

**Operations & Operations & Facilities Management Department**

**Project Delivery Manual for the In-House Renovation & Fabrication Team**

**Revised 10/2/19**

Contents

[Introduction 4](#_Toc520206329)

[Operations & Facilities Management (OFMD) Organization Overview 6](#_Toc520206332)

[Project Delivery Process 10](#_Toc520206337)

[Step 1: Needs Development 10](#_Toc520206338)

[Step 2: Scope Development 10](#_Toc520206339)

[Step 3: Selection of Design Team (AS APPLICable) 10](#_Toc520206340)

[Step 4: Design Phase (as applicable) 10](#_Toc520206341)

[Step 5: mobilization, fabrication and/or Selection of Contractor 11](#_Toc520206342)

[Step 6: Construction/fabrication Phase 11](#_Toc520206343)

[Step 7: Transition, Activation and Closeout 11](#_Toc520206344)

[Step 1: Needs Development 11](#_Toc520206345)

[Step 2: scope development 14](#_Toc520206349)

[Step 3: Selection of design team (as applicable) 16](#_Toc520206355)

[Step 4: Design Phase 17](#_Toc520206356)

[Step 5: Selection of Contractor 23](#_Toc520206367)

[Step 6: Construction PHASE 25](#_Toc520206372)

[Step 7: Activation, transition and closeout 32](#_Toc520206387)

[APPENDIX 1: Project Acronyms 39](#_Toc520206401)

[APPENDIX 2: Project Definitions 41](#_Toc520206402)

# Introduction

## Purpose of the Manual

The goal of the abbreviated Project Delivery Manual (PDM) for small projects is to improve understanding and communication among all stakeholders by clearly identifying the roles and responsibilities of the various team members, as well as the processes and controls expected at each phase of the project.

This manual serves as a guide of the key processes, procedures, tasks, and tools involved in initiating, managing and completing a facilities improvement project at Washington University School of Medicine (WUSM). There are embedded links throughout this document that will allow the customer and PM to link directly to tools, information and guidelines and the links provided should be utilized at all times to ensure the most current and up to date information is utilized.

The PDM will assist in educating new Operations & Facilities Management Department (OFMD) staff and serve as a day-to-day reference for OFMD personnel. It is also designed to facilitate communication with internal and external stakeholders interested in understanding OFMD’s processes for the design and construction of their projects. The PDM will be reviewed annually, and revised to address the evolving needs, processes and policy of the University.

Processes presented in this manual are a guide but variances in the sequence of activities may be required due to unique project circumstances.

The process for updating the manual and its corresponding documents can be found in the [Project Delivery Manual & Documents Guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2018/03/Project-Delivery-Manual-Documents-Guidelines.pdf). For any changes to a document, please refer to the [Document Change Form](https://facilities.med.wustl.edu/wp-content/uploads/2018/03/Project-Delivery-Documentation-Change-Form.doc).

## Overview of the Manual

The first section of the PDM describes the Project Delivery Process and the steps of each project phase.

Each phase of project delivery involves tools, tasks, and deliverables that ensure the project is on track with the overall goals, budget, and schedule. The project phases are as follows:

 **Step 1: Needs Development**

1. Project Intake
2. Project Assignment

**Step 2: Scope Development**

1. Programming/Scope Development
2. Project Funding

**Step 3: Selection of Design Team (as applicable)**

1. Consultant Selection/Contracting
2. Request for Proposal
3. Direct Select

**Step 4: Design Phase (as applicable)**

1. Schematic Design
2. Design Development
3. Construction Documents

**Step 5: Mobilization, Fabrication and/or Selection of Contractor (as applicable)**

1. Bidding and Award
2. Owner Provided Services
3. Informal Bids (3 Bid Process)

**Step 6: Construction/Fabrication Phase**

1. Construction/Fabrication

**Step 7: Transition, Activation and Closeout**

1. Project Transition
2. Warranty
3. Project Close-out
4. Administrative Close-out
5. Financial Close-out

# Operations & Facilities Management (OFMD) Organization Overview

OFMD is an integrated support unit within the School of Medicine and the Office of Administration and Finance, and supports WUSM’s mission of teaching, research and patient care by providing business support services, renovations, infrastructure support and facility maintenance and support services. OFMD strives to provide the best possible physical environment for students, faculty and staff.

## [Mission and Vision](http://facilities.med.wustl.edu/about/mission-and-core-values/)

OFMD supports WUSM’s teaching, research and patient care facilities while providing responsible stewardship for the long-term preservation of the University’s physical assets. Our staff strives to deliver high quality service to the University community while remaining cost effective and competitive.

## The [Operations & Facilities Management Department](http://facilities.med.wustl.edu/) & [Services](http://facilities.med.wustl.edu/a-z-list-of-services/) that supPORt projects as well as maintain THE SCHOOL’S physical Environment.

<http://facilities.med.wustl.edu/guide-to-facilities-management/>

* 1. [**Business Operations**](http://facilities.med.wustl.edu/about/organizational-structure/) supports financial, purchasing and contracting needs for the Operations & Facilities Management Department. Manages OFMD financial planning including project accounting, budgeting, billing, technology and information management in support of OFMD and all School of Medicine operations.
	2. [**Facilities Operations**](http://facilities.med.wustl.edu/about/organizational-structure/)
		1. **Custodial Services** provides cleaning services, including floors, restrooms, public and private space.
		2. **Engineering and Maintenance Services** operates, repairs, and maintains the Physical Plants’ MEP and fire protection systems to ensure reliable and efficient facilities. This group also performs fleet, lock and key and management of emergency recovery services.
		3. **Energy/Infrastructure and Capital Renewal** manages and implementsthe Capital Renewal Plan, Long Range Utility Plan and efficiently operates central utilities and the utilities infrastructure for the School of Medicine.
	3. [**Capital Projects**](http://facilities.med.wustl.edu/about/organizational-structure/) manages renovation and construction projects for the School of Medicine, which include repair, renewal and new construction.
		1. **In-House Renovation and Fabrication Group** provides cost effective, efficient and quality services that include small renovation and technical trades, fabrication, modification, design, and technical services. On average, these projects are under $25,000. Any projects performed by this group over $25,000 are competitively bid even if self-performed.
	4. [**Physical Planning**](http://facilities.med.wustl.edu/about/organizational-structure/) manages space intake, space utilization, space information and all physical planning activities for the School of Medicine.
	5. [**Central Operations & Services**](http://facilities.med.wustl.edu/about/organizational-structure/)manages mail, shipping and receiving, grounds and pest control, parking and transportation, locks and keys as well as access control.
		1. Grounds provide a safe and beautified campus environment by maintaining the grounds, sidewalks, streets and lighting around the campus.
		2. Pest Control Services are conducted through a professional extermination company, providing pest control to interior and exterior facilities on campus.
	6. [**Protective Services**](http://facilities.med.wustl.edu/about/organizational-structure/)ensures campus safety, security, emergency planning and business continuity for the campus as well as serves as a critical partner for other Washington University Medical Campus (WUMC) partners.
	7. [**Education & Campus Support Services**](http://facilities.med.wustl.edu/about/organizational-structure/) manages all shared spaces at Washington University School of Medicine. The program also manages services for those shared spaces, as well as certain auxiliary services on campus like retail and dining. The goals of this program include effective utilization, quality program support, sound financial management and physical stewardship. The program and core services will support the campus core mission of education, clinical care and innovative research.

d. [**Administration Services**](http://facilities.med.wustl.edu/about/organizational-structure/) manages OFMD program support including, Lactation Room Program, OFMD Recognition and Community Outreach, as well as support of university wide committees and business planning and other related support services.

## PM as Leader

The title “Technician/Project Manager (PM)”, while emphasizing the importance of overseeing and monitoring a project, can cause one to overlook other leadership skills needed to successfully lead a project to completion. There are six major responsibilities associated with the roles of manager and leader. A [PM](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Job-Description2.pdf) has leadership and management obligations that are integral to the project performance as well as their individual performance.

**1. Focus on the Customer and University Stewardship Role**All projects begin and end with the customer, School and the University in mind. It is the duty of the PM to understand the needs and expectations of the customer; to develop the project vision and gain endorsement of it; to plan for customer involvement, communication and service; and to maintain a meaningful dialogue with the customer during the project. These needs at all times must be balanced with the stewardship of the University and Medical School and the PM must remain a neutral party in delivering services to ensure both customer satisfaction and proper university/school stewardship.

**2. Create the Project Scope**

The project scope is the understanding of what the project will accomplish as its end result. Having a project scope is crucial to effective leadership and management of any project. In creating the scope, the PM is responsible for planning a route to project completion based on customer needs and expectations; articulating the scope with enthusiasm; and modifying the vision and strategy as needed (but it must not be continually modified since it is the foundation of the customer’s needs and expectations).

**3. Build and Maintain the Project Team**

A strong team is vital to the success of any project. The PM is responsible for helping the Project Team members become an effective working unit. The Project Team includes all the people involved in the successful delivery of the project. This team is led by the PM and may include consultants, A/E, contractors and other stakeholders necessary for project implementation Leadership of the Project Team involves preserving, protecting, and improving the productive capability of people, the most valuable resource available to the PM. Keys to building and maintaining an effective Project Team include open communications; attending to individual needs; clearly defining roles and responsibilities; and rewarding and recognizing team members.

**4. Plan the Project**

Once the scope has been defined, agreed upon, and the Project Team formed, focus shifts to planning the project for achieving the goals of the project. The duties of the PM include developing a work plan in which the customer’s scope and definition of the project coincide; involving the appropriate teams, customer and others in endorsing the work plan; and ensuring that all components of the work plan support project delivery and remain aligned with the vision.

**5. Managing Resources**

Once a project has launched, managing resources becomes a major focus of the PM; that is, keeping a clear grasp of where the project is, compared to where it should be, at any moment. The duties of the PM as it relates to managing resources includes preparing a realistic budget with sufficient contingencies that is endorsed by the Project Team and customer; preparing a reasonable, flexible schedule that meets the customer’s needs; preparing accurate assessments of progress; and maintaining accurate and comprehensive project records.

**6. Ensuring Quality**

Ensuring quality is a leadership responsibility of the PM and cannot be delegated. The PM must establish appropriate definitions of quality for the project. In order to achieve high quality, the PM must commit time to assess quality issues with the team. A PM can ensure a high-quality project by emphasizing quality management to team members and by setting an example.

## Building Customer AND STAKEHOLDER Relationships

A “customer” is a person or organization that is the primary user of the end product or service. A “stakeholder” is a person or organization that has a stake or interest in the project. The “executive stakeholder” is a person or a group of people that have the final contractual or project cost approval authority.

