
Completing The Project

As a project approaches completion, there are many discrete actions that must be completed. To assist in that regard, a Construction Project Closeout Flowchart and Checklist are at Exhibits 38 and 39.

A. Starting the Closeout

When a construction contract starts to wind down, the Consultant encourages the GC to review the Contract and all the Work that has been done. The GC then prepares a list of outstanding work, i.e., work still remaining to be completed, and gives that list to the Consultant and the Resident Engineer. This is the beginning of the inspection process discussed later in this section.

B. Submitting As-Built (Record) Drawings

1. Purpose

Record drawings provide an enduring record of what was actually constructed, and where exactly it is located, both horizontally and vertically. The Consultant must incorporate into the record drawings all the changes that were made during construction so that future work may be designed and built without encountering any unforeseen situations. See Exhibit 40. There are many requirements for the GC in this exhibit and elsewhere in this Section 5, "Completing the Project." The Consultant must ensure that the Contract specifications clearly state these requirements.

2. Procedure

The General Contractor must update As-Built drawings as the job progresses. It must maintain one complete master set of contract drawings in the field office that records all Addenda, Change Orders, Field Orders and other such changes.

Before the Authority endorses the work as "complete," the Contractor must submit to the Consultant all of the Contractor-prepared As-Built Prints. Each As-Built Print must include a Contractor-signed certification statement that confirms the completeness and accuracy of as-built conditions. The Consultant then updates the As-Built Drawings as follows: 4-mil Mylar drawings and electronic AutoCAD files, along with scanned 200 dbi TIFF files of As-Built Mylar drawings. Each As-Built Mylar Drawing must also include a Contractor-signed certification statement that confirms the completeness and accuracy of documented as-built conditions. Such statement shall read: "This Drawing reflects As-Built Conditions as certified by (insert contractor's name) ." The Consultant then delivers to the Authority the certified As-Built Drawings.

C. Receiving Approval from Compliance

Every contract has Minority Business Enterprise (MBE) goals. By submitting their monthly reports to the Massport Compliance Department, the GCs show the progress they have made toward meeting those goals. As the job is nearing completion, the Consultant verifies that the

GC has, in fact, met its DBE goals, or taken reasonable steps to try to meet them by receiving from the GC, a copy of a letter/memo from the Massport Compliance Department approving the GC's MBE performance.

D. Performing Preliminary Inspection

The Consultant, with the RE and the Massport Facility representative(s), must conduct a Preliminary Inspection of the facility. This inspection should identify substantive issues of concern that must be addressed before the facility's occupancy can be considered and punch-lists can be prepared. The Consultant must report the results of this Preliminary Inspection to both the General Contractor and Massport's PM.

E. Preparing and Working Off the Punch List

Once the GC has brought the project to a high level of completeness and corrected a majority of the obvious deficiencies, the Consultant and the RE will conduct a thorough inspection of the entire project. All necessary corrective work and work to be completed, will be identified as a Punch List.

The Consultant must include a corresponding dollar value for each missing or incomplete item, and withhold this value from the General Contractor according to the Consultant Contract - Articles 1.5.5-1.5.8. This Punch List will be submitted to the GC. The GC will organize the Punch List work by discipline and distribute it to the affected subcontractors. The GC will schedule and manage the Punch List work in an organized and timely manner to bring the project to the level of substantial completion.

F. Achieving Substantial Completion

A newly constructed or renovated facility reaches substantial completion, sometimes called beneficial occupancy, when it is considered available for full occupancy and total active operation. When the GC feels it has reached substantial completion, which includes the completion of all final testing and the submission of all required test reports, the GC will provide written notice to the Consultant. The Consultant will then conduct an inspection with all the sub-consultants of record to verify the completeness of the work and the adherence to the State Building Code. The Consultant will then prepare affidavits to that effect and give the GC a "Certificate of Substantial Completion," Exhibit 41.

G. Obtaining Certificate of Occupancy

Immediately after the project is determined to be substantially complete, the GC, in conjunction with the Engineer, must obtain from the State Building Inspector a Certificate of Occupancy. Prerequisites to obtaining the Certificate of Occupancy include approvals (sign-offs) from the electrical, plumbing and elevator inspectors, as appropriate. The Consultant must also obtain any permits needed from the General Contractor to operate special apparatus.

H. Obtaining Operation and Maintenance Manuals

The Consultant, in coordination with the GC, establishes a detailed training program for Massport personnel to ensure that the physical plant and the equipment that is constructed or installed for the project will be properly operated and maintained. The Consultant must ensure that the GC's Operations And Maintenance (O&M) Manuals and the manufacturer's representatives' equipment O&M Manuals are instructive and comprehensive enough to guide Massport personnel and answer any O&M questions. The Consultant must review the Authority's requirements of MPA Standard Specification Section 01730 entitled "Operation, Maintenance and Warranty Manuals," and include them as appropriate and as shown in Exhibit 42.

I. Providing Guarantees and Warranties

The following guidelines apply to guarantees and warranties:

- ◆ The Consultant must ensure that the GC maintains a Warranty Log as shown in Exhibit 43 and provides a copy of it to the RE and Consultant as the Contractor receives or installs guarantee/warranty items.
- ◆ The Consultant must ensure that it or the GC delivers the final Warranty Log to Massport when the construction is completed.
- ◆ The Consultant must provide Guarantees/Warranties for all products and equipment that is purchased (and/or pre-purchased by Massport) and installed under the Construction Contract.
- ◆ The Consultant must also provide Massport with the following warranty review services:
 - ◆ Consult with Massport during the warranty periods and recommend alternatives concerning inadequate performance of materials, systems and equipment under warranty.
 - ◆ Inspect materials, systems and equipment several months before the warranty expires (e.g., at the 10- month point for a one-year warranty) to determine its adequacy of performance.
 - ◆ Document defects or deficiencies, and help Massport administer the General Contractor's effort to perform corrective measures.

