features shall be described.

Copies of all permits and certificates relative to the flood plain policy (Executive Order 123) shall be bound within the final report.

Interior Construction and Finish - The building shall be described as to building code classification by occupancy or use, and classification by type of construction in accordance with the NC State Building Code. The system of flooring throughout the building shall be described, including any special features of the flooring. Waterproofing features of areas such as toilet room floors shall be stated. The kind of encasement of structural steel or other concealed members shall be described. The structure of all interior walls shall be given, including the finish used. State the type of paints used throughout, type of plaster, type of interior trim, doors, etc.

b) Structural:

Describe the type of foundation system, framing system, floor system, etc. Include a schedule of floor and roof live loads, and provide information regarding provisions for addition to the structure if applicable.

c) Plumbing:

Describe the plumbing, the point of connection to sewer, the source of cold and hot water, the kind of pipe, the insulation, whether pipes are concealed or exposed; state the accessories which have been furnished with the plumbing system. Describe the storm drainage system and connections with areaways, downspouts and sprinkler system, if provided.

d) Heating and Air Conditioning:

Give a description of the type of system – steam, hot water, forced air; method of distribution - gravity, vapor, forced, overhead distribution; provision for temperature control; special accessories; insulation; accessibility to all concealed ducts and pipes, air handling units, etc. State the source of heat. If a boiler room is provided within the building, describe, giving size of boiler, type of fuel, capacity of fuel storage, etc. State the type of radiation; that is concealed, convectors, unit heaters, multi-zone units or any special provisions. Describe automatic equipment and accessories in the heating system. Include a tabulation of heating load by floors in MBH. Air conditioning - Give a description of the type of system; that is, absorption, direct expansion, etc., method of distribution, means of control, and types of major items of equipment, such as cooling tower, evaporative condenser, centrifugal compressor, etc. Include a tabulation of zones indicating number of zones, number of air handling units, and capacity of each. Give total capacity in tons of refrigeration for the system and calculated loads.

e) Electrical:

Describe the kind of wiring system, the location of the service, the number of conductors, type of insulation, and size in circular mils of the service. Describe briefly the type of service switches and type of distribution panels. State if wiring is concealed in conduits and describe any special wiring such as under floor ducts, special services, etc. Describe the system provided for telephones, sound, communication, smoke detection and fire alarm, closed circuit TV, and like equipment. Provide an electrical load summary indicating the total connected electrical and estimated demand load for the building, separating the power and lighting loads. Provide additional breakouts as necessary.

6. Exhibit "B" – Cost Data

Contracts	Contract Fee	Change Orders/Amendments	Subtotal
Single Prime	\$	\$	\$
General Contract	\$	\$	\$
Plumbing Contract	\$	\$	\$
HVAC Contract	\$	\$	\$
Electrical Contract	\$	\$	\$
Elevator Contract	\$	\$	\$
Other Contract(s)	\$	\$	\$
Design Contract	\$	\$	\$
Owners Costs*	\$	\$	\$
Total Contract	\$	\$	\$

\*Owner Costs could include: surveys, soil investigations, concrete tests, advertising, etc.

Break out the following Cost Data:

- A. Cost per Square Foot of Gross Floor Area (Based on Total Cost of Building)
- B. Percentage of Total Cost for each of the above Contracts
- C. Cost per Office, Occupant or Hospital Bed (Based on Total Cost of Building)
- D. If Cost per Square Foot is not applicable, identify units and use a standardized unit pricing format

7. Exhibit "C" – Change Orders

In a column under General Contract, Plumbing Contract, Heating, Air Conditioning and Ventilating Contract, etc., set out the change order number and immediately to the right of each change order, give a brief description of what the change order involved. Set forth the amount in a right-hand column as an addition or a deduction to the original contract. On this right-hand column, total the amount of additions and deductions under each contract.

8. Exhibit "D" - Contractors

The names and addresses of contractors and material suppliers. Subheads under this exhibit shall be:

Single Prime

General Contract

Plumbing Contract

Heating, Ventilating and Air Conditioning Contract

Electrical Contract

Other Contract(s)

Immediately following, give the name and address of the contractors for each contract, then under three columns headed "Subcontract or Material", "Name of Contractor or Dealer," and "Address," list each principal contractor's subcontract, subcontractor's name and address.

9. Exhibit "E" – Energy Criteria

The Designer shall include the documentation that the project complies with the Energy Code for Commercial and High Rise Residential Buildings of the 2006 NC State Building Code Energy Conservation Code along with the NC BUILDING CODE SUMMARY – APPENDIX B. Compliance may be demonstrated by using the appropriate forms from the NC State Building Code. For projects using the 2009 NC Building Code with a GSF of less than 20,000 the energy criteria to follow is under the NC Administrative Code and Policies Appendix B.

10. Exhibit "F" – Designer Certifications

The project Architect or Designer of Record shall provide a sealed and signed Certificate of Completion with all required attachments such as Cancellation of Builder's Risk Insurance and the State Construction Office "Project Acceptance Approval" letter. And each consultant (Architect or Engineer) involved in this project shall provide a sealed and signed Certificate of Compliance. Under GS133-1.1 any other Architect or Engineer providing professional services shall also provide a Certificate of Compliance.

11. Exhibit "G" – Construction Close-out Documents

Include a copy of each of the following close-out document. Verify all seals are visible:

- a. Contractor's Affidavit of Release of Liens
- b. Contractor's Affidavit of Payment of Debts and Claims
- c. Consent of Surety Company to Final Payment
- d. Final Pay Application which includes the Final MBE Documentation.

12. Unsettled Claims:

Provide a brief description of any unsettled claims. If no outstanding claims exist, state "None" on the check list.