At the core of a successful project delivery process is a satisfied customer and satisfied stakeholders. The foundation of satisfied customers and stakeholders is the development of a strong, service-focused relationship. It is important to remember that the University is also a stakeholder, and that PMs must balance the needs of the University with the needs of the project user and/or customer. A WUSM [Project Delivery Guide](http://issuu.com/michellegubin/docs/project_delivery_guide_e7699544d4bdc8) and [Facilities Service Guide](http://facilities.med.wustl.edu/guide-to-facilities-management/) are available to all WUSM customers and stakeholders and should be provided to all participants of the initial scoping meeting.

Successful customer relationships hinge on starting out right. It is critical to know your customers and stakeholders, to be prepared, and to communicate effectively. A PM must work to build commitment and trust with their project team.

The [organizational structure of OFMD’s PM Teams](http://facilities.med.wustl.edu/about/organizational-structure/) is designed to ensure customer focus, leadership commitment, and a collaborative team environment that fosters interdependent participation.

Additional keys to successful project delivery may include:

* Well-developed and endorsed project work plan (scope, schedule, budget)
* Project tools (templates, budgets)
* Performance measures and metrics
* Project chartering and project contact list at the start of the project
* Continual and consistent contact - It is necessary for the PM to continuously keep all of the project stakeholders informed with the project status and progress. The stakeholders include customers, executive leadership, project team, etc. The message and information shared with the stakeholders needs to be ongoing and consistent to avoid any misunderstandings and miscommunications.
* Meeting minutes required, including appropriate and timely distribution (formal or informal but should be documented and dated)
* Establish and meet your major milestones – if, for any reason, you cannot meet the milestones, communicate and discuss your project recovery plan internally with your Assistant Director, Director and/or AVC/AD after which you would discuss and update your customer.

The benefits of a well-developed project delivery process are satisfied customers who receive high-quality projects that routinely meet expectations, costs, and schedule goals; and a consistent customer focus that is adaptable to ever-changing demands and challenges.

# Project Delivery Process

A project is defined as “a temporary endeavor undertaken to create a unique product, service or outcome that has a beginning, requires substantial coordination and effort to accomplish, and has an end.” We have identified seven steps in a project process.

The intent of the project delivery process is to provide a roadmap that will enable successful cost, schedule and quality performance on all WUSM projects. The process has been designed to provide a balanced, systematic approach to planning and delivering facilities improvement projects as well as to incorporate project management best practices.

## Step 1: Needs Development

There are six ways to initiate a project with OFMD: the [Project and Planning Request Form](https://collaboration.wustl.edu/depts/WUSMSpaceRequest/_layouts/15/FormServer.aspx?XsnLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough/Forms/template.xsn&OpenIn=browser&SaveLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough&Source=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough), a Capital Renewal Request, the Capital Planning Process or calling in a minor project request to the Facilities Integrated Service Center or using the Online Work Request in [ServiceNow](http://wusm.service-now.com/selfservice/category.do?sysparm_document_key=sc_category,3a1d4e074f441a00fbfa798e0210c7e6) (OFMD’s Work Management System) or as required by emergencies. Based on the request, the project will be assigned to the appropriate service area. The “Needs Development” step in the project delivery process refers to when a project is assigned to a PM in OFMD and/or initiated by OFMD.

## Step 2: Scope Development

The focus of this step is developing the initial project scope. This phase includes developing the project definition and scope, establishing the Project Team, defining project objectives and requirements, communications, impacts and roles and responsibilities and project set-up in OFMD. At the end of this step, the project will have received all customer approvals and funding authorizations.

## Step 3: Selection of Design Team (AS APPLICable)

This phase includes procuring the design, engineering and/or professional services required for successful project design delivery. The two primary methods of procuring these services are through the Continuing Services Agreement (CSA) process and the University’s selection process. This could also mean using in-house resources for fabrication, design and/or engineering work.

## Step 4: Design Phase (as applicable)

Effectively managing the design deliverables of a project is a critical role of the PM. This entails continuously monitoring the scope of work being designed and comparing it to the scope of work planned and budgeted. The PM proactively ensures the project meets expectations within the defined constraints, including delivering a project on time and on budget. As a result of managing deliverables, change may be deemed necessary. All designs should be initially reviewed by visiting the [design standards link](https://facilities.med.wustl.edu/planning-construction/design-standards/). Final plans should also be reviewed with the OFMD interior senior planner, engineering and mechanical services prior to plan implementation. A clear scope of work is required from each professional service contractor with clear level of effort; milestones and costs outlined so that all parties understand and can validate all deliverables at the start of the project, as well as align needed resources to the outlined work plan and project scope.

## Step 5: mobilization, fabrication and/or Selection of Contractor

This phase includes procuring or mobilizing the construction products and services required for successful project delivery. Methods of contractor selection include Informal Competitive Bidding or Continuing Services. This phase also includes the procurement or delivery of required services.

## Step 6: Construction/fabrication Phase

As in managing design deliverables, it is critical to continually monitor the work being constructed or fabricated. This entails continuously communicating and monitoring the scope of work being constructed or fabricated and comparing it to the scope of work that was approved. The PM proactively ensures the project meets expectations within the defined constraints, including delivering a project “on time and on budget.” Inspections of work should take place throughout this phase.

As a result of managing deliverables, change may be deemed necessary. Developing appropriate guidelines and processes for addressing change is crucial to a successful project. Changes in budget and schedule can occur during the life of the project for various reasons. For managing expectations of all the stakeholders, it is necessary to have an ongoing communication with the stakeholders and necessary subsequent reviews and approvals from the audience to avoid any surprises later and to assure project success.

## Step 7: Transition, Activation and Closeout

Project transition, activation and close-out captures the final phase of the project completion and includes construction punch lists, customer transitions, building systems and services activation, systems training, administrative (collection of product warranties and all other project documents, as applicable), financial and contracts closeout and collecting project evaluations and assessments.

# Step 1: Needs Development

## project intake

All Operations & Facilities Management Department projects can begin in one of the following ways:

* [Online Work Request (OWR)](https://wusm.service-now.com/myLogin.do)
* Customer requests via phone or email (Facilities Integrated Service Center) – 314-362-3100 or wusmfacilities@wusm.wustl.edu
* [Planning and Project Request Form](https://collaboration.wustl.edu/depts/WUSMSpaceRequest/_layouts/15/FormServer.aspx?XsnLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough/Forms/template.xsn&OpenIn=browser&SaveLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough&Source=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough)
* [Capital Renewal Request](https://collaboration.wustl.edu/depts/WUSMSpaceRequest/_layouts/15/FormServer.aspx?XsnLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough/Forms/template.xsn&OpenIn=browser&SaveLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough&Source=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough)
* Emergencies
* Capital Planning Process

**online work request form or customer call in – Project intake process**

The [online work request form](https://wusm.service-now.com/myLogin.do) is used to request several different services provided by OFMD including: renovation, serviceable and billable work.

* If the online form is completed by the requestor, an initial review is completed by the FISC and the work order is assigned to the appropriate service area.
* Work requests can also be called into the Facilities Integrated Service Center where the customer may be assisted with filling out the form by a customer service representative. An automated response acknowledging receipt is delivered immediately via e-mail. Once a bid is created, the customer will receive an automated second email asking for approval on the bid. The service area makes contact with the customer within 2 business days and typically, a meeting is established to review the service request.
* Once the scope is developed, the PM will enter and send the scope and estimate through ServiceNow or e-mail for appropriate department approvals.
* If requests are called in directly to a shop, a work order may be entered by the PM on behalf of the customer.
* If estimates are emailed for customer review, they should be attached to the electronic work order for the project record.
* Once all department approvals have been received, the PM is notified that the request is ready for processing.
* For planning/project related work requests, the PM is always responsible for following up to ensure work completion.

**Planning and project request form**

The [Planning and Project Request Form](https://collaboration.wustl.edu/depts/WUSMSpaceRequest/_layouts/15/FormServer.aspx?XsnLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough/Forms/template.xsn&OpenIn=browser&SaveLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough&Source=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough) is an online intake form available to customers. This form should be filled out and authorized by the business manager of the department prior to the assignment. An automated response acknowledging receipt is delivered immediately and within 2 business days, a PM will contact the requestor and copy the business manager to validate the request. The PM will make contact with the customer to schedule an initial scope development meeting within a reasonable time frame.

**Capital Renewal request**

There is a five year rolling Capital Renewal Plan called the Repair and Renewal Plan (R&R). This plan is managed by OFMD and is updated annually. All requests are reviewed and prioritized, based on life safety, business impact/continuity and energy management. Within 2 business days, OFMD will contact the requestor to validate the request and discuss the next steps in the review process. Please note R&R funds are limited and projects not approved may be carried over for future consideration and reviewed annually for prioritization. Projects can be initiated through the [Planning and Project Request Form.](https://collaboration.wustl.edu/depts/WUSMSpaceRequest/_layouts/15/FormServer.aspx?XsnLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough/Forms/template.xsn&OpenIn=browser&SaveLocation=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough&Source=https://collaboration.wustl.edu/depts/WUSMSpaceRequest/WUSMSpaceRequestPassThrough)

**Emergencies**

Requests identified as emergencies (see the [Operational Contract Project Management](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Operational-Contract-Project-Management.pdf)) will be escalated and managed according to level of impact. Wherever possible, the PM will follow the applicable recovery process, including University policies. The University has contracted with Woodard Restoration as an emergency response and restoration vendor. The PM is required to both utilize and follow all policies and practices applicable to this contract and emergency management protocol outlined.

**capital planning process**

There is a monthly Pre-Agenda Meeting that the PM utilizes to submit project requests for review and vetting. These requests should be submitted to the Assistant Director of Facilities Engineering, Director of Capital Projects and the Capital Projects Fiscal Administrator for review and authorization to proceed and to determine funding options, scope validation and schedule. At the monthly Executive Capital Meeting, all requests over $15,000 are reviewed and sent on for additional approvals, if needed, based on the funding amount. This committee is made up of the Assistant Vice Chancellor/Assistant Dean of Finance, the Associate Vice Chancellor/Associate Dean of Administration and Finance, the Assistant Vice Chancellor/Assistant Dean of Operations & Facilities Management, the Senior Director of Facilities Operations, the Director of Capital Projects, Capital Planner and the Capital Projects Fiscal Administrator.

