

UNIVERSITY of  
**HOUSTON**

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FACILITIES MANAGEMENT  
Project Delivery Program

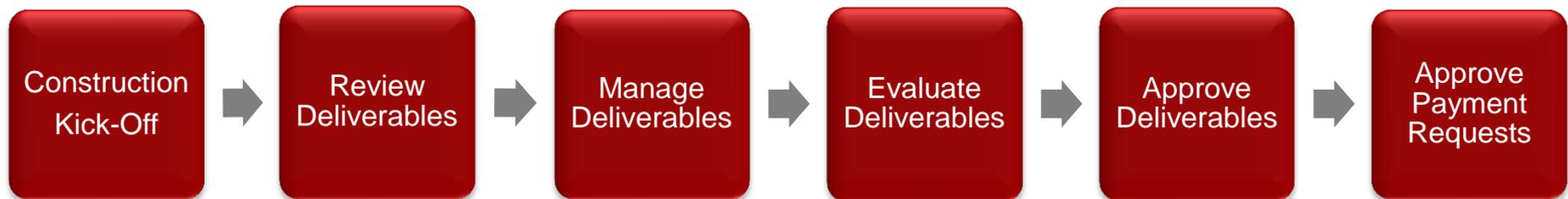
## **Manage Deliverables - Construction – Step 6**

July 12, 2012

# Project Management Concept

- Step 1: Needs Development
- Step 2: Scope Development
- Step 3: Procurement of Design Team
- Step 4: Design
- Step 5: Bid/Procurement of Contractor
- **Step 6: Construction**
- Step 7: Activation, Transition and Closeout
- Wrap-Up Summary
- Q & A

# Step 6: Managing Deliverables



The management of construction deliverables should be considered during the planning phase of most projects. As team members are assigned and roles are identified, the personnel responsible for delivering the construction phase of the project should, where appropriate, become involved in the planning process.

The following section and corresponding table identify the primary and secondary responsibilities of FM management staff during each phase of the project. It is important to note that each project is unique and team members should have flexibility to modify roles to best utilize skills and abilities.

# Step 6: Managing Deliverables

## **FM Project Manager**

The initial project planning effort should identify how the project management duties will be delivered throughout the project. The Project Manager is responsible for all project related items.

# Step 6: Managing Deliverables

## Construction Kick-Off (Pre-construction Meeting)

Also referred to as the Pre-Construction Meeting, this is a time for the Project Team to meet to review the project scope, review the work plan and define roles and responsibilities for all team members. Project site logistics are discussed, and safety and emergency processes are outlined. A standard [Pre-Construction Meeting Agenda](#) is available for use by the Project Manager.

Construction contractors must submit several items that were specified in the Notice to Proceed. The Schedule of Values must be submitted and approved prior to the first payment request.

# Step 6: Managing Deliverables

## Review Deliverables

A complete review of the project scope and drawings should occur to ensure proper understanding before construction begins. Often this occurs as part of the Construction Kick-Off Meeting. During this time FM staff must be familiar with and have reviewed the required deliverables of all other Project Team members, including the prime contractors, the A/E and CM. Items to review include but are not limited to:

- Contractor's scope of work and Schedule of Values
- Subcontractor and Material Suppliers
- Baseline construction schedule
- Review of any phasing or special user requests or requirements
- Progress meeting and coordination meeting schedule and attendees
- Issuance of required permits
- Review of AE/CM contracts and deliverables

# Step 6: Managing Deliverables

## Manage Deliverables

The prime contractors are responsible for the purchase of all components included in the CDs, unless specified as owner supplied/owner provided, coordinating their delivery and installation, and facilitating the inspection process to achieve building occupancy. It is the responsibility of the Project Manager to monitor and manage the performance of the contractors, A/E for adherence to university guidelines and processes. Items to be aware of and manage include but are not limited to:

- Monitor contractor performance of project safety requirements
- Participate in progress, coordination and Owner-Architect meetings
- Review and approve monthly pay applications
- Review monthly schedule updates
- Review status of As-Built drawings
- Coordinate special inspections and university required outages and permits
- Review and distribute shop drawings and submittals
- Review process for [Requests for Interpretation \(RFI\)](#) and [Change Orders](#)

