

**Operations & Facilities Management Department**

**Project Delivery Manual**

**Revised 3/20/18**

Contents

[Introduction 6](#_Toc408834236)

[Purpose of the Manual 6](#_Toc408834237)

[Overview of the Manual 6](#_Toc408834238)

[Appendices 7](#_Toc408834239)

[Operations & Facilities Management (OFMD) Organization Overview 8](#_Toc408834240)

[Mission and Vision 8](#_Toc408834241)

[The Operations & Facilities Management Department & Services. 8](#_Toc408834242)

[Planner/PM as Leader 9](#_Toc408834243)

[Building Customer and Stakeholder Relationships 11](#_Toc408834244)

[Project Delivery Process 11](#_Toc408834245)

[Step 1: Needs Development 12](#_Toc408834246)

[Step 2: Scope Development 12](#_Toc408834247)

[Step 3: Selection of Design Team 12](#_Toc408834248)

[Step 4: Design Phase 12](#_Toc408834249)

[Step 5: Selection of Contractor 13](#_Toc408834250)

[Step 6: Construction Phase 13](#_Toc408834251)

[Step 7: Transition, Activation and Closeout 13](#_Toc408834252)

[Step 1: Needs Development 13](#_Toc408834253)

[Project Intake 13](#_Toc408834254)

[Records Management 1](#_Toc408834261)4

[Step 2: Scope Development 15](#_Toc408834255)

[Customer Contact 15](#_Toc408834256)

[Project Endorsement 15](#_Toc408834257)

[Confirm Funding 16](#_Toc408834258)

[Programming/Scope Development 16](#_Toc408834259)

[Prepare for Next Phase 17](#_Toc408834260)

[Step 3: Selection of Design Team 18](#_Toc408834262)

[Step 3A: Direct Selection Architect/Engineer –Informal Process 19](#_Toc408834263)

[Selection and Award 19](#_Toc408834264)

[Approval and Reporting 19](#_Toc408834265)

[Complete Contracting 19](#_Toc408834266)

[Contract Design Service Change Orders – Professional Services 20](#_Toc408834267)

[Project Closeout: 20](#_Toc408834268)

[step 3B: Selection Process – Other Consultants 20](#_Toc408834269)

[step 3C: Selection Process – Emergency Projects 21](#_Toc408834270)

[Step 3D: Request for Proposal (RFP) 21](#_Toc408834271)

[Prepare RFP 21](#_Toc408834272)

[RFP Submission Process 21](#_Toc408834273)

[Interview/Select Consultant 22](#_Toc408834274)

[Complete Contracting 22](#_Toc408834275)

[Contract Design Service Change Orders – Professional Services 23](#_Toc408834276)

[Project Closeout: 23](#_Toc408834277)

[Step 4: Design Phase 23](#_Toc408834278)

[Design and Project Kick-Off Meeting 24](#_Toc408834279)

[Charter the Team 25](#_Toc408834280)

[Complete the Charter 26](#_Toc408834281)

[Endorse the Charter 27](#_Toc408834282)

[Endorsement by the Project Team 27](#_Toc408834283)

[Endorsement by Management and Stakeholders 27](#_Toc408834284)

[Program Verification 28](#_Toc408834285)

[In House Design/Planning 28](#_Toc408834286)

[Schematic Design Phase 28](#_Toc408834287)

[Deliverables – Schematic Design 29](#_Toc408834288)

[Distribute Deliverables for Review – Schematic Design 29](#_Toc408834289)

[Design Development Phase 29](#_Toc408834290)

[Deliverables – Design Development 29](#_Toc408834291)

[Distribute Deliverables for Review – Design Development 29](#_Toc408834292)

[Construction Documents Phase 29](#_Toc408834293)

[Final Review of Deliverables 30](#_Toc408834294)

[Approve Final Deliverables 30](#_Toc408834295)

[Other Required Design Elements 30](#_Toc408834296)

[Step 5: Selection of Contractor 31](#_Toc408834297)

[Available Project Delivery Methods 31](#_Toc408834298)

[Bidding 32](#_Toc408834299)

[RFP Submission Process 35](#_Toc408834301)

[Interview/Select CM 36](#_Toc408834302)

[Complete Contract 36](#_Toc408834303)

[Bidding 37](#_Toc408834304)

[RFP Submission Process 37](#_Toc408834305)