J. Providing Attic Materials

The Consultant works with the GC to ensure that extra materials, spare parts (e.g., filters and fuses) assembly instructions, etc., for future maintenance, are provided to Massport.

K. Returning Security Badges and Apron Permits

The Consultant verifies that for Airfield projects, the GC has returned to Massport all security badges and apron permits.

L. Returning Communications Equipment

The Consultant ensures that the GC has returned to Massport all borrowed communications equipment. Also, the Consultant verifies that all communications equipment purchased for the Contract and designated to become Massport property at the completion of the Contract, has been turned over to the RE.

M. Cleaning up the Work Site

Before Massport will process the final payment requisition, the GC must clean up the work site, haul routes and the construction staging area. This includes removing, at the GC's own expense, all emergency structures and all surplus material and rubbish that has accumulated during the Work. The Consultant ensures that this is done.

N. Performing Final Inspection

Once the GC has satisfactorily completed all punch-list items, the Consultant must arrange the final inspection date with Massport's Facility Representative, Massport's PM, the General Contractor, and the RE/Inspector. These individuals should together conduct the project's Final Inspection and confirm that they are all completely satisfied with the project's construction.

The Consultant must then confirm that all work, including Change Orders, has been completed according to the contract requirements.

The Consultant must also confirm that the General Contractor has made all its required payments, including wages to subcontractors, suppliers, etc., and that it has no known outstanding claims to pay.

Contingent upon completely satisfying the contract requirements, the Consultant must complete a "Certificate of Final Inspection, Release and Acceptance" (Exhibit 44), have all designated parties sign it and distribute it accordingly.

O. Approving Final Payment, Requisition, Certification and Release

The Consultant must review the General Contractor's Final Payment Requisition (Exhibit 29) with the Release of Liens and Consent of Surety (if any), and verify that the Contractor has met all Construction Contract requirements. The Consultant can approve the Contractor's final payment requisition only after all of the project completion items in this section have been completed.

P. Completing the General Contractor Evaluation

The Consultant with Massport must evaluate the General Contractor at the end of the project. The Consultant must fill out the Evaluation Form in Exhibit 45 and certify on it that the evaluation, to the best of its knowledge, truly represents the General Contractor's performance. This evaluation must be filled out for all Mechanical, Electrical, Plumbing, and Fire Protection subcontractors. The appropriate sub-consultant(s) must complete an Evaluation Form for each of their respective subcontractors and submit them to the Consultant.

Q. Submitting the Master Project File – Schedule of Deliverables

All projects, regardless of size or complexity, require a Master Project File. This file provides in one location a current and complete computerized record so that persons may easily retrieve information.

The file must be separated into two sections:

- ◆ Preliminary and Final Design
- ◆ Construction

All Master Project Files must contain at least the below-listed, categorized information. When construction of the project is complete, the Consultant must submit its Master Project File to Massport.

1. Design

- a. Record of all design changes
- b. All project correspondence in chronological order; on larger projects, separate correspondence by discipline or functional area, such as Meeting Minutes, submissions, telephone conversations, general correspondence, etc.
- c. Record of all Massport and other agencies' approvals
- d. Design calculations for each discipline submitted within 30 days after the Bid Documents are submitted
- e. Final Design Criteria
- f. Bid Phase Information:
 - ◆ Pre-Bid Conference Minutes

- ◆ Bid Tabulation (Listing of bidders and itemization of each bid)
- ◆ Bid Review, Recommendation, Award and Notice to Proceed

2. Construction

- a. A copy of the specifications, construction contract and itemized bid list
- b. Pre-construction conference and all job meeting minutes
- c. Change Order Proposals, Change Orders and the Change Order Log
- d. Telephone conversation summaries
- e. Daily Logs (including Resident's Diary and original reports covering the entire project, and the monthly construction progress report)
- f. Project Inspection Reports and related items
- g. Quantity Pay Book
- h. Shop drawings including a Shop Drawing Log, submissions and responses
- i. Testing Agency (Quality Assurance) Reports and Material Certifications
- j. Miscellaneous project correspondence
- k. Contract Deviation Reports
- l. Weekly Workforce Utilization Reports
- m. Certified Payroll Reports
- n. Payment Requisitions
- o. Project photographs
- p. Operations and Maintenance Manuals
- q. Certificate of Occupancy
- r. As-Built Record Drawings

3. Contract Documents

- a. Plans, original drawings, and specifications, including any addendum.

R. Providing Post-Construction Evaluation

The Agreement may require the Consultant to provide post-construction evaluation services. These services consist of a project inspection by all major A/E disciplines about ten months after the construction is completed. The inspection/visit would include:

- ◆ a project tour
- ◆ interviews with appropriate supervisory, operation and maintenance personnel
- ◆ analysis of operating costs and related data for evaluation of:
 1. the intent of the project versus actual use,
 2. the functional effectiveness of planned spaces,
 3. the operational effectiveness of systems and materials,
 4. the efficiency of the design and construction delivery process, and
 5. the operating condition of all guaranteed and warranted equipment and items.

S. Providing Feedback to Massport

Massport would sincerely appreciate any constructive feedback that the Consultant has about the way that Massport influenced the job at any stage. Massport has found lessons learned from Consultants to be most helpful and wants to listen and learn what measures it can take to further facilitate future jobs. Massport asks Consultants to kindly provide any helpful, constructive feedback to the Massport PM, the Director of Capital Programs and Logan Modernization or the Deputy Director for Construction and Engineering Services.