## Records Management

Project records, whether electronic or hardcopy, are important records of the work performed by OFMD. Project documents must be organized for quick and easy access. It is critical that these records are complete, thorough, documented, and retrievable. A standardized [Records Management Process](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Records-Management-Guidelines4.pdf) has been developed to assist in filing both hard and electronic project documents. Project records are the responsibility of the assigned PM.

A record is any document, device, or item, regardless of physical form or characteristic, created or received, that serves to provide evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the project.

Some examples of project records are the contracts, change orders, meeting minutes, e-mails with directives, payment request, invoices, etc.

A non-record is any document, device, or item, regardless of physical form or characteristic, created or received, that **DOES NOT** serve to document the organization, functions, policies, decisions, procedures, operations, or other activities of the project.

Some examples of non-records are preliminary drafts (when superseded), simple transactional communications, “personal copy,” “extra copy,” etc. Please refer to the [email etiquette guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2018/03/E-Mail-Etiquette-Guidelines.pdf) to ensure you understand the proper way to respond to correspondence as well as the rules related to public information.

All records created will be complete, objective, and reflective of concerns for safety, ethics, and compliance with university policy, proper business practices, and the law. Ambiguous language, exaggerations, subjective comments, and other remarks that can be misinterpreted should be avoided. Creating personal template tools or forms is not allowed without written authorization from OFMD Senior Leadership.

Each PM should be proficient with the file structure and their responsibilities as they relate to hardcopy and electronic file management of the project.

Using the standard project file structure will:

* Maintain consistency across projects
* Reduce workload by offering a readymade and standardized template
* Ease the alignment of electronic file and hardcopy file structure

It is important that all PMs and Business Operations are familiar with OFMD’s [Records Management Process](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Records-Management-Guidelines4.pdf) and the standard filing structure, to ensure consistency in the management of project files. The guidelines address both hard copy and electronic files. Random sampling of project files will occur by the Assistant Director of Facilities Engineering or Records Management Coordinator to ensure file and records management compliance with policy. Maintaining accurate files will be part of each PMs annual performance evaluation.

## Business operations

Project identifiers are created at this stage or have been provided by a ServiceNow Requested Item (RITM). Project identifiers include the following:

* If capital project, funding is requested through the project committee process and a project number is requested. The project number is created by the Records Coordinator (check title) who also enters the project details (other than budget) into PMWeb.
* If project request is received through a service work order, an RITM is the project identifier.
	+ A bid is required for tickets submitted by general customers. Once a bid is received by customer via email, he/she has the option to do five things with a bid request:
		- Accept the bid request
		- Do not accept the bid request
		- Reject the bid request with renegotiation
		- Proceed without bid
		- Cancel the project
	+ If a bid is not requested, an FTASK will be generated. This option is only available if the ticket is submitted by the FISC or OFMD staff.
	+ There may be multiple FTASKs established under the RITM to allow for billing throughout the life of the project.
* If project request is received from a non-University customer, the Project Manager will enter an RITM into ServiceNow and that number will be used as the project identifier.
* If the customer request was received as an FMR but is determined to be a project, the PM should close the FMR and reenter an RITM.

# Step 2: scope development

## Customer Contact

PM will validate space ownership and type with Space Intake Coordinator to ensure space being requested for renovation has been assigned to the department requesting renovation. In addition, if a change of use or type of space is requested, a review of work needs to occur with the Space Committee prior to initiating design or space change. The PM should have an understanding of the floor and programs on which the space resides and it should be in context with the building function.

The PM or assigned service area will make follow up contact with the customer to begin the process of defining the project utilizing the [Limited Scope Agreement](https://facilities.med.wustl.edu/wp-content/uploads/2018/06/Limited-Scope-Agreement.docx). The Limited Scope Agreement should have the appropriate level of detail so subsequent activities can be completed. The PM should request a list of stakeholders from the client to gain an early understanding of the project team. For research or animal projects, validate any start-up components that have been discussed with the Associate Vice Chancellor of Research. Start-up components will need to be validated and attached as an addendum to the Limited Scope Agreement. Once completed, the Limited Scope Agreement needs to be endorsed by the customer. This document should be filed according to the Records Management Guidelines. A [generic agenda](https://facilities.med.wustl.edu/wp-content/uploads/2018/04/Agenda-Generic.doc) may be used for meetings during the project delivery process.

##  Project Endorsement

1. After confirming the project scope with the customer, the PM needs to review and identify MEPFP scope additions by reviewing the [Facilities Operation’s Building Condition Assessment plan](file:///G%3A%5CShared%5CD%26C%20%2B%20FO%20DOCUMENTS%5CFacilities%20Conditions%20Assessments) and collaborating with the Assistant Director of Facilities Engineering. After the full scope is confirmed, the PM is equipped to begin the project estimate. For non-capital projects, each unit should use their own estimate form. The estimate will be integrated into the Limited Scope Agreement with the project information, the executive summary, and scope of work, schedule and signatory lines. The budget will be presented to the customer once approved internally. A limited scope agreement should be completed for all projects.
2. For capital projects, a detailed project budget is required using the [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) and is prepared and reviewed internally with the Assistant Director of Facilities Engineering. The customer will also be billed according to the [Project Management Fee Guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2018/04/Project-Management-Fees-Guidelines.pdf) for capital projects and minor projects over $15,000. For projects under $15,000, time and material will be charged, including administrative time.

1. The [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) is used for capital projects and is the first step in establishing the total cost of the project and is provided along with a preliminary project schedule based on the customer’s critical delivery date. For minor projects, individual units will use their own estimate forms for the cost estimate.
2. A preliminary project schedule that meets the customers’ needs should be prepared and should identify key milestones. For capital projects, when preparing the schedule, attention must be paid to approval meeting dates (current fiscal year project and [Project & Sole Source Approval levels](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Sole-Source-Approval-Levels.pdf) and meeting dates), review time, desired delivery date, and construction periods. A [conceptual project schedule tool](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Conceptual-Project-Schedule-Tool.xls) that includes most major project steps and milestones of a project is available to PMs. This schedule should be incorporated into the Limited Scope Agreement.

## Confirm Funding

For capital projects, after approval by the project’s committee, the Fiscal Administrator (FA) creates a project number and notifies the PM of the approval and project number, at which time the project may proceed.

After final approval, Project Accounting will then create a journal entry to transfer actual funding from the approved sources into the project fund. After the project is fully funded, the FA will email the relevant stakeholders, including the PM.

For non-capital projects, when the Limited Scope Agreement is approved and returned by the customer, the PM, as applicable, will create or update the RITM. The PM will enter the department number and billing name. Then, the PM will scan it and attach it to the RITM.

## Programming/Scope Development

While not all projects have full programs, all projects should have a [Limited Scope Agreement](https://facilities.med.wustl.edu/wp-content/uploads/2018/06/Limited-Scope-Agreement.docx), which also serves as the project estimate.

All projects with multiple components that cross areas of responsibility will require a charter. A charter can be informal but should be written with clearly outlined roles, responsibilities, schedule, budget and scope.

Projects of significant size and complexity should have the program/scope prepared by either the A/E or a programming consultant. If the services of an A/E or consultant are required, the PM should proceed to Design Team/Professional Services Selection Process.

The scope development process begins with an initial customer contact and the process continues until the final scope is approved by the customer. Once the scope is approved by the customer, depending on size (over $15,000), it should be forwarded to the Assistant Director of Facilities Engineering for the next step in the approval process. Scope complexity may also initiate a review by the Assistant Director of Engineering.

## Prepare for next phase

Before moving on to the next phase, the PM will ensure that a Limited Scope Agreement has been signed and that funding has been approved by the customer.

# Step 3: selection of design team (as applicable)

If an RFP is needed for In-House Construction & Fabrication, follow the RFP guidelines in the Capital Projects [Project Delivery Manual](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/).

# Step 4: Design Phase

## Design and Project Kick-Off Meeting

Examples of small projects or fabrication efforts completed or managed by the IHRFT include:

* Electrical
* Plumbing
* Mechanical
* Fire protection & fire alarms
* IT, A/V or telephony
* General renovation
* Painting
* Flooring
* Fabrication
* FF&E
* Restoration (recovery from emergencies)

If applicable to the project with the selection of the A/E and CM, the Project Team will gather to kick-off the design phases of the project which include Scope Development/Program Verification; Schematic Design; Design Development; and Construction Documents. The purpose of the limited scope agreement is to review and gain endorsement of the work plan established

The ability of a PM to conduct effective meetings is a key element for successful projects. Two tools that are helpful in conducting effective meetings are a clear meeting agenda and meeting minutes that accurately reflect the content of the meeting.

1. The [Project Kick-Off Agenda](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Kick-Off-Agenda.doc) will be prepared in advance and distributed to the participants. One of the first steps in any meeting should be to confirm the agenda, and modify it if necessary in advance of the meeting.
2. The second essential part of proper meeting management is good minutes. Meetings need to be documented, even when actions do not result from the meeting. When actions do result from the meeting, minutes are a way of documenting, communicating, and confirming those actions with the corresponding team member responsible for those actions. If a consulting firm is engaged, the firm should take the meeting minutes. The PM is ultimately responsible for creation and distribution of minutes regardless of delegation. This should be done within three (3) days of each meeting, including distribution. PMs/Consultants should utilize the [Meeting Minutes Template](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Meeting-Minutes-Template2.doc)to perform this step. Meeting minutes should include a list of attendees, the major discussion points, conclusions, and action items. It is not necessary to document the entire content of all the discussion, just the resolutions and the action items.
3. To prepare for the project kick-off meeting, the PM looks at all project work plan elements and develops an agenda in advance to be used during the meeting. The PM typically reviews the work plan contents to understand all actions that have been completed during these processes and the potential actions that are pending.
4. During the kick-off meeting, the PM discusses the details pertaining to the work that needs to be accomplished. The PM shares the pertinent information and then answers questions from the Project Team members.
5. Below is a list of potential topics to be addressed during a kick-off meeting. Depending on the nature of the project, some topics may or may not apply. The PM will use discretion in the selection of the topics considered pertinent based on the kick-off meeting objectives.
* Project Scope/Deliverables, Budget and Schedule – Reference limited scope agreement or PMPOR
* Project Site(s)/Logistics - The PM will use a floor plan or drawing including exterior to identify the location(s) associated with the project, with the intention of providing the context in which the project takes place and properly planning for logistics. For the project participants with a need to visit the project site(s), some details regarding site visit protocols will be incorporated into the discussion.
* Project Organization - During the kick off meeting (as applicable), the PM will review the Project Team roles and responsibilities to accomplish the project objectives. This includes a review of the draft [PMPOR](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Program-of-Requirements-PMPOR.doc), as applicable.
* Project Reporting/Document Control - For project archiving, refer to the [Records Management Guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Records-Management-Guidelines4.pdf). For project reporting and workload management, a weekly meeting will occur between the PM and the Assistant Director of Facilities Engineering. In addition, the Assistant Director of Facilities Engineering will provide a list of completed projects and their TPC at mid-year and year-end for performance reporting. The Assistant Director of Finance will provide a quarterly report of completed projects to the FA for use in updating the Building Investment Summaries and annual performance reports. For Environmental Health and Safety (EHS), code and compliance issues should be addressed on all projects. These may include asbestos abatement, lead removal, lab decommissioning, proper storage and disposal of any hazardous materials. EHS should be contacted on process, disposal and compliance as relative to the project scope.
* Other project or functional area topics may include Operational Services (TFC, IT, Maintenance, Custodial, Security, Public Realm, etc.).
* Permitting - If permits are required for the project, the PM needs to identify those and the particular instructions for obtaining them. For those projects requiring inspections from outside agencies, specific procedures and standards regarding those inspections may be included as a topic of discussion in the kick-off meeting. If PM requires guidance in relation to job permitting, they are responsible for contact the Director of Capital Projects for direction.

