



Capital Project Closeout

Construction Documentation

Requirements

Guidelines for Architects, Contractors, and Project Managers

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TABLE OF CONTENTS

I. Introduction	p. 3
A. Documentation Required	
B. Project Manager Responsibilities	
C. Templates and Standards	
II. Templates	
1. Transmittal for Materials Required	p. 7
2. Project Dossier	p. 8
2. Capital Project Contact List	p. 9
3. Electronic File Quality Assurance Checklist	p. 10
4. Electronic File Index	p. 11

I. Introduction

The Capital Project Closeout Construction Documentation Requirements is for the use of project managers, architects, and contractors working on Harvard University capital projects. The document provides a detailed description of the Harvard University Standards requirement identified in the Basic information Section (BIS) of each Architectural, Design, Construction, Construction Management and Consulting Agreement.

A. Documentation Required

Harvard University has specific requirements for capital project documentation which must be submitted to the Property Information Resource Center (PIRC) prior to project close. These requirements are specified in the attached Materials Checklist.

Materials submitted to the PIRC should be coordinated with the Harvard Project Manager assigned to the project. Project documentation must be clear, consistent, and complete. The quality of the documentation will be reviewed by PIRC staff within two (2) weeks of receipt. Project documentation deliverables must be accompanied by the “Materials Checklist & Transmittal for Materials” (*see Section II*).

AutoCAD Revit (and other BIM) requirements for deliverables must adhere to the BIM Execution Plan (BEP), if a plan was created for the project. The existence of a BEP does not supersede these closeout requirements; they are in addition to these requirements. If there is no BEP and there are AutoCAD Revit or other BIM files, they may be provided in addition to requirements outlined herein.

B. Project Manager Responsibilities

There are additional requirements for Project Managers in the Harvard University Project Delivery Guidelines (PDG). Project Managers should convey all requirements to the architect or contractor.

All documents required as part of project close-out must be submitted in the formats described in the Materials Checklist. To ensure consistency of data, the Project Manager should confirm that the following templates and standards are used (*see Section III*):

C. Templates and Standards

- Materials Checklist & Transmittal for Materials (Template 1)

The architect or contractor should use this checklist as a transmittal, which lists all materials required at project close. The completed transmittal forms, including an official submission of close-out materials letter on the submitting firm’s letterhead should accompany the submission of deliverables to the PIRC.

- Project Dossier (Template 2)

The Project Dossier serves to document various other types of information about the project. **The Project Dossier is the responsibility of the lead architect or engineer.**

- Capital Project Contact List (Template 3)
The Project Manager should provide information for each person or firm (architects, contractors, sub-contractors, etc.) involved in the project.
- Electronic File Quality Assurance Checklist (Template 4)
The architect or contractor must sign and submit this checklist, which ensures that all electronic materials adhere to the standards and guidelines set forth in the Harvard Planning & Project Management's *CAD Standards* publication.
- Electronic Files Indices Guidelines (Template 5)
Architects and contractors must supply indices that conform to the contents and formats presented in this guideline.
- CAD Standards (2009 version)
<http://planningoffice.harvard.edu/pages/standards-and-guidelines>
This document provides specifications for producing and delivering CAD drawings for project documentation.
- Survey Specifications (2016 version)
<http://planningoffice.harvard.edu/pages/standards-and-guidelines>
This document describes the coordinate system used by Harvard University and the basic standards that need to be followed to insure compatibility with the University GIS.
- Green Building Standards
<http://planningoffice.harvard.edu/pages/standards-and-guidelines>
These standards apply to all capital level projects at Harvard University and should be included in all Requests for Proposals.
- Building Information Modeling (BIM) Resource Site
<http://planningoffice.harvard.edu/pages/standards-and-guidelines>
These documents provide guidance for utilizing BIM in your capital level construction project.

II. TEMPLATES

TEMPLATE 1

MATERIALS CHECKLIST & TRANSMITTAL FOR MATERIALS

Project Name: _____ Date: _____
 Harvard Project Manager: _____ Submitted by: _____
 Harvard Capital Project number: _____ Consultant Project Number: _____
 Building Number(s): _____ Building Root Number(s): _____

All materials submitted at close-out must be accompanied by this form for submission to the PIRC.