[Interview/Select CM – At Risk 38](#_Toc408834306)

[Complete Contract 38](#_Toc408834307)

[Bidding 39](#_Toc408834308)

[Design Build – Minor Projects <$250,000 43](#_Toc408834309)

[Emergency Projects 43](#_Toc408834310)

[Award of Successful Contractor 43](#_Toc408834311)

[Project Budget Review and Approval 44](#_Toc408834312)

[Step 6: Construction Phase 44](#_Toc408834313)

[Completion of Construction Contract 44](#_Toc408834314)

[Construction Kick-Off (Pre-Construction Meeting) 44](#_Toc408834315)

[Develop Project Schedule 45](#_Toc408834316)

[Coordination with Owner Services 45](#_Toc408834317)

[Field Verification - Testing and Inspections and Commissioning 46](#_Toc408834318)

[Planner/PM Contract Administration 47](#_Toc408834319)

[Project Reporting 48](#_Toc408834320)

[Site Visits and Field Reports 48](#_Toc408834321)

[Change Order Process 49](#_Toc408834322)

[Construction Audit 51](#_Toc408834323)

[Approve Payment Requests 52](#_Toc408834324)

[Certificate of Substantial Completion/Punch List Management 53](#_Toc408834325)

[Punch List 54](#_Toc408834326)

[Step 7: Activation, Transition and Closeout 54](#_Toc408834327)

[Building Transition 54](#_Toc408834328)

[Final Commissioning – Test & Balance 56](#_Toc408834329)

[Punch list verification 57](#_Toc408834330)

[Move Planning 57](#_Toc408834331)

[Selection of Mover and Specialty Movers 58](#_Toc408834332)

[Development of Move Plan / Detailed Move Schedule 59](#_Toc408834333)

[Post Move Follow Up 61](#_Toc408834334)

[Project Close-out 62](#_Toc408834335)

[Turn over Record Documents 62](#_Toc408834336)

[Final Endorsement and Occupancy 62](#_Toc408834337)

[Final Payments 63](#_Toc408834338)

[Close the Project 63](#_Toc408834339)

[Project Checklists 63](#_Toc408834340)

[Project Evaluations 64](#_Toc408834341)

[Project File Archive 64](#_Toc408834342)

[Close Out Challenges 65](#_Toc408834343)

[APPENDIX 1: Business Operations](#_Toc408834344) 65

[APPENDIX 2: Project Acronyms](#_Toc408834345) 67

APPENDIX 3: Project Definitions……………………………………………………………………………………………………………………………69

[APPENDIX 3: Summary of Tools For Project Delivery](#_Toc408834346) 75

# Introduction

## Purpose of the Manual

The goal of the Project Delivery Manual (PDM) 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 comprehensive summary 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 Planner/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/2015/02/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/2015/02/Project-Delivery-Documentation-Change-Form1.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
2. Project Funding

**Step 3: Selection of Design Team**

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

**Step 4: Design Phase**

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

**Step 5: Selection of Contractor**

1. Bidding and Award
2. Owner Provided Services
3. Informal Bids (3 Bid Process)
4. Formal Competitive Sealed Proposal (RFP)

**Step 6: Construction Phase**

1. Construction

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

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

## Appendices

The appendices of the PDM identify and describe specific processes, requirements, or resources involved in the successful delivery of facilities improvement projects at WUSM, including:

1. Business Operations
2. Project Delivery Acronyms
3. Project Delivery Definitions
4. Summary of Tools for Project Delivery

# 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 Auxiliary contracts for food service, bookstore, and residential life operations for the School of Medicine, as well as the Facilities Integrated Service Center, OFMD budgeting, technology, information management and Real Estate transactions 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. **General Services** provides mail, shipping and receiving, grounds and pest 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.
		3. **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.
		4. **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.
		5. **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.
	3. [**Capital Projects**](http://facilities.med.wustl.edu/about/organizational-structure/) manages all renovation and construction projects for the School of Medicine, which include repair, renewal and new construction.
		1. A subset of Capital Projects manages minor construction renovations and projects under $2M as well as In-House Construction projects.
	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. [**Transportation and Parking**](http://facilities.med.wustl.edu/about/organizational-structure/)manages the School of Medicine’s parking assets, permits, fines and streets program.
	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.

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.