Kick Off Meeting Attendees

• All Project Team members should be present at the kick-off meeting. Operational partners should be included, as applicable. Participants may include EHS, IT, TFC, OFMD engineering and custodial supervisors, etc.

• If a decision is necessary about a particular item on the agenda, ensure that the person or people necessary to make the decision are present and that all necessary information is available.

• If a consultant/contractor is performing a portion of the work, representatives from this company should be present at the kick-off meeting and project progress meetings, as applicable.

* A customer representative may participate in the meetings or may choose to meet individually with the PM, as applicable to the project scope and deliverable.

## Charter the Team

Due to the size and scope of OFMD projects, chartering sessions will be combined with the Design and Project Kick-Off meeting. Chartering is a structured process used to guide a Project Team through the act of defining itself: its purpose, critical success factors, goals, roles and responsibilities, operating guidelines, interpersonal behaviors, and other elements that give a team the clarity of purpose essential for high-quality performance. There are several key teams involved in a project:

* Project Team: This team has primary responsibility for driving the project forward, for communications with the other teams and for expediting issues and managing change. This team typically meets weekly or bi-weekly. The Project Team will be responsible for coordination and facilitation of the project process, project budget, schedule management, and reporting to and gaining endorsement from the Executive Team. The Project Team will facilitate communication among all project teams.
* Executive Team: This team is responsible for final approval of contractual modifications or amendments and modification of project cost if necessary. This team typically meets monthly or quarterly for design and construction status updates, and other times deemed necessary when design, legal, or contracting issues require special attention.
* Stakeholders Team: This team is a group of individuals or representatives of campus groups who will be affected by the project or can influence it but who are not directly involved with doing the project work. This group has a high level of need to know regarding issues related to schedule and budget. This group could be kept up to date with a monthly e-mail newsletter or may have regularly scheduled meetings.
* Friends and Neighbors: This group is a collection of individual representatives from campus groups that may be affected by the project, but do not have a direct influence on the program or the project.
* Programmatic and Technical Committees: This is a collection of individuals brought together to provide expertise in a certain area. All projects will have different collections of committees. These groups are responsible for providing support and giving direction within their area of expertise and will meet as necessary when design, program or technical issues need to be discussed.

Small projects use scoping discussion and/or meeting with the customer as an opportunity to charter using a two-way communication to define the “how” of the project, such as responsibilities, operating guidelines, etc.

## Complete the Charter

A tangible product of this process is a limited scope agreement which can be utilized in lieu of a charter for small projects.

During the discussion of project scope, several project topics are addressed, including procurement, communications and change management.

Communications among the different project participants working on (or interested in) the project is absolutely essential. The purpose is to ensure that all team members, management, associates, contractors, customers and stakeholders who are involved with the project provide and receive appropriate communications related to the project. The involvement of multiple team members, organizational units, management representatives, customers, and stakeholders increases the complexity of conveying the right message to the right audience at the right time. Project communications is an important topic of a chartering session.

Change management refers to having a means to recognize that change has occurred and that there is a process to document the change. A project change could have a negative or positive effect on the project while a project risk is an event or condition that, if it occurs, may impact the project negatively. A large part of change management is the acknowledgement that each project has certain risks or uncertainties associated with it that may affect the project in ways that cannot be clearly foreseen. These risks can arise from any source and, depending on how they are handled, may either affect the project or support it.

Several general types of project changes are:

* Scope creep: upward ratcheting of scope elements in small increments until a significant change has occurred, as a result of a poorly defined scope of work or not managing change requests when they initially occur. This type of change is gradual and it could become substantial if the proper mechanisms are not in place.
* Level of effort: produced by continual refinement of alternatives, unknown obstacles and inaccurate data, among others. Scope creep can cause an increase in the level of effort, which translates into increased costs and delay in completing project tasks.
* Standard modifications: when project standards and specifications are not followed. An understanding of project quality standards and specifications should be documented in the charter and pre-approved by management.
* New technology/tools: their adoption may change normal project operations causing an impact on cost and schedule. The adoption of new technologies and tools and their potential impact should be included in the charter.
* Staffing: personnel changes that may have an effect on team performance and the outcome of the project.

Most change management within the Project Team related to budget creep or variance from [design guidelines and standards](http://facilities.med.wustl.edu/planning-construction/design-standards/) should be brought to the attention of the Assistant Director of Facilities Engineering.

## Endorsement by Management and Stakeholders

In some instances where OFMD may manage politically sensitive or highly visible projects, additional endorsements by key members of the University’s management or stakeholders may be required. This endorsement should be obtained in writing as applicable.

## Program Verification

See [PPOR](https://facilities.med.wustl.edu/wp-content/uploads/2018/03/Planning-Program-of-Requirements-PPOR.xls)**.** If the PPOR was prepared by OFMD or an outside consultant, Schematic Design will not begin until the PPOR and proposed budget have been verified and approved by the appropriate parties.

If the PPOR is prepared by a consultant, a conceptual budget based on the PPOR must be submitted with the final PPOR and must be within the budget established at project initiation. If the budget has increased, additional funds must be identified before final acceptance of the PPOR or the program may be reduced.

OFMD PM or the consultant will review and complete the entire PPOR and verify that it still expresses the University’s needs and is up-to-date in every aspect. At the conclusion of Program Verification, OFMD PM or the consultant will submit a summary of any revisions and Statement of Probable Cost that is based on the verified program. Schematic Design cannot begin until after the PPOR has been prepared and verified.

##

## Design Phase

Early in the design phase, expectations are set and the design budget and schedule are established. Design determines the general scope, and relationships among the components of the project

The primary objective of design is to assure the Project Team that several options have been reviewed and analyzed before a final scheme is accepted for development. Depending on the size of the project, the OFMD PM or the consultant may be expected to present different concept and design solutions for consideration that incorporate contextual relationships, project, WUSM, WUMC and University goals. Though not detailed, the OFMD PM or the consultant must define all mechanical and building systems anticipated for the project.

1. **Furniture:**

Very early in the programming/design phase of a project, determine if existing furniture is intended to be moved, new furniture to be purchased and/or if existing furniture/equipment will need to be discarded. Factors include, budget, size of present vs. new offices or layout, age and condition of furniture and timing of move that make circumstances impracticable to move.

1. **Equipment:**

Whether an office project or a laboratory project, all equipment must be documented and placement known prior to relocation. For laboratory projects, use the [Lab Equipment Schedule Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Laboratory-Equipment-Schedule-Form.xlsx) to itemize all the equipment. For all other projects, use the simplified [Equipment Schedule Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Equipment-Schedule-Form.xls). This needs to be done in the earliest stage of the project not only for design purposes but for budgeting and planning the transition. It is recommended that the equipment to be moved be numbered with self-adhesive stickers at the time of the inventory and should remain on the equipment until the move is completed.

1. Furniture, Fixtures and Equipment:
The goal of the [FFE guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Surplus-Furniture-Guidelines.pdf) is to maximize the use of all surplus FFE before proceeding to disposal in an equitable, efficient and cost effective manner.

## Deliverables –Design

As applicable for the project, the deliverables for design include site drawings, floor plans, elevations, building sections, equipment and furniture layouts, massing studies, updated project schedule and updated Statement of Estimated Construction Cost.

## DESIGN

Plans will be reviewed with key staff within OFMD and plan acknowledgement will be obtained. Completed design materials will be submitted to the team for review If applicable, a review meeting is scheduled by the PM where written comments from the Project Team are provided and reviewed. The PM or consultant is expected to respond to all comments in writing and submit revised materials as needed before design is complete and accepted.

## Approve Final Deliverables

Once the PM verifies that all comments have been addressed and all issues resolved, the project may begin

## Other Required Design Elements

**Plan Approval and Permits**

The PM is responsible for ensuring compliance with all applicable codes, regulations and design documents that will be in compliance with all the requirements of the local authorities having jurisdiction (AHJ); for example, building department, planning and zoning, Fire Marshall, Metropolitan Sewer District, Health Department and/or Environmental Protection Agency.

For small projects where there is no A/E, the PM is responsible for securing any appropriate permits. At the end of the project, the record drawings will be provided to Facilities Information for CAD and records retention, which they will then be responsible for updating in the appropriate database/resource area.

# Step 5: Selection of Contractor

For work that is not self-performed, this phase includes procuring the construction products and services required for successful project delivery. Methods of contractor selection include Design Bid Build, In-House Renovations (Owner Provided Service), and Continuing Services (utilizing Continuing Services Agreement). Any project over $100,000 in total project cost will require In-House Construction to prepare a bid to compete against two other outside contractors, at minimum. If this occurs, the project management would be completed by Capital Projects and In-House Construction would become a bidder.

1. This phase also includes the procurement of Owner Provided Services. Owner Provided Services are services that the school chooses to self-deliver or manage in-house and may vary from project to project, such as AV, security, furniture, equipment, etc.
2. All project costs regardless of source of work (in house or contracted) need to be captured as part of the project accounting record and are part of the total project cost.

## available project delivery methods

1. **Design-Bid-Build – Lump Sum with Fixed Fee**

Construction bids are solicited after designs are complete, allowing for a fixed price contract at the start of construction. As part of the Design-Bid-Build process, a [Formal Invitation to Bid (ITB)](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/formal-invitation-to-bid/) is sent to selected vendors to submit a proposal on a specific commodity or service through a bidding process. The ITB is generally a Request for Proposal (RFP) and is focused on pricing. The award is based upon the lowest qualified bid meeting the minimum criteria for the specifications/requirements and approved alternates in addition to evaluation of voluntary alternates and qualifications to bid proposal. Negotiations are not authorized when utilizing a Design-Bid-Build procurement method. The PM is responsible for evaluating any qualifications or clarifications, bid alternates or voluntary alternates, in order to determine the lowest qualified bid that meets the minimum criteria for the contract documents.