During the construction phase it will be necessary to coordinate with other university entities that provide some type of service to the project or that will be affected by the construction, such as:

- FM Utilities for planned shut-offs(See [Outage Policy](#) and [Outage Form](#)), unforeseen damage to lines, tie-ins, etc.
- UIT for communication lines to the construction trailer, for final connections to the university network, etc.
- Technical Shops for shut-offs, contractor access to mechanical or electrical spaces, existing system information, etc.
- Lock Shop for contractor keys, for installation of final lock cores, etc.
- Landscaping and Grounds for consultation on tree protection, plantings, acceptance of lawns, etc.
- Parking and Transportation and Public Safety for road shut downs, special delivery coordination, contractor parking, etc.
- Programmed Maintenance, copy Archivist, to pick up Operation and Maintenance (O&M) manuals after project completion
- Building Coordinators to keep them informed of construction activities that will affect their building
- ADA Coordination to help assess accessibility issues encountered

Utility [Outage Policy](#) should be discussed and scheduled as soon as possible after the Notice to Proceed is issued. The request should be submitted at least 5 days prior to the anticipated outage date and the extent of outage depends on which utility is involved.

# Step 6: Managing Deliverables

## Evaluate Deliverables

Throughout the course of construction, the Project Manager, A/E, prime contractors and at least one Customer representative from the Project Team meet regularly (weekly, bi-weekly, etc.) to report on the construction activities, and to track submittal status, [RFIs](#), budget and schedule. This is also a time to resolve conflicts and contract document discrepancies. The Prime Contractor's Project Manager will set the agenda, lead the meetings and document the decisions and outcomes of the meetings. In addition to periodic project meetings, special meetings may be called to address particular situations, consider specific problems and develop unique solutions.

A critical function of the Project Manager during construction is to manage the scope of the project in an effective way. This includes continuous monitoring of the scope of the work being performed in accordance with the contract documents and requirements. The Project manager should use the tools included and referenced in this Project Delivery Manual, as well as the expertise of other FM personnel to manage the process.

Once work is 80% complete, contractor must arrange for inspections of the work with the appropriate University entity. Upon completion of all inspections, the Fire Marshall will issue a Certificate of Occupancy or written verification of acceptance. The Project Manager should keep a copy of this within the project file.

# Step 6: Managing Deliverables

## Project Controls and Managing Change

Scope creep can be defined as the slow, continuous growth of a project beyond its original work contents and objectives. Several indicators put up red flags when scope starts to creep. But because these same red flags can also be indicative of other problems in the project, take care when reaching a conclusion as to the root cause of a particular condition. One of the key indicators is, of course, project timing. When timing starts to slip for no identifiable reason, growth in the scope of the program should be suspected. Similarly, if the project budget starts to overrun, without other identified reasons, the Project Manager should determine if more work is being done than was originally agreed to and budgeted.

Keeping control of a project involves carefully managing the work plan to keep it moving forward smoothly, including budget, schedule, costs, and status. Effective management allows Project Managers to gather information so that measurements and adjustments can be made to protect progress so that the project's goals can be accomplished. Project controls enable Project Managers to communicate project progress and changes to team members, management, customers and stakeholders, and gives Project Managers the justification for making any adjustments to the plan. It also enables Project Managers to measure current progress against the original work plan.

Once the execution of the project begins, potential changes to the project need to be managed. Ideally, changes that develop in the project should be recognized and acted upon in a proactive manner rather than waiting for them to happen and then reacting to them. During many projects, changes are not recognized because of the focus on completing the tasks at hand.

# Step 6: Managing Deliverables

## Project Controls and Managing Change cont.

### *Schedule Impacts*

Delays in completing a project are often the culmination of a number of events. The Project Manager must work with the A/E and/or contractors to monitor the schedule closely and work to resolve issues in a timely manner.