## Planner/PM as Leader

The title “Planner/ Senior Project Manager (SPM)/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 [Project Manager](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Job-Description2.pdf) and/or [Planner/PM](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Planner-Job-Description.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 Planner/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/Planner must remain a neutral party in delivering services to ensure both customer satisfaction and proper university/school stewardship.

**2. Create the Project Vision**

The project vision is the image or understanding of what the project will accomplish as its end result. Having a project vision is crucial to effective leadership and management of any project. In creating the vision, the Planner/PM is responsible for planning a route to project completion based on customer needs and expectations; articulating the vision 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 Planner/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 Planner/PM and includes 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 Planner/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 vision has been defined, agreed upon, and the Project Team formed, focus shifts to planning the project and the elaboration of concrete strategies for achieving the goals of the project. The duties of the Planner/PM include developing a work plan in which the customer’s vision 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 Planner/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 Planner/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 Planner/PM and cannot be delegated. The Planner/PM must establish appropriate definitions of quality for the project. In order to achieve high quality, the Planner/PM must commit time to assess quality issues with the team. A Planner/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 team” is 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 Planner/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 Planner/PM must work to build commitment and trust with their project team.

The [organizational structure of OFMD’s Planner/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 include:

* Well-developed and endorsed project work plan
* Project tools
* Performance measures and metrics
* Project chartering and project contact list at the start of the project
* Continual and consistent contact - It is necessary for Planner/PM to continuously keep all 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
* 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 Director and the 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 major phases in a project process and steps for each phase.

The intent of the project delivery process is to provide a comprehensive 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, the 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 (OFMD’s Work Management System) or as required by emergencies. Based on the request, the planning assignment or 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 Planner/PM in OFMD and/or initiated by OFMD.

## Step 2: Scope Development

The focus of this step is preparing the project charter and initial project scope, including the Program of Requirements (POR). Chartering is a structured process used to guide the project team through defining the project purpose, critical success factors, goals, roles and responsibilities and other elements that ensure a high-quality performance. This phase includes developing the project definition and vision, establishing the Project Team, defining project objectives and requirements, 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

This phase includes procuring the design products and 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. If a commissioning agent will be utilized, this service should be selected in parallel to the selection of the design team and engaged throughout the life of the project.

## Step 4: Design Phase

Effectively managing the design deliverables of a project is a critical role of the Planner/PM. This entails continuously monitoring the scope of work being designed and comparing it to the scope of work planned and budgeted. The Planner/PM proactively ensures that 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 adhere to the [Campus Design Guidelines and Standards](http://facilities.med.wustl.edu/planning-construction/design-standards/). Any variance must be presented and approved by the OFMD Physical Planning and Project Team and a signed [variance form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Variance-Form-Design-Standards.doc) must become part of the project record. A work plan 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: Selection of Contractor

This phase includes procuring the construction products and services required for successful project delivery. Methods of contractor selection include Informal Competitive Bidding, Continuing Services and Formal Competitive Sealed Proposal (RFP). This phase also includes the procurement of Owner Provided Services.

## Step 6: Construction Phase

As in managing design deliverables, it is critical to continually monitor the work being constructed. This entails continuously communicating and monitoring the scope of work being constructed and comparing it to the scope of work that was designed. The Planner/PM proactively ensures that 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 communications 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 last construction-related issues including customer transitions, building systems activation, systems training, administrative (collection/distribution of Operations and Maintenance Manuals, warranties and all other project documents), 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:

* [Planning and Project Request Form](http://wusmspacerequest.wusm.wustl.edu/_layouts/FormServer.aspx?XsnLocation=http://wusmspacerequest.wusm.wustl.edu/ProjectIntake.xsn&OpenIn=browser)
* [Capital Renewal Request](http://wusmspacerequest.wusm.wustl.edu/_layouts/FormServer.aspx?XsnLocation=http://wusmspacerequest.wusm.wustl.edu/ProjectIntake.xsn&OpenIn=browser)
* Emergencies
* [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
* Capital Planning Process

**Planning and project request form**

The [Planning and Project Request Form](http://wusmspacerequest.wusm.wustl.edu/_layouts/FormServer.aspx?XsnLocation=http://wusmspacerequest.wusm.wustl.edu/ProjectIntake.xsn&OpenIn=browser) 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 of a planner or Planner/PM. An automated response acknowledging receipt is delivered immediately and within 2 business days, a Planner will contact the requestor and copy the business manager to validate the request and project manager assignment. The Planner/PM will make secondary contact with the customer to establish an initial scope development meeting within a reasonable time frame.