This procurement process is used when the requirements are clearly defined, negotiations are not necessary, and price is the major determining factor in selection. The ITB uses the Design-Bid-Build bid method.

*It should be noted that Design-Bid-Build is common for WUSM projects and this method tends to take less time than a comparable RFP but can improve schedule and cost, and provides comparable quality for most projects. This method should be reviewed with the Director of Capital Projects prior to proceeding with this method. The key reason for this relates to the time required to evaluate the responses. A bid tabulation is formulated**highlighting the**responsive bidders and their price and breakdown. This can be determined very soon after bids are received and opened by Resource Management. The PM is typically involved in the bid opening. Within the RFP process, much time is taken within the “evaluation phase” whereby evaluators are reviewing respondent proposals. The evaluation phase of an RFP tends to add significant time to the procurement process.*

1. Determination of Bidders List

The PM is responsible for assembling a list of contractors appropriate for the project from the [WU Master Contractor List](https://facilities.med.wustl.edu/wp-content/uploads/2018/02/Master-Contractor-List.pdf) and [MCITS approved Low Voltage Contractor List](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Low-Voltage-Contractor-List.pdf)**.**

1. **Design Build**

If the scope is not fully developed by an outside AE, a proposal for design build services may be required to both develop the scope, validate existing systems and infrastructure and perform the work using the WU Approved Contractors list and in guidance with WUSM Design and Construction Standards.

1. **Continuing Services Agreement**

The University has established a formal process to retain services for construction work less than $150,000 unless otherwise approved in writing. This process is identified in the [Continuing Services Project Agreement](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Continuing-Services-Project-Agreement.pdf). As part of this contracting method, the University shall pay the Contractor on a time and material not to exceed basis. The not to exceed amount should be set forth in the project specific Amendment.

1. **Negotiated Contract <$25,000**

Although recommended that a minimum of three (3) bids be obtained for all projects and/or procurement of Construction and Owner Direct Services (e.g. electrical, mechanical, voice/data, furniture, equipment, abatement, etc.), the PM has the authority to negotiate directly with a contractor or vendor of their choice. This form of bid process is typically utilized due to the essence of time, due to the limited scope of work and/or due to a particular contractor or vendor familiar with the project location and scope of work. For contract amounts under $25,000, the PM may utilize a [Short Form Bidder’s Proposal](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Short-Form-Bidders-Proposal.doc) to solicit project bids from at least 3 qualified contractors and/or vendors.

The PM receives and evaluates the completeness of the bid and their ability to meet the schedule and select the appropriate contractor after that review. The PM shall provide Business Operations the items required under the [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/04/Contracts-Checklist.xlsx) for preparation of a purchase order. Once the contractor has been determined, the PM should notify the unsuccessful bidders that the project has been awarded to another company and thank them for participating in the bidding process.

1. **Sole Source Award >$25,000**

If circumstances require, due to schedule limitations or emergency situations and/or a particular contractor’s familiarity with an area or adjacent similar scope, a PM may request approval from the AVC for contract amounts under $100,000 by completing the [Sole Source Justification Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Sole-Source-Justification-Form.doc) to contract directly with a specific vendor. For additional approval levels above this amount, see the [Project & Sole Source Approval levels](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Sole-Source-Approval-Levels.pdf) and the Project & Sole Source Approval dates (contact Business Operations for various approval committee dates). This also applies to specialized equipment or furnishings (one of a kind) where the PM does not have the option of seeking competitive bids.

## Emergency projects

1. A full-service recovery/restoration contract is currently being developed to facilitate immediate repair and restoration services for emergencies impacting the physical campus.
2. Utilized for emergency repair work due to essence of time.
3. Contractor to provide a quick quote on a T&M not to exceed basis with labor rates attached.
4. The emergency project may initially be funded out of the Facilities Operations Fund in order to get the contractor moving immediately.
5. A Purchase Order (PO) will be issued for projects <$100K and WU Standard Forms of Agreement for projects >$100K.

## award of successful contractor

The PM should inform the successful bidder that pending full budget approval, a contract will be issued for the project. Please note that no work shall start until the contractor has signed and returned the PO/contract authorizing work and providing the required insurance certificate.

## Project budget review and approval

The PM should use the completed Bid Tab Summary and the Bid Summary Cover Memo.

This information should be submitted to the Fiscal Administrator and Director of Capital Projects to generate the Project Resolution documents and for Committee Approvals.

# Step 6: Construction PHASE

* 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 identifies the primary and secondary responsibilities of OFMD 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.

OFMD [Project Manager](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Job-Description.pdf) & [Planner](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Planner-Job-Description.pdf) Responsibilities: The PM has primary management responsibilities for project related items as established during the chartering process.

## completion of construction contract

The construction phase of the project begins with the issuance of the construction contract, as applicable. The construction contract should be issued following project funding approvals, review and selection of alternates, and notification of the successful contractor. Prior to the beginning of the construction phase, the PM should read, review and become familiar with all terms, conditions and deliverables of the contract. Please note that no work shall start until the contractor has signed and returned the PO/contract authorizing work and providing the required insurance certificate.

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

A standard [Pre-Construction Meeting Agenda](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Pre-Construction-Meeting-Agenda.doc) is available for use by the PM. Please note that prior to taking an existing space off line for construction, the PM is responsible for reporting the start and substantial completion target dates to the Physical Planning Space Information Manager to ensure the space is properly decommissioned for construction, operations (Engineering, Custodial Services, Service Center, Computer Room, Access Control and Protective Services) is then informed by the Physical Planning Space Information Manager and the plan for return to occupancy is coordinated with other entities within OFMD and the assigned planner. This is critical to our ongoing space planning and reporting of both active and inactive space.

During the Pre-Construction Meeting, the PM should initiate completion of the project specific [Emergency Contact List](https://facilities.med.wustl.edu/wp-content/uploads/2016/08/Emergency-Call-List.xlsx)**.** PM should review the [WU Hot Work Policy](http://ehs.wustl.edu/resources/EHS%20Documents/WUSM%20Hotwork%20SOPs.pdf) and the [Hot Work Quick List](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Hot-Work-Quick-List.pdf). PM should send the [badge request form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Badge-Request-Form.doc) to the contractor to fill out. The contractor will send the form back to the PM who will then forward it to the Project Support Coordinator, who will then input the request into ServiceNow. The PM should review the [WUSM Badging Policy](http://facilities.med.wustl.edu/wp-content/uploads/2014/05/Identification-Badge-Policy-3-12-142.pdf) for all members of the project team that will be working on site. The [Infection Control Risk Assessment (BJH)](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Infection-Control-Risk-Assessment-BJC1.xls) or [Infection Control Risk Assessment (WUSM)](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Infection-Control-Risk-Assessment-WUSM1.pdf) should be completed for all projects in patient areas or buildings where construction activities may conflict with patient care or transport. Please also view the [IRCA Bleach Protocol](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/ICRA-Bleach-Protocol.pdf).

Project site logistics are discussed, and safety and emergency processes are outlined. The PM should review the [Project Safety Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contractor-Project-Safety-Checklist.doc)(any available asbestos material testing survey reports that were performed as part of the project or one that is on file with EH&S and any other reports that may pertain to the work area – e.g. radiation safety reports, etc.) and share with the contractor. Safety Data Sheets (SDS) should be submitted by the contractor to the PM. During this meeting, the PM should discuss the Emergency Contact [Caution Signage](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Construction-Disruption-Signage.pdf) and proper securing of the site.

The contractor should present and review the preliminary construction schedule for coordination with Owner activities such as decommissioning or moves, procurement of owner furnished/contractor installed items, commissioning, construction, completion date, punch list timeline, owner occupancy, etc.

## DEVELOP PROJECT SCHEDULE

Following the Pre-Construction Meeting, as applicable, the PM should update the overall [project schedule](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Schedule-Template.mpp) to include the actual construction timeline and all owner activities. During this time the PM should consult with other OFMD groups regarding the upcoming sequence of activities, procurement durations, and any milestone dates or deadlines.

## COORDINATION WITH OWNER SERVICES

The project schedule should incorporate other Owner Services. These include but are not limited to the following:

* Environmental Health and Safety – For lab decommissioning, asbestos abatement scheduling, life safety, etc.
* Division of Comparative Medicine – For projects that impact animal facilities or protocol.
* Telecommunications Facility Corporation (TFC) – For projects that include voice lines, phones or campus connectivity.
* Washington University Information Technology (WU IT) – For projects that include data services and A/V.
* Infection Control – For risk assessment review on projects that impact patient areas and patient transport paths.
* Facilities Operations
	+ Facilities Engineering - For any chargeable work to be performed by in house Facilities Engineering staff.
	+ Access Control/Keys and Cores ([Core and Key Process for Large Projects](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Core-and-Key-Process-for-Large-Projects.pdf) and [Core and Key Process for Renovation](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Core-and-Key-Process-for-Renovations.pdf)) – The PM should review plans and determine the level of effort required under the guidelines based on the amount of card swipes, keys and cores required for the project to ensure proper lead time.
	+ [Custodial Process for Renovations and New Construction](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Custodial-Process-for-Renovations-and-New-Construction.pdf) –
		- The PM should provide the plans and specifications to the Move Coordinator for the procurement of any appliances such as refrigerators, microwaves, ice makers, water dispensers, custodial dispensers, etc.
		- The Move Coordinator should review plans and determine the number of kitchen/break areas/lactation room dispensers required for the project to ensure proper lead time to the vendors for public areas.
	+ [Facilities Operations Outage Communications Guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2014/10/Planned-and-Emergency-Outage-Guidelines-8.12.15.pdf) should be discussed and scheduled as soon as possible after the notice to proceed is issued. The PM or contractor, as applicable, should request an outage/service interruption or street closure, the [Contractor Request for Shutdown or Street Closure Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contractor-Request-For-Shutdown-or-Street-Closure-Form.docx) should be used. The Contractors should submit the form to the PM who is responsible for coordinating the outage with Facilities Operations and any impacted customers.
* Protective Services, Building Automation Services and Facilities Integrated Service Center – For projects that impact the safety or wellbeing of patients, staff, or faculty at the School of Medicine or for projects that require proper measures be taken for security, building controls and service calls.
* Parking & Transportation Services – For projects that require street or parking lot closings, delivery coordination and contractor parking or space parking logistics.
* Resource Management – For furniture, fixtures and equipment (FF&E).
* Signage – Use the [Project Signage Request Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Signage-Request.docx).
* Physical Planning – The PM should notify the Physical Planning Space Information Manager who then notifies the Facilities Operations supervisors, FISC, Building Automation Services, Access Control and Protective Services of the affected area that the space is moving to construction (start and end dates).
	+ The PM should utilize the Move Management/FFE Coordinator as applicable for planning support.
* Other project specific groups as required.