Delays can be caused by the owner, the contractors or other situations. If there are concurrent delays, one for which the owner is responsible and one for which the contractor is responsible, no damages are pursued or awarded. Time extensions may be granted to contractors with no monetary compensation, such as in the case of delays due to severe weather or other situations where the contractor is not responsible. Such time extensions are approved as a [Change Orders](#). **PM will reference the contract for detailed information concerning delays.**

The acceleration of work is the act of requiring work to be performed prior to the approved schedule to accommodate or reflect delays beyond the control and through no fault of the contractor (i.e. severe weather). The contractor may request a [Change Order](#) for acceleration. All schedule modifications, including acceleration, must be reviewed and approved by the PM prior to execution of change.

When considering a change the A/E or Project Manager will determine the cost or impact the changes may have on a project. The A/E or Project Manager will recommend justifiable changes to the customer and will include a cost estimate.

# Step 6: Managing Deliverables

## Project Controls And Managing Change cont.

Several options for the basis of a [change order](#) are available and explained below:

**Error/Omission**: A change caused by an error on the contract documents or missing scope or omission that was intended to be included in the contract documents or should have been included within the “standard of care” of the profession. This could be missing scope in the document even though it may have been included on the technical specifications or drawings.

**Field Resolution**: This is most often associated with disputes between contractors or between a contractor and the university. It could be used to redistribute funds when a contractor affects the work of another or the project requires supplementing the work of a contractor.

**Value Engineering**: Reducing scope in order to reduce the cost of the project. Some contracts may actually increase while others decrease but the overall cost of the project is reduced.

**Differing Condition**: This refers to a condition that would not have been anticipated by the A/E or Contractor within the “standard of care” of the profession. This is more often in a renovation where existing conditions could not be predicted.

**Other**: Conditions that do not fit the other definitions.

Customers may also request additional work. Additional funds and Certifying Authority approval for User Requested Change Orders must be provided prior to execution.

### ***Project Budget Increases***

If changes to the project budget result in an increase, the increased project budget must be approved by the appropriate parties.

# Step 6: Managing Deliverables

## Approve Deliverables

Throughout construction the A/E and Project Manager will review and approve a number of contractor deliverables. Some of these items include but are not limited to:

- Identify work that does not conform to the contract documents and implement corrective actions.
- Review and approve monthly pay applications
- Review monthly schedule updates and endorsements
- Review and distribute record documents and Operation & Maintenance (O&M) Manuals
- Document completion of the contractor's punch list

Ultimately, it is the responsibility of the PPM or equivalent to effectively use the expertise and experience of internal management staff in a way that provides continuity to the project while allowing day-to-day control of the project to be delegated.

If the procedures outlined in previous sections are followed, it can be expected that the management of the construction phase of FM projects will be completed by informed team members. These team members will possess the necessary tools and information to contribute to the success of the project.

# Step 6: Managing Deliverables

## Approve Payment Requests

Contractor payments are submitted monthly and should be reviewed and approved accordingly. Payment Requests are first submitted to Business Services via mail or to [poinvoic@central.uh.edu](mailto:poinvoic@central.uh.edu). Business Services will email all pay applications and invoices to the Project manager for review and approval. Timely approval of payment requests is important. All invoices should be submitted with the following information:

- Contract Number
- Project Number
- Project Name
- Project Manager
- HUB Subcontracting Plan

If the Project Manager does not approve the invoice for any reason, the PM will initiate the [Invoice Return Transmittal](#). The PM will send a copy of this transmittal to the Contractor and Business Services. The Contractor will resolve the issues with the pay application or invoice and submit a corrected copy. The corrected copy must note all the information above and be titled with the verbiage “CORRECTION”.

# Step 6: Managing Deliverables

It is the responsibility of the A/E or PM to verify the following information on payment requests: the percent complete per line item is acceptable (including change orders), stored material (may require a visit to the storage location), and retainage in accordance with the General Conditions.

*The Financial Coordinator is responsible for verifying the following information:*

The Schedule of Values is approved prior to the first payment request being processed.

- Invoices for new stored material being billed have been received
- Material stored does not exceed the total line item amount of the Schedule of Values, including the percent of material billed to date
- A/E and Project Manager signatures have been received
- Retainage is calculated correctly

The Project Manager will review the payment requests for critical items for the percent complete to date and accuracy.

# Step 6: Managing Deliverables

**Questions / Discussion**