**Capital Renewal request**

There is a five year rolling Capital Renewal Plan, frequently called the Facilities Infrastructure Renewal and Maintenance Plan or FIRM, this plan is managed by the Senior Director of Facilities Operations, which is reviewed annually. All requests will be reviewed and prioritized, based on life safety, business impact/continuity and energy management. Within 2 business days, the Senior Director of Facilities Operations will contact the requestor to validate the request and discuss the next steps. Please note FIRM funds are limited and projects not approved will be carried over for future consideration and reviewed annually for prioritization. Projects can be initiated through the [Planning and Project Request Form.](http://wusmspacerequest.wusm.wustl.edu/_layouts/FormServer.aspx?XsnLocation=http://wusmspacerequest.wusm.wustl.edu/ProjectIntake.xsn&OpenIn=browser)

**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 importance of impact. Wherever possible, the Planner/PM will follow the applicable project delivery process, including University policies. The University has contracted with Woodard Restoration as an emergency response and restoration vendor. The Planner/PM is required to both utilize and follow all policies and practices applicable to this contract and emergency management protocol outlined.

**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. The online form is completed by the requestor and it workflows via e-mail for appropriate department approvals. Once all department approvals have been received, OFMD is notified that the request is ready for processing. After an initial review and analysis by OFMD, the request is forwarded to the applicable service area for assignment and project completion. 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 and once a technician/employee is assigned to complete the work, a second message is delivered via e-mail. For planning/project related work requests, the Planner/PM is always responsible for following up to ensure work completion.

**capital planning process**

There is a monthly Pre-Agenda Meeting that the Planner/PM utilizes to submit project requests for review and vetting. These requests should be submitted to the Director of Capital Projects or the Senior Director of Facilities Operations 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 Facilities, the Senior Director of Facilities Operations, the Director of Capital Projects, the Director of Capital Planning, the Fiscal Administrator and the Director of Business Operations. This group will review any request over $15,000. Additional approvals may be required based on the funding 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 these meetings occur throughout the fiscal year. See Fiscal Administrator for specific dates.

## 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 Planner/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](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/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 Planner/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 Planner/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 Director of Capital Projects, Project and Records Coordinator or Business Operations Representative to ensure file and records management compliance. Maintaining accurate files will be part of each Planner/PMs annual performance evaluation.

## Business operations

At this point, a project number should be requested. See Project Creation File in Business Operations Appendix 1.

# Step 2: scope development

## Customer Contact

The Planner/PM or assigned service area will make follow up contact with the customer, to begin the process of defining the project utilizing the [Project Management Program of Requirements (PMPOR)](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Program-of-Requirements-PMPOR.doc) with the appropriate level of detail so subsequent activities can be completed. The Planner/PM should request a list of stakeholders from the client to gain an early understanding of the project’s key personnel. For research 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 [PMPOR](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Program-of-Requirements-PMPOR.doc). Once completed, the POR needs to be endorsed by the customer. Please note the Planning Group also uses a more formal [Planning Program of Requirements (PPOR)](https://facilities.med.wustl.edu/wp-content/uploads/2018/02/Project-Manager-Program-of-Requirements-PMPOR.doc) that documents planning and programming needs. A [generic agenda](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/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 Planner/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 Senior Director of Facilities Operations. The PM/Planner should also review the [Emergency Power Guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2018/03/Emergency-Power-Guidelines.pdf). The Planner/PM should also review the area impacted by construction with EH&S to get an initial understanding of any environmental issues that may impact the project estimate/schedule. The project scope will then need to be reviewed with representatives from TFC and [Shared Infrastructure - Network Engineering](https://it.wustl.edu/files/2018/01/SI-2f1lzeq.pdf) to understand existing network infrastructure and required project scope based local phone/data needs. The [EHS pre-construction checklist](http://ehs.wustl.edu/resources/EHS%20Documents/Pre-Construction%20General%20and%20Lab%20EHS%20Checklist.pdf) is used to assist Planners/Project Managers with EHS guidelines. After the total scope is confirmed, the Planner/PM is equipped to begin the project estimate. A detailed project budget using the [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) is prepared and reviewed internally with Senior OFMD stakeholders. The budget will be presented to the customer once approved internally. The customer will also be billed according to the [Project Management Fee Guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Close-Out-Checklist.xlsx). At this time, a discussion and determination of the funding source will be required. A PMPOR is available to assist with budget development. The initial budgets are refined throughout the planning and design phases and until the project is presented for bidding. It is imperative that all elements of the budget are clearly defined, captured, and developed throughout each phase.