## field verification - testing and inspections and commissioning

The PM is responsible for monitoring of the overall testing and inspection process.

* The testing and inspection company forwards copies of certified test and inspection reports to the PM and the appropriate design professionals who review and verify that the certified test and inspection reports are confirming work in place is in compliance with the contract documents and code requirements.
* For any observed condition not in conformance with the contract documents, the PM coordinates the corrections so that appropriate action can be taken to correct the deficiencies.
* The PM collects and files the certified test and inspection reports in the project file.
* The PM is responsible for all commissioning and documentation efforts in support of the project, including the project record.

## PM contract administration

It is the responsibility of the PM to monitor and manage the performance of all contractors and/or A/E for adherence to the scope of work contracted and supporting processes. Items to be aware of and manage may include but are not limited to:

* + Monitor contractor performance of project safety requirements
	+ Participate in progress, coordination and Owner-Architect-Contractor meetings
	+ Review and approve pay applications
	+ Review schedule updates
	+ Coordinate special inspections and school required outages and permit process, as applicable
	+ Review and distribute shop drawings and submittals, as applicable
	+ Review process for [Change Orders](http://www.uh.edu/plantops/forms/project-delivery/Change_Order_Form.pdf)
	+ Reconcile final costs and billing with Business Operations accounting - Review status of “Record” drawings at the end of the project
1. The PM or applicable contractor are responsible for the purchase of all components included in the project scope, unless specified as owner supplied/owner provided, coordinating their delivery and installation, and facilitating the inspection process to achieve substantial completion.
2. Throughout the course of construction, the PM, A/E and/or contractor and at least one customer representative from the Project Team should meet to review construction and project activities, budget and schedule. The PM will set the agenda, lead any applicable meetings and document meeting and related outcomes. Any ad hoc or special meetings should be documented by the PM and kept as part of the project record.
3. A critical function of the PM 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 PM should use the tools included and referenced in this Project Delivery Manual, as well as the expertise of the A/E and other OFMD personnel to manage the process.
4. The PM is also responsible for periodic financial updates through the duration of the construction project. Cost reports will be generated by Business Operations for review and update by the PM.

## project reporting

Depending on the size and complexity of a project, the PM may be required to provide periodic reports to management on the project status.

Any reporting, cost or issues that require potential escalation should be reviewed with the Assistant Director of Facilities Engineering before further escalation unless emergent and proper chain of command should be followed.

## Site visits and field reports

Throughout the construction phase of the project, active field and site management will occur. Discrepancies observed by the PM in the work being performed will be managed by standard performance management strategies (internal) or documentation to the contractor. If an A/E is engaged, the A/E should document and manage this communication. The PM will engage other OFMD stakeholders throughout the life of the project, as required. Concerns by OFMD stakeholders should be brought to the PM’s attention. The PM will review and forward to the A/E for review and direction to the field, as applicable.

The PM is also responsible for correction of all deficiencies.

## Change order process

1. Scope creep can be defined as the slow, continuous growth of a project beyond its original work contents and objectives. Refer to [WUSM Definition of Scope Change Document](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Scope-Change-Definition.pdf). 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 PM should determine if more work is being done than was originally agreed to and budgeted.
	1. Contractors should not take direction from department personnel. Direction should only be through the PM and the change order process.
2. Keeping control of a project involves carefully managing the work plan to ensure the [contingency process flow](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contingency-Process-Flow.pdf) and keep the project moving forward smoothly, including budget, schedule, costs, and status. Effective management allows PM 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 PM to communicate project progress and changes to team members, management, customers and stakeholders, and gives PM the justification for making any adjustments to the plan. It also enables PM to measure current progress against the original work plan.
3. *Schedule Impacts*
	1. Delays in completing a project are often the culmination of a number of events. The PM must work with the A/E and/or contractors, as applicable, 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, PM must manage and communicate with the customer. If a time extension is granted, the PM should approve by utilization of a [Change Order](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Change-Order-Definitions.doc).
		* The acceleration of work is the act of requiring work to be performed prior to the approved schedule to accommodate the owner. 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 PM will determine the potential cost or impact the changes may have on a project. The A/E or PM will recommend justifiable changes to the customer and will include a cost estimate.
		* Several options for the basis of a change order are available and explained below:

Change orders should be classified by reason codes, as outlined in the [PCO Reason and Terms Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Change-Order-Definitions.doc)**.** The most common change order reasons are described below.

Architect or Engineer 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 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.

Owner Add/Delete Original Scope: A change that is a result of the Owner modifying the original project scope. This could be an addition or deduction of scope that was not included in the contract documents.

Allowance Use: This is authorization for the contractor to apply project costs against a budget that was pre-determined and included in the contract sum.

Contingency Use: This is authorization for the contractor to apply costs against a budget to financially cover concealed or unknown field conditions encountered on a project.

Other: Conditions that do not fit the other definitions. These include but are not limited to back charges, buyout, code issues, contract assignment, premium time, punch list, accounting adjustments or design modifications.

Customers may also request additional work or changes to the approved scope. PM should utilize the [Department Request For Change to Project](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Department-Request-for-Change-to-Project.doc)for changes to the project scope that are requested by a Customer or Department. Additional funds may be required and University approval processes should followed prior to execution of work. The PM should not use contingency to cover the additional costs resulting from a Department Requested change, unless the contingency is department funded which the department may approve.

When a change order is submitted by a contractor, architect, or other consultant, the PM is responsible for reviewing, in detail, the costs submitted. The following items should be reviewed prior to submitting the change order to Business Operations for processing. The PM should engage the Architect or Engineer, as applicable, during the review process to confirm that the change order pricing is accurate.

The PM determines and clearly restates the basic scope of the change and verifies the following:

* The reasonability of any time extension
* The claimed quantities are consistent with the determined basic scope;
* The quoted labor and material unit prices are appropriate;
* Any jobs that require general conditions or overhead should be reviewed in detail.

The PM should request that the Contractor make any necessary changes to the change order request as a result of findings during the review process. If no changes are required, the PM should complete the [PCO Reasons and Terms Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/PCO-Reason-Terms.xls) and attach all proper backup. This information will be submitted to Business Operations for signatures and processing.

The contractor should not proceed with requested changes until full execution of a CO.

## construction audit

Currently, no projects under $5M are audited. OFMD PM should follow all University guidelines to ensure proper contracting and fiscal management.

## Approve Payment Requests

Contractor payments are submitted monthly and should be reviewed and approved using the [Application and Certification for Payment](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Application-and-Certification-for-Payment.xls) completed by the Contractor at the time of the first pay application submittal by the contractor. This Pay Application Form will be completed by utilizing the Contractor Schedule of Values submitted at the time of bid. Payment Requests are first submitted to Business Operations via mail or email (OFMDcpinvoices@wustl.edu).

Contractors/vendors will email invoices to Business Operations at FMDCPINVOICES@wustl.edu. Business Operations will upload invoices into PMWeb and submit into workflow for routing to the Project Manager (PM) for review and approval. The PM will receive an email notification from PMWeb of invoices awaiting approval. Invoices will also appear in the PM’s workflow inbox in PMWeb. The PM can click on the hyperlink in the email to be routed to PMWeb or go to <https://wustl.pmweb.com/PMWeb/> and select the invoice from the workflow inbox in the Control Center on the home page. The PM should review the invoice for accuracy and approve in workflow if all details are correct. The invoice will route automatically through the workflow into the University’s AIS system and pay out according to the invoice date and payment terms. Timely approval of workflow requests is important.

If the PM does not approve the invoice for any reason, the PM will clearly document the reason for rejection in the Comments box in the workflow and return the invoice in workflow. This action will return the invoice to Business Operations who will contact the contractor/vendor to discuss the required correction. The contractor/vendor will resolve the issues with the invoice and submit a corrected copy which will then be re-submitted into workflow by Business Operations.

## Project completion/ punch list management

During the creation of the project schedule, the Project Completion Date will be noted by the PM or Contractor. For work that requires a substantial completion date to align with warranty period, the PM will identify as part of the project record a work acceptance date and this date will be used for definition of warranty terms.

For projects utilizing the services of an A/E, the A/E is responsible for issuing a Certificate of Substantial Completion for the project. For projects where an A/E is not utilized or required, the PM is responsible for issuing the [WUSM Certificate of Substantial Completion](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Certificate-of-Substantial-Completion-Standard-form.doc) for the project. The punch list should be attached to this certificate and should include a date for which all corrective items should be completed.

## Punch List

One important item in completing construction is the preparation of a punch list. The punch list is commonly understood to be a list made near the completion of the construction work indicating items of work that remain unfinished, do not meet quality or quantity requirements as specified or are yet to be performed. The PM or contractor must resolve all punch list items within 30 days of project completion.

The PM will plan ahead and be fully aware of the specific contractual requirements that relate to punch list items and to project completion as these items are closely related.

The PM will assess the overall quantity of items on the punch list. If the list is excessive, then there is likelihood that the project is not truly complete. The project may not be closed until all issues are resolved.

# Step 7: Activation, transition and closeout

## Building Transition

Activation Activities Include:

* If there is attic stock at the end of the project, the attic stock storage should be coordinated with the Assistant Director of Facilities Engineering.
* The PM should ensure that a transitional and operational plan is in place with Facilities Operations and the Users. The operational plan should include project specific dates for project completion and occupancy.
* The PM should confirm that all fire, life and safety requirements have been met (Contractor to call for Building and Fire Inspections) by obtaining copies of occupancy permits or sign off from AHJ’s as applicable.
* The PM should confirm that all building systems have been tested and commissioned and that Facilities Operations has received copies of all final commissioning reports, as applicable.
* The PM is responsible for scheduling building systems equipment training and coordinating it with the Contractor, Facilities Operations and the Users, as applicable.
* The PM should confirm that all IT communication services have been established (WU IT (including A/V) and TFC), as applicable.
* The PM should confirm that all locks are installed, keys have been delivered to users, and access control has been initiated by Central Operations & Services, as applicable.
* The PM should ensure that all wayfinding and Room ID signage is installed prior to occupancy.
* The PM should coordinate with Resource Management to ensure that all furniture has been delivered and installed. Resource Management should complete and punchlist walk through with the Furniture Vendor to confirm all systems are installed and function as designed and that there are no damaged components.
* The PM is responsible for move planning with User Groups.
* The PM is responsible for completing the [Close Out Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/07/Close-Out-Checklist-INRFT.xlsx) at the end of each project.
1. **Department/Customer Training**:

In the event of new equipment installation in the project, the PM or User Rep. will ensure the vendor provides orientation and materials (training, maintenance manuals, equipment lists, etc.) to the customer for their use in future maintenance of the equipment that will be their responsibility going forward.