Effective February 10, 2014

Materials- 1copy each item		Delivered to PIRC Initials of submitter
ADMIN DOCS	Transmittal Complete this Materials Checklist & Transmittal Template. If a required submission is not applicable to your project please indicate such with "N/A"	
	Contact List Use Capital Project Contact List Template	
	Debarment Certification Signed debarment certification must be included for all capital level projects with contracts executed after February 10, 2014. Form to be supplied by your Harvard PM.	
	Quality Assurance Checklist(s) Use Electronic File Quality Assurance Checklist Template ¹ ; Refer to <i>Surveying Standards and Recovery Notes</i> ³	
	Indices of electronic files Use Electronic Files Indices Template ¹	
	Project Dossier This information must be submitted by the lead architect or engineer on the project. If no architect or engineer was employed this requirement is not applicable.	
CONSTRUCTION DOCUMENTATION	Drawings - all drawings delivered at project close must be delivered in hardcopy, TIFF, PDF, and DWG formats (1:1:1:1 for each drawing) Hardcopy Drawings: All drawings should be printed on 20lb. bond paper. Acceptable sizes: 24"x36" or 30"x42". Drawings must be rolled, not folded. Drawings must not be stapled Architects: submit stamped and signed Record Drawings which incorporate all changes made in the field as the final record deliverable.	

	<p>MEP: submit stamped and signed As-Built Drawings reflecting as-built conditions which incorporate all changes made in the field as the final record deliverable.</p> <p>Electronic Drawings Drawings should exactly match hard copy documents submitted on CD/DVD/USB2.0 labeled with project name, project number, drawings included, date, company name, contact name and telephone number. Drawing names should be identical to hard copy drawing sheet number, (i.e., A-1.DWG, E-1.DWG). Special characters should be limited to dashes.</p> <p>TIFF- Produced at 300ppi resolution at hard copy dimensions; file names must follow conventions in CAD Standards. Each drawing should be one TIF</p> <p>PDF- Produced at 300ppi resolution at hard copy dimensions; file names must follow conventions in CAD Standards. Each drawing should be one PDF</p> <p>CAD file drawings Must comply with all requirements in CAD and Image Standards. All external references must be bound; file names must follow conventions in CAD and Image Standards</p>	
	<p>Specifications – all specifications delivered at project close must be delivered in hardcopy and PDF formats. PDF version must reproduce 100% of the information in the original documents. PDF specifications must be submitted with a TOC</p> <p>The specifications shall be annotated to show the actual selected products that are incorporated into the project, particularly where a choice of two or more products was permitted.</p> <p>Follow the Construction Specifications Institute (CSI) format and indexing</p> <p>The first page of each division shall be in the index to that section</p>	
	<p>Operation and maintenance manuals – all project manuals delivered at project close must be delivered in hardcopy and PDF formats. PDF version must reproduce 100% of the information in the original documents. PDF manual must be submitted with a TOC</p> <p>All manuals should contain: Phone Lists of subcontractors, suppliers, manufacturers’ representatives, Manuals of Systems Components to be specified by Architect, and Warranties/Guarantees.</p> <p>This manual must include, as applicable, the Manufacturer’s printed installation and operating instructions: technical specifications and instructions (not “sales” brochures/promotional material). Instructions shall include all modes of operation in sufficient detail to be readily understood by maintenance personnel.</p> <p>Complete information on actual equipment installed as described in the manufacturers’ instructions, including dimensional drawings, model, type, size, capacity, performance parameters such as curves, efficiencies, power requirements, operating ranges, etc. (Only one manual is needed for multiple, identical equipment.</p> <p>Serial numbers for all equipment</p> <p>Detailed Parts List showing manufacturers’ parts numbers and such other identification as necessary to facilitate procurement of spare or renewal parts and Owner-Manufacturer communications.</p> <p>Schedules showing proper time intervals for lubrication, adjustment, calibration or checking. Contractor shall consolidate manufacturers’ schedules with a single master schedule of required maintenance. This requirement is for the Contractor’s as well as the Owner’s protection to insure proper early maintenance during the warranty period.</p>	

CONSTRUCTION DOCUMENTATION	<p>Final Commissioning Report / Systems Manual - all projects which engage a Commissioning Authority (CxA) must deliver a hardcopy and PDF version of the report.</p> <p>The final Commissioning Report/Systems Manual must be formatted in accordance with the Harvard University Office for Sustainability and ASHRAE requirements.</p>	
	<p>Regulatory Approvals – all copies of permits and certificates should be delivered in hardcopy format</p> <ul style="list-style-type: none"> • Building permit application (submitted by project team) • Building permit (issued by City) • Occupancy permit application (submitted by project team) • Occupancy permit (issued by City) • Final cost affidavit for building permit • Certificate of inspection 	
	<p>Contracts – copies of executed contracts should be signed by all parties and delivered in hardcopy format.</p> <p>Information relating to payment amounts may be redacted.</p> <p>Include all contracts with Architects, Engineers, Consultants, Contractors and Construction Managers, if applicable.</p>	
	<p>Land Survey- if a survey was completed it must be submitted in hard copy and electronic formats</p>	
	<p>Soil or Environmental Reports – if testing or remediation was performed all geotechnical and geochemical reports should be submitted in hardcopy and electronic format</p>	
	<p>Arc Flash Study and Hazard Analysis- A hard copy format of the report must be included in the close-out package if an Arc Flash Study was produced for NEC/NFPA compliance on the project.</p>	

TEMPLATE 2

PROJECT DOSSIER - PLEASE COPY AND SUBMIT THIS ON FIRM LETTERHEAD

Project Name:

Project Location and Address:

Harvard Capital Project number:

Consultant Project Number:

Contract Type / Delivery Method:

Extent (gsf/nasf):

LEED Project?