1. The [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) 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.
2. A preliminary project schedule that meets the customers’ needs should be prepared and should identify key milestones. 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 Planner/PMs.
3. The [example project schedule](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Schedule-Example.mpp) (utilizing Microsoft Project) includes high level project milestones and can serve as a reminder of most of the time constraints placed on a project. It is useful for planning a realistic schedule based on known steps and the desired completion date.
4. For all projects, excluding Capital Renewal Requests, the Planner/PM will present a validated/revised PMPOR and schedule for endorsement by the customer. For Capital Renewal requests, the Project Manager will present a PMPOR for endorsement by the Senior Director of Facilities Operations.

## Confirm Funding

If the POR is approved by the customer, it is returned to the Planner/PM to complete the PMPOR**.** The Planner/PM submits this document to the Director of Capital Projects and OFMD Business Operations for the formal approval request. At this stage, the Fiscal Administrator (FA) will create a resolution ([long](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Resolution-Template-Long-Version.doc) or [short](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Resolution-Template-Short-Version.doc) form) for approval. At this stage, in most cases, initial funding is for project planning expenses only. Final funding is sought when total project scope and estimated costs are known. After final approval, Property 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 Planner/PM. Business Operations will setup the project details in the construction accounting system and create a work request number for the project in ServiceNow to facilitate internal chargeable work on the project.

## Business Operations

See Project Approval Process in Business Operations Appendix 1.

## Programming/Scope Development

While not all projects have full programs, all projects should have one of these:

* [Planning Program of Requirements (PPOR)](https://facilities.med.wustl.edu/wp-content/uploads/2018/02/Project-Manager-Program-of-Requirements-PMPOR.doc)(formal for use as a planning tool)
* [Project Manager Program of Requirement (PMPOR)](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Program-of-Requirements-PMPOR.doc) (for us by Project Manager)
* An estimate letter with full scope definition (see [guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Estimate-Letter-Guidelines.pdf) and [template](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Estimate-Letter-Template1.docx)).

All projects will require a charter (POR, short form or long form). Planner/PM should use judgment to determine if a formal or informal process should be used.

The goal of programming is to further define the project’s relationship with the University as a whole, the mission and vision of the project, the objectives of the project, and to provide detailed information of all identifiable spaces to be constructed or renovated – including existing infrastructure improvement issues and exterior features. This information is presented in the POR.

An important first step is determining whether the program should be prepared by in house staff or by a consultant. Projects of significant size and complexity should have the program prepared by either the A/E or a programming consultant. If the services of an A/E or consultant are required, the Planner/PM should proceed to Design Team/Professional Services Selection Process.

The programming process begins with an initial customer meeting and the process continues until the program is approved by the customer. Once the program is approved by the customer, it is forwarded to either the Director of Capital Projects, Senior Planner III and/or Senior Director of Facilities Operations for the next step in the approval process. If required, the program will be reviewed by the Assistant Vice Chancellor/Assistant Dean of Facilities and/or University leadership, as applicable.

## Prepare for next phase

Before moving on to the next phase, the Planner/PM will communicate with the customer that the project is proceeding and that the amount and funding for a planning fund are needed from the customer.

# Step 3: selection of design team

Some projects may not require a design or engineering consultant, but many do. The selection of design consultants is a qualifications-based process with the goal to select the most qualified team of consultants for the project. The consultant team includes professionals that are selected to implement the design and construction of the project with input from the Project Team.

The consultant team is most often led by an architectural firm, or in the case of engineering-dominant projects, an engineering firm. In this manual, the lead firm is referred to as the A/E. The A/E may contract with other firms (sub-consultants) for other required design services such as specialized engineers, landscape architects, interior design firms, etc.

It is required that any project that affects life safety, code compliance, or change of use to utilize a licensed professional to produce stamped drawings for permitting and procuring construction services.