1. **Receipt and Acceptance of Contractor Test and Balance Report:**

Prior to project completion, the PM should discuss with the Contractor and Test and Balance subcontractor (and Commissioning Agent, if applicable) the timing for receipt of the Test and Balance report. This report must be completed prior to occupancy and turned over to Facility Operations staff for use.

1. **Orientation with Custodial, EHS, Protective Services, Department Moving In:**

The PM will be responsible for coordinating **Custodial Services** with the Assistant Director of Custodial Services, including restroom/break area/lactation room dispensers if they have not already been provided (as applicable). Location of each dispenser is to be agreed upon with the users and custodial for service access.

The PM should provide a floor plan and any care instructions of the area for custodial service orientation. Align service needs with established [service levels](http://facilities.med.wustl.edu/operations/facilities-operations/custodial-services-2/) and time staffing assignments with occupancy dates. Determine access by keys or otherwise and make provisions as needed.

1. **Environmental Health and Safety (EHS**)

At the start of all renovations, the PM should contact EHS to evaluate whether asbestos abatement is required through review of asbestos surveys/records. If asbestos is present, protection and coordination of removal occur with approved vendors and work is included in project scope.

EHS should be involved in all laboratory moves. When planning a move, the PMshould engage EHS in the move planning and pre-move training ([Move Planning Checklist and Meeting Outline](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Move-Planning-Checklist-and-Meeting-Outline.doc) and [Move Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Move-Checklist1.xlsx)). Any work involving BSL-3 or ABSL-3 should be coordinated with EHS and Critical Facilities staff and should include an approved work plan prior to entering the space. The work planning should include the move planning. If the new space is a clinic, contact [Infection Control (BJH)](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Infection-Control-Risk-Assessment-BJC1.xls) and/or [Infection Control (WUSM)](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Infection-Control-Risk-Assessment-WUSM1.pdf) as applicable for a final inspection. Please also view the [Infection Control Risk Assessment (ICRA) Bleach Protocol](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/ICRA-Bleach-Protocol.pdf) for facilities mentioned above. If the work is in a BJH owned facility, a life safety plan must be submitted to BJH EHS in tandem with CC to WUSM EHS.

If a project has Access Control requirements, the PM should provide Protective Services (protectiveservices@wusm.wustl.edu) with a list of names (provided by the department) to be entered into the access control program. This is needed whether it is a stand-alone lock or on the central system and should be done prior to the move. Please allow adequate time, depending on the size of the move, for the names to be entered. Starting at least a month ahead of the move is desired.

Prior to the move, the PM should plan for orientation walk-throughs with the **Department** staff so they can become familiar with the new location and become familiar with all the new conditions.

## Final Commissioning – Test & Balance AS APPLICABLE

The commissioning process is the verification of the performance of building systems and the training of Facilities Operations personnel. Systems to be commissioned vary according to project type but most typically involve the HVAC system. System performance verification is the responsibility of the contractor and must occur before occupancy of the building. A Commissioning Agent (CxA) is sometimes contracted to lead this process.

1. **Confirm Receipt of Test and Balance Report:**

If an independent Commissioning Agent (CxA) is involved, he/she will assist with obtaining and interpreting the Test and Balance (T&B) Report. There is usually a “soft” working copy that is available prior to the final typed copy. This is essential for finalizing settings prior to performing ASHRAE 110 Certifications on fume hoods in labs. For smooth transitions, the PM should follow up regularly to make sure this is completed. The PM should file the final copy with the Project File and ensure the building Facility Management Technician (FMT) has a copy for their use. When a project is not specifically undergoing LEED Certification the T&B is still a necessary component of transition.

1. **Final resolution of any outstanding commissioning items:**

The CxA will keep a log of items for resolution beginning early in the project. With the PM, the CxA will manage the log of outstanding commission items working with the General Contractor and MEP subcontractors along with the Facilities Maintenance staff to bring to full resolution.

1. **Confirm Working Building Automation System (BAS) Graphics are loaded (visible in Facilities Computer Room):**

This can often be the most difficult part of transition due to the nature of the way Controls Contractors approach their work. The PM should ensure that working graphics are completed in a timely fashion and request the development of the working graphics at the onset of construction. Completion of the working graphics is important so that the Facilities Maintenance staff can properly operate and maintain the building systems servicing the project area. The PM should confirm that Facilities Operations has given final approval of the graphics during project close out.

## USER REQUESTS FOR CHANGE

1. **Tracking of User Change Requests and Approvals:**

At the end of projects and even during the Punch List stage (see Step 6 for Punch List Management), the Users, including Facilities Operations, will often request items to be added or changed in the project. Sometimes additional costs are involved due to the change. The PM should track any changes and request approval using the [Department Request for Change Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Department-Request-for-Change-to-Project.doc). The PM should receive proper approvals prior to using project funds for such purposes unless it is a clear use of Contingency.

## Move Planning

1. **Establish move time frame:**

The PM should discuss with the customer the exact timing of the move and any secondary factors that may impact relocation/start up. The move should be planned to have the least negative impact on the business operations but also must be balanced within the project means. During the move process, consideration should be made regarding neighbors and other adjacent stakeholders. Moves are planned around the user needs. When the time frame is established, communicate to all involved and document on the project schedule.

1. **Coordination of Voice/Data Activations:**

The PM is to schedule a meeting with WU IT PM, the TFC PM and the customer that is moving to coordinate technology/ space start up. The purpose of the meeting is to confirm the exact locations where the data lines need to be activated for computers (or phones and computers if VOIP) and where phones will be located per the phone numbers previously itemized for TFC. This is not the time to add or move phone/data outlets unless there was a clear oversight or business reason to make a change from the design that was previously established.

## Selection of Mover and Specialty Movers

1. **Specialty Movers:**

Some laboratory equipment can be moved by furniture/contents movers but many pieces of lab equipment will need specialty [movers](https://resourcemanagement.wustl.edu/purchasing-services/laboratory-resources/)) due to the proprietary disassembly/reassembly by the vendor, calibration, service agreements or some other sensitive nature of the equipment. These types of equipment include microscopes, mass spectrometers, centrifuges, ophthalmic equipment, radiological equipment and other such items. Usually, for these movers, the department will already have a relationship and would be the appropriate ones to solicit a quote for the moving service. These vendors will need a PO in order to schedule the move. The purchase order will need to be approved by the PM. (See [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/04/Contracts-Checklist.xlsx).)

Biosafety cabinets and incubators are usually moved by a lab equipment mover due to the recertification and special preparation and setup required. The PM or department user rep. is responsible for soliciting proposals, issuing the Purchase Orders, and scheduling the moves of these items according to the overall project schedule.

For copiers, computers or leased equipment, relocation should be coordinated with external vendor or service provider of the lease in order to ensure proper relocation and minimize risk.

## Development of Move Plan / Detailed Move Schedule

1. **Establish Move Date(s):**

The PM will schedule a meeting with the customer to confirm the exact move date(s). Coordination will also occur with WU IT, TFC, EHS (if a lab and/or lab support), Facilities Operations, Protective Services and potentially others depending on the move. Begin planning all the activities working backwards for all preparations to be complete by necessary time for a smooth move.

1. **Appliances:**

If a project is purchasing appliances such as refrigerators, microwaves, water dispensers, etc., the PM will work with the user or vendor for delivery date and location.

1. **Biological, Chemical, Radiological Material:**

For lab moves, the PM will work with assigned EHS staff to assess needs and to plan for move of biological, chemical or radiological materials. Each has special training and qualifications to handle. In most cases, the Department making the move is best suited for this depending on quantity. Disposal of unneeded or old items prior to the move is preferred. If outside vendors are needed for such moves, assess the costs for such and include in the move budget in the project funding.

1. **Safety Training:**

For lab moves, the user should work with EHS to conduct safety training to ensure compliance with safety practices and regulatory requirements for handling hazardous materials.

1. **Damages**

The user is responsible for reporting any damage claims to the PM for resolution with the Insurance Analyst from General Property Insurance.

## Post Move Follow Up

**Condition of Vacated Space:**

1. If the space is non-lab (see below for lab decommissioning) and being returned to the Dean’s office, the Space Planner Master Coordinator will notify the Real Estate Manager who will coordinate the return of the space using the [Returned Space Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Returned-Space-Checklist.pdf). If there is/was a lease agreement for the space, the WUSM Real Estate Manager will also coordinate the return of the space using the [Returned Space Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Returned-Space-Checklist.pdf) and will work with the department vacating the space and/or the PM or Planning Analyst as appropriate. In either event, the Real Estate Manager will forward the completed Returned Space Checklist to the Space Planner Master Coordinator for additional processing after all of the steps on the checklist have been performed.
2. **Lab Decommissioning:**

If a lab is being vacated, the vacating department will need to contact EH&S for decommissioning and closure. You may refer to the [EH&S Guidelines for Lab Closure](http://ehs.wustl.edu/resources/EHS%20Documents/Guidelines_for_Laboratory_Closure.pdf) for further details.

If the lab is being vacated and the department is returning the space to the Space Bank, the PM will notify the Planning Analyst, who will coordinate with the vacating department and EH&S (using the [Lab Closure Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Lab-Closure-Checklist.xlsx)) to decommission and return the space to the Dean.

1. Furniture, Fixtures and Equipment:
The goal of the [FFE guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Surplus-Furniture-Guidelines.pdf) is to maximize the use of all surplus FFE before proceeding to disposal in an equitable, efficient and cost effective manner.

## Final Endorsement and Occupancy

The warranty period is normally a one-year period after receipt of the Certificate of Substantial Completion. During this time the goal is to provide consistent tracking and addressing of issues that occur during the warranty period. As issues arise after move-in, the PM will work with OFMD in determining the responsible party. Contractor issues are immediately referred to the appropriate contractor for corrections and will be managed by the PM; design issues are referred to the A/E for disposition. OFMD holds the warranties and is the responsible party in maintaining the facility.

Warranty reviews should be conducted by the Project Team after eleven months after occupancy for equipment and other building items. At the end of the warranty period, Facilities Operations will assume full control of the facility. Extended warranty items will continue to be addressed between the PM and OFMD until the expiration of those warranties.