Building Systems Impacted:

Project Start Date:

Project End Date:

Project Description:

TEMPLATE 3

CAPITAL PROJECT CONTACT LIST

Information must be provided for each person or firm (architects, contractors, sub-contractors, etc.) involved in the project.

Project Name: _____ Date: _____
 Harvard Project Manager: _____ Submitted by: _____
 Harvard Capital Project number: _____ Consultant Project Number: _____
 Building Number(s): _____ Building Root Number(s): _____

Role	Organization	Contact Name	Company	Company Project Number	Phone	E-Mail

ELECTRONIC FILE QUALITY ASSURANCE CHECKLIST

CAD drawings delivered at closeout of a capital project must be accompanied by this checklist and a signed letter on firm letterhead stating that all materials adhere to the standards and guidelines set forth in the Harvard University CAD Standards or National CAD Standards.

FILE FORMAT AND SETUP

- Electronic File Format
- Scale, Units, & Tolerances
- Fonts and Text Styles
- Blocks
- Title Blocks
- Policy on Model Space and Paper Space
- Policy on External Reference Files (XREFs)

LAYERING

- Standard Layer List
- Layer Name Formatting
- General Rules about Naming and Uses
- Layer Attributes (Colors, Pens, Linetypes)

CAD & TIFF FILE NAME CONVENTIONS

- Building and Floor Identification Codes
- Discipline Identification Codes
- Drawing Type Codes
- Drawing Numbers

POLICY ON CAD FILE TRANSLATION

- Full AutoCAD Compliance
- Translation Testing Procedures (if applicable)

POLICY ON TIFF FILE TRANSLATION

- Scan at 300 ppi at hard copy dimensions (24"x36" or 30"x42")
- Files must be uncompressed

POLICY ON PDF FILE TRANSLATION

- Scan at 300 ppi at hard copy dimensions (24"x36" or 30"x42")
- Files must be uncompressed

Name of Accountable Vendor Representative
(please print)

Phone number:

Signature of Accountable Vendor Representative

Date:

ELECTRONIC FILE INDEX

All electronic materials (CAD files, TIFF scans, index table files, etc.) must be delivered on CD/DVD/USB

Indices for scans must be submitted in paper format **and** electronically in Microsoft Excel. A blank template of this form is available on the PIRC website. Scans must be done at a resolution of 300ppi at hard copy dimensions. Indices must contain the following information:

1. File Name
2. Title of Drawing- DO NOT ALL CAPS title block attributes
3. Horizontal Paper Size - measured in inches, indicate the width of the original paper drawing at its widest horizontal dimension
4. Vertical Paper Size - measured in inches, indicate the length of the original paper drawing at its widest vertical dimension
5. Scale - indicate the scale of the original drawing (examples: 1"=20' or NTS)
6. Pixel Depth - indicate color, grayscale, bi-tonal

Sample Electronic File Index

PROJECT INFORMATION											
Firm Name:			Oxford Garage/52 Oxford St.								
CAPS Project Name:											
CAPS Project No:			UOS 01-006								
INDEX OF MATERIAL			SAMPLE ONLY: DELETE CONTENT AND FILL IN WITH YOUR OWN DATA								
Item No.	Harvard Building Number	Sheet #	Title	V x H size	Scale	Scan File name	Scan PPI resolution	Scan Disc #	CAD File name	CAD Version	CAD Disc #
<i>Record Documents - on Paper</i>				.HC			.TIFF		.DWG		
1	01395	T-1	Title sheet drawing list	24 x 36	NTS	01395_T1	300	Disc #1	01395_T1	2010	Disc #2
2	01395	C1	Site preparation plan	24 x 36	3/16 in. : 1 ft.	01395_C1	300	Disc #1	01395_C1	2004	Disc #2
3	01395	C2	Site layout plan	24 x 36	3/16 in. : 1 ft.	01395_C2	300	Disc #1	01395_C2	2004	Disc #2
4	01395	C3	Site utility plan	24 x 36	3/16 in. : 1 ft.	01395_C3	300	Disc #1	01395_C3	2004	Disc #2
5	01395	C4	Site grading plan	24 x 36	3/16 in. : 1 ft.	01395_C4	300	Disc #1	01395_C4	2004	Disc #2