Depending on the total project budget and the proposed professional services fees, two methods for procuring consultants are available. These include a Request for Proposal (RFP) Process or selecting a firm in good standing using the [Architect-Engineer Recommendation Form (with calculator)](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Architect-Engineer-Recommendation-Form4.xlsx) (see [A/E Fee Schedule Guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/A-E-Fee-Schedule-Guidelines2.pdf)).

For additional information related to the Procurement Methods, please reference <http://resourcemanagement.wustl.edu/ps/Pages/Policies-and-Procedures.aspx>.

## Step 3a: direct selection Architect/engineer – informal process

Washington University has identified candidates for Architects/Engineers (A/E) on a document entitled [Architects/Engineers for Project Selection – Danforth and School of Medicine](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Architects-Engineers-for-Project-Selection-Danforth-and-WUSM.pdf). In the case of large complex or specialized projects, the School of Medicine may do a Request for Qualifications to ensure the proper selection. This should be discussed with the Assistant Vice Chancellor/Assistant Dean of Facilities at the start of the project, as applicable.

## Selection and Award:

The Planner/PM shall review and evaluate (1) the qualifications of the candidate A/E in the context of the scope of work to be performed, (2) the cumulative dollar value of current projects the candidate for A/E has with the University, and (3) past performance and (4) ability to meet schedule. The Planner/PM should consult with other Planner/SPM/PMs for technical expertise during the evaluation.

The Planner/PM shall rank the A/E and submit the recommendation ([Architect-Engineer Recommendation Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Architect-Engineer-Recommendation-Form4.xlsx)), inclusive of written justification, to his/her Director for approval or rejection.

## Approval and Reporting:

The Director shall review and accept or reject the Planner/PMs recommendation.

a. If accepted, approval is given to the Planner/PM to proceed with obtaining a proposal from the Architect utilizing the University Fee Schedule.

b. If rejected, the Director shall identify the next best choice recommendation and provide justification to the Planner/PM.

In the event the Planner/PM is unable to obtain a proposal from the selected A/E within the guidelines of the University Fee Schedule or through agreed-upon justifiable fee/scope modifications that may differ from the fee schedule, the Planner/PM shall work with the next identified A/E until a proposal is deemed acceptable.

Following successful receipt of a fee proposal from the A/E, the Planner/PM shall provide Business Operations with the approved proposal and required documents under the [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contracts-Checklist1.xlsx) in order for Business Operations to prepare the appropriate Standard Form of Agreement, which vary by service type but include the following: between [Owner and Architect](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Standard-Form-of-Agreement-Between-Owner-Architect.doc), between Owner and Engineer and between Owner and Consultant.

## Complete Contracting

In addition to the contract, the following documents must be submitted by the Planner/PM:

* Workers Compensation Certificate
* Employers Liability
* Professional Liability Insurance
* Commercial General Liability
* Comprehensive Auto Insurance
* Umbrella Coverage
* Specific coverage amounts can be found in the appropriate contract

Upon receiving all checklist items, Business Operations will prepare the contract for Planner/PM review. After their review and approval, Business Operations will electronically send the contract to the A/E for signature.

Contracts are first signed by the CM and submitted to Business Operations via email, mail or courier.  Business Operations prepares contract for WUSM signature process and routes to all applicable internal levels. Located in the offices of Business Operations is a Sub-Delegation of Signature Authority document that details the levels of signature authorization levels.   If for any reason, contract approvals are not achieved, the contract will be re-routed for modifications or will be canceled and closed as applicable to the situation. If for any reason there are edits to any original documentation, they must be initialed by all parties.

No work should begin on any project prior to a signed contract.

## BUsiness operations

See Contracts Procedure File in Business Operations Appendix 1.

## Contract design service change orders – Professional Services

If a change to the signed Standard Form of Agreement is required, the process to prepare a Change Order Request is initiated by the A/E. The A/E submits a request in writing to the Planner/PM outlining the proposed scope of work revisions and applicable adjustments to the fees and/or reimbursables. The Planner/PM should work with the A/E to discuss the scope of work and negotiate the fees for the proposed design change. Upon approval, the Planner/PM directs Business Operations to issue a change order adjusting the scope and contractual fee.

## PROJECT CLOSEOUT:

At the conclusion of a project, the Planner/PM or equivalent shall provide a post-performance evaluation of the A/E’s actual performance as compared to the intent of the project requirements in order to update the Professional Services Evaluation. The evaluation shall also document any significant changes in business profile, status and/or practices.