## Close the Project

Project close out activities are not linear and often overlap when moving from Construction to Activation, Transition and Close-Out.

Administrative and financial closing consists of performing those tasks intended to close the project from a financial and contractual standpoint. By doing so, the PM confirms that all project work tasks and deliverables have not only been completed but also accepted and that after the final invoice is paid no other charges or costs will be posted for the project.

The PM should ensure all work orders associated with the project are closed in ServiceNow in order for bills to be generated.

Close out activities revolve around:

* [Project Assessment](file:///G%3A%5CShared%5CProject%20Delivery%20Manual%5CStep%207%5CProject%20Assessment.docx)
* [Professional Services Evaluation](file:///G%3A%5CShared%5CProject%20Delivery%20Manual%5CStep%207%5CProfessional%20Services%20Evaluation.doc)
* [GC Evaluation](file:///G%3A%5CShared%5CProject%20Delivery%20Manual%5CStep%207%5CConstruction%20Contractor%20Evaluation.docx)
* [Customer Survey](file:///G%3A%5CShared%5CProject%20Delivery%20Manual%5CStep%207%5CCustomer%20Survey%20Form.doc)
* [Space Utilization Form](file:///G%3A%5CShared%5CProject%20Delivery%20Manual%5CStep%207%5CSpace%20Utilization%20Form.xlsx)

## Project Checklists

The PM and Business Operations will use the [Close](file:///G%3A%5CShared%5CProject%20Delivery%20Manual%5CStep%205%5CFMD%20Closeout%20Guidelines.docx) Out [Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/07/Close-Out-Checklist-INRFT.xlsx) for project close out.

The Close Out Checklist is required to be completed by the PM and Business Operations. The PM must confirm that all work deliverables have been completed and accepted. After the final invoices, no other costs will be incurred. The PM must complete their section of the Project Closeout Checklist

## Project File Archive

Project document filing will be conducted and completed throughout the life of the project. Documents that were not filed during the project should be organized according to the [Records Management Process](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Records-Management-Guidelines4.pdf) so they can be easily combined with documents already in the project files.

Hard copy files will be managed according to the [University policy](https://fishelp.wustl.edu/Additional%20Information/Documents/RETENTION_update.pdf).

## Close Out Challenges

* Claims: All claims must be resolved before final invoices can be approved for the vendor involved in any claim
* Complete deliverables: Final payments should not be approved if all deliverables are not complete or have not been received.
* Professional Services payments: There are several things to verify before approving a final payment for professional services. In particular, the PM must verify with the Records Coordinator that the record documents have been received and are readable. Also, any remaining balances on the contract must be closed. Final payments should be marked “Final.”
* Project billings: The PM is responsible for ensuring all project billing is received and closed out properly, including internal billing. Any open encumbrances will be reduced by Business Operations.

For more information on the OFMD Project Delivery Process, please visit the [OFMD Project Delivery website](http://facilities.med.wustl.edu/planning-construction/project-delivery/).

# APPENDIX 1: Project Acronyms

|  |  |
| --- | --- |
| **Acronyms Glossary** |   |
| A/E | Architect, Engineer or Team Combination |
| CL | Contracts Liaison |
| CD | Construction Documents |
| ECPR | Executive Capital Projects Review Committee |
| CSA | Continuing Services Agreement |
| DD | Design Documents |
| DIR | Director |
| SD | Senior Director |
| EHS | Environmental Health and Safety |
| EVC | Executive Vice Chancellor (Administration and Finance) |
| FA | Fiscal Administrator |
| FF&E | Fixtures, furniture and equipment |
| FE | Facilities Engineering |
| FO | Facilities Operations |
| FISC | Facilities Integrated Service Center |
| ITB | Invitation To Bid |
| MEPFP | Mechanical, Electrical, Plumbing and Fire Protection |
| O&M | Operations and Maintenance |
| OGC | Office General Council |
| PDM | Project Delivery Manual |
| PM | PM |
| POR | Program of Requirements |
| RFI | Request for Information |
| RFP | Request for Proposal |
| RFQ | Request for Qualifications |
| SC | Selection Committee |
| SD | Schematic Design |
| SPM | Senior Planner/ Senior PM |
| WUMC | Washington University Medical Center |
| WUSM | Washington University School of Medicine |

# APPENDIX 2: Project Definitions

|  |  |
| --- | --- |
| Addendum |  An addition or supplement to a solicitation document issued prior to the opening date. |
| Bid | To make a public announcement of the intention to purchase goods or services. |
| Bid Opening | The public opening of bids, in which the names of the bidders responding to a bid solicitation and prices of the bidders are publicly read and recorded. |
| Bid Tabulation | The recording of bids, in which names of the bidders responding to a bid solicitation and prices of the bidders are publicly read and recorded.  |
| Bidder | An individual or entity that submits a bid. The term includes anyone acting on behalf of the individual or other entity that submits a bid, such as agents, employees and representatives. |
| Bidder List | A list of potential contractors who have expressed an interest in doing business with the State of Texas. |
| Capital Plan Projects | Projects approved in the university capital plan, or by executive management. |
| Construction Contingency | Money held as soft cost funds to assist in any monetary issues that may arise after the project is bid. The amount held varies, primarily because of complexity and phasing of the project but is normally budgeted at 10 percent of the construction costs. |
| Consultant | A person that provides or proposes to provide a consulting service |
| Contract | A written agreement where a contractor provides goods or services in accordance with the established price, terms and conditions. |
| Contract Administration | This generally refers to the processes that occur after a contract is signed. |
| Contractor | A business entity or individual that has a contract to provide goods or services to WUSM used interchangeably with the term Vendor. |
| Contracts Management | This refers to the entire contracting process from planning through contract administration. |
| Cost Estimates | An estimate of the cost of the work.. The completion of a cost estimate does not guarantee or imply project approval. |
| Customer | A person or organization that is the primary user (or funding source) of the end product or service. |
| Deliverable | A unit or increment of work required by the contract, including such items as goods, services, reports or documents. |
| Design & Planning Team | Architect and Planning provide expertise as needed. |
| Design Contingency or Estimating Contingency | Money held as hard cost funds to assist in covering costs that cannot be anticipated during the design period.  |
| Hidden or Latent Condition | This refers to a condition that could not have been anticipated within the standard of care for the profession. This is more often in a renovation where existing conditions could not be predicted. |
| Error/Omission | A changed 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 in the contract documents or should have been included within the standard of care for the profession. |
| Administration | Final contractual or project cost approvals |
| Field Resolution | 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. |
| Friends and neighbors | Representatives that are affected by the project |
| Goods | A transportable article of trade or commerce that can be bartered or sold. Goods do not include services or real property. |
| MBE/WBE | A minority or women-owned business as defined by appropriate governing authorities.  |
| Invitation To Bid (ITB) | Procurement process used when the requirements are clearly defined, negotiations are not necessary and price is a major determining factor for selection. The ITB uses competitive sealed bid method. |
| Negotiations | A consensual bargaining process in which the parties attempt to reach agreement on a disputed or potentially disputed matter. In a contractual sense negotiation means the "dealings conducted between two more parties for the purpose of reaching an understanding". |
| Department Requested Change | An increase in the scope of the program beyond what was anticipated for inclusion in the contract documents that is requested by and only benefits the user of the facility. Examples include additional cabinets, moving a wall and requesting better finish materials. |
| Payment Bond | A bond executed in connection with a contract which secures the payment requirements of the contractor. |
| Performance Bond | A surety bond which provides assurance of a bidder's performance of certain contract. The amount for the performance bond shall be based on the bidder's annual level of potential monetary volume in the state purchasing program. Acceptable forms of bonds are those described in the definition for "bid deposit." |
| Professional Services | Services directly related to professional practices.  |
| Project | A temporary endeavor undertaken to create a unique product, service or outcome that has a beginning, requires substantial coordination and effort to accomplish, and has an end. |
| Project Term |  The period of time that describes the life of a project. |
| Proposal | An executed offer submitted by a respondent in response to an RFP and intended to be used as a basis to negotiate a contract award. |
| Resource Management | The office designated to purchase goods and services for WU. |
| Real Estate Services | Consultation services or initiating actions needed to purchase real estate, lease space to others or for assistance with site selection, real estate valuation, property management or real estate activities |
| Request for Information (RFI) | A general invitation to contractors requesting information for a potential future solicitation. The RFI is typically used as a research and information gathering tool for preparation of a solicitation. |
| Request for Proposal (RFP) | A solicitation requesting submittal of a proposal in response to the required scope of services and usually includes some form of a cost proposal. The RFP process allows for negotiations between a proposer and issuing agency. |
| Request for Qualifications (RFQ) | A solicitation document requesting submittal of qualifications or specialized expertise in response to a scope of services required. No pricing is solicited in an RFQ |
| Respondent | An entity submitting a proposal in response to a solicitation (see bidder). |
| Responsible | The respondent has the capability to fully perform and in accordance with the contract requirements. |
| Responsive | The respondent has complied with all material aspects of the solicitation document, including submission of all required documents. |
| Service | The furnishing of labor by a contractor which may or may not include the delivery of a tangible end product. |
| Signage Request | Interior, exterior, commemorative plaques, building directories and studies. |
| Solicitation | A document requesting a submittal of bids or proposals for goods or services in accordance with advertised specifications. |
| Space Request | For new, additional or replacement space or to relinquish current assigned space based on net assignable square feet (NASF). This could include on-and-off campus space, space owned or leased by WU. |
| Stakeholders | Representatives that have indirect influence on the project |
| State  | The State of Missouri |
| State Agency | An agency of the State of Missouri. |
| Planning Request | For any type of study, such as a feasibility study for a building renovation or new facility, an engineering/technical study; a physical planning study, such as a master plan, land use or study of a specific geographic area or physical campus issue. |
| Value Engineering | Adjusting scope to balance the cost of the project, finding the best value to complete the project on or below budget. |
| Vendor | A business entity or individual that has a contract to provide goods or services.  |

This document was prepared by the Washington University School of Medicine Operations & Facilities Management Department and may not be duplicated without written permission.

**Program Development & Management Team:**

Melissa Hopkins, Assistant Vice Chancellor/Assistant Dean of Operations & Facilities Management

Steve Sobo, Director of Capital Projects

Mark Hume, Assistant Director of Facilities Engineering

Michelle Lewis, Planner, Communication & Strategic Planning

Greg Bollasina, Facilities Maintenance Supervisor

Scott Stevenson, In-House Construction Supervisor

Dee Powers, Program Coordinator