On a quarterly basis, the Director of Capital Projects shall evaluate the A/E activity reports, and applicable post-performance evaluations, to determine whether each A/E’s engagement with the School continues to provide the ‘best value’ to the School.

## step 3b: Selection Process – Other Consultants

Similar processes are followed for any other special consultants desired for a project or study. Other special consultants include but are not limited to services for:

* Commissioning
* Geotechnical Services
* Special Testing and Inspection
* Phase I/II Environmental Assessment
* Asbestos Consulting Services
* Programming
* Testing and Balancing

Please note, University rules also apply to the selection of other consultants. For example if the estimate for the contract amount of these services is over $25,000, three bids must be solicited.

## step 3C: Selection Process – emergency projects

For emergency services, the University currently is putting a contract in place for full emergency response and restoration services. Once the contract is in place the responding supervisor, planner or PM should follow the OFMD emergency protocol and contract directly with the selected contractor to mitigate, assess and restore the damaged facilities. Until the contract is in place we will work to mitigate emergency situations using internal staff and available contractors on an as needed basis. Wherever possible we will follow the Project Delivery process but in cases of extreme emergencies we may be required to sole source response services to ensure business continuity.

## Step 3D: Request for PROPOSAL (RFp)

## Prepare RFp

The Planner/PM begins by preparing a [Request for Proposal (RFP)](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/RFP-Architectural-Template.docx) outlining the project scope, the services needed, and selection criteria.

The RFP is reviewed by the Director of Capital Projects before it is sent to Resource Management. Planner/PM identification and recommendation of the Selection Committee (SC), with a minimum of seven (7) members, is forwarded along with the RFP draft. The Planner/PM incorporates any edits to the RFP. This selection committee is only used for fees over $4 million.

The Planner/PM then works with the Director of Capital Projects to formalize the preliminary list of firms based on a review of the [WU Architects/Engineers for Project Selection](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Architects-Engineers-for-Project-Selection-Danforth-and-WUSM.pdf).

## RFP Submission Process

1. Planner/PM forwards to Resource Management for final review and then the document is sent out by the Planner/PM to the selected firms.
2. The Planner/PM conducts a pre-submittal conference and the Planner/PM should utilize a [pre-submittal agenda](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Pre-Submittal-Agenda.doc.docx) to outline all agenda items and responses to questions, as applicable during the proposal period. The Planner/PM is to perform meeting logistics. After deadline for questions, the Planner/PM issues a final response to incorporate all pre-submittal questions per the time frame noted in the RFP.
3. After the proposals are received, the Planner/PM will enter the evaluation criteria responses into a [RFP Architectural Evaluation Matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/RFP-Evaluation-Matrix.xlsx) for use in evaluating each proposal.
4. The Planner/PM along with the Director of Capital Projects sends a short list recommendation to Assistant Vice Chancellor/Assistant Dean of Facilities (AVC) who in turn forwards to the Vice Chancellor of Administration and Finance (VC) for approval. A [recommendation memo form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Recommendation-Memo-Design-Team.docx) should be utilized and becomes part of the project record.
5. Upon response of approval or recommended action, Planner/PM will perform logistics and create interview schedule, addenda and questions. The Planner/PM will notify shortlisted firms of the interview date, time, and location. Planner/PM and SC develop the interview weighted evaluation criteria. A copy of the questions and interview criteria must be sent to SC and shortlisted firms prior to the interview.

## Interview/Select Consultant

After the interview, the SC scores the interviewed firms based on presentation and submits their evaluation to the Planner/PM. The interview scoring and evaluation of short-listed firms are based on information submitted by respondents at interviews in conjunction with the interview selection criteria. The Planner/PM calculates results and presents the [interview score sheet](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Interview-Score-Sheet1.xlsx) to the Director of Capital Projects. The Director and the AVC review the matrix and make award recommendation to the VC for final approval.

The Planner/PM will request a Fee Proposal in accordance with the [Architect-Engineer Recommendation Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Architect-Engineer-Recommendation-Form4.xlsx) (see [A/E Fee Schedule Guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/A-E-Fee-Schedule-Guidelines2.pdf)) from the selected firm (typically no more than 10 days after notification). The proposal and summary will include:

* Statement of their understanding of the project, including their understanding of project budget, school and customer goals, and security requirements and concerns
* Detailed description of their project management, control, and delivery approach for the project
* List of sub-consultants
* Preliminary project schedule
* Proposed services (basic and additional), fees requested, and reimbursable expenses based on the WU Definition of Basic Services and Additional Services.
* Required forms for the Standard Forms of Agreement contract utilizing the [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contracts-Checklist1.xlsx) from Business Operations (including insurance certificate) if applicable
* Keep in mind the fee schedule is a guideline and should be adjusted accordingly to support the project deliverables, whether that means lower due to not all basic services needed or upward for supplemental services needed.

## Complete Contracting

In addition to the contract, the following documents must be submitted by the Planner/PM:

* Workers Compensation Certificate
* Employers Liability
* Professional Liability Insurance
* Commercial General Liability
* Comprehensive Auto Insurance
* Umbrella Coverage
* Specific coverage amounts can be found in the appropriate contract

Upon receiving all checklist items, Business Operations will prepare the contract for Planner/PM review. After their review and approval, Business Operations will electronically send the contract to the A/E for signature.

Contracts are first signed by the A/E and submitted to Business Operations via email, mail or courier.  Business Operations prepares contract for WUSM signature process and routes to all applicable internal levels.  Located in the offices of Business Operations is a Sub-Delegation of Signature Authority document that details the levels of signature authorization levels.   If for any reason, contract approvals are not achieved, the contract will be re-routed for modifications or will be canceled and closed as applicable to the situation. If for any reason there are edits to any original documentation, they must be initialed by all parties.

## Contract design service change orders – Professional Services

If a change to the signed Standard Form of Agreement is required, the process to prepare a Change Order Request is initiated by the A/E. The A/E submits a request in writing to the Planner/PM outlining the proposed scope of work revisions and applicable adjustments to the fees and/or reimbursables. The Planner/PM should work with the A/E to discuss the scope of work and negotiate the fees for the proposed design change. Upon approval, the Planner/PM directs Business Operations to issue a change order adjusting the scope and contractual fee.

Change orders must be tracked by type (see [change order memo](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Change-Order-Memo.doc)) and reported at the close of the project. Errors and Omissions that are the responsibility of the AE should not receive supplemental fee or compensation.

## PROJECT CLOSEOUT:

At the conclusion of a project, the Planner/PM or equivalent shall provide a post-performance evaluation of the A/E’s actual performance as compared to the intent of the project requirements in order to update the Professional Services Evaluation. The evaluation shall also document any significant changes in business profile, status and/or practices.

On a quarterly basis, the Director of Capital Projects shall evaluate the A/E activity reports, and applicable post-performance evaluations, to determine whether each A/E’s engagement with the School continues to provide the ‘best value’ to the School.

# Step 4: Design Phase

## Design and Project Kick-Off Meeting

With the selection of the A/E and CM (if applicable), the Project Team will gather to kick-off the design phases of the project which include Programming/Program Verification; Schematic Design; Design Development; and Construction Documents. The purpose of the kick-off meeting is to define the roles and responsibilities of the larger Project Team; to review and gain endorsement of the work plan established during Plan the Project meeting; and to charter the Project Team. If utilizing a commissioning agent, they should be engaged at the beginning of this process as well as Facilities Operations.

The ability of a Planner/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 Planner/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. Planner/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 Planner/PM looks at all project work plan elements and develops an agenda in advance to be used during the meeting. The Planner/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 Planner/PM discusses the details pertaining to the work that needs to be accomplished. The Planner/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 Planner/PM will use discretion in the selection of the topics considered pertinent based on the kick-off meeting objectives.
* Project Scope/Deliverables and Schedule – Reference [PMPOR](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Program-of-Requirements-PMPOR.doc)
* Project Budget
* Project Site(s)/Logistics - The Planner/PM will use a map or drawing to identify the site(s) or location(s) associated with the project, with the intention of providing the geographical context in which the project takes place and properly planning for logistics. Planning/PM should use the [following checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Site-Logistics-Checklist.doc) and skip sections that are not applicable. 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 session, the Planner/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 - The Project Team must understand the [project reporting (contractor)](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Reporting-Contractor.docx) (for projects over $2M) and archiving requirements (i.e., types of status reports, frequency, formats, and audience). 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, there is a [project reporting for capital projects (over $2M)](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Monthly-Report-Template-Projects-Over-2M.xls) and there is a [project reporting for capital projects (under $2M)](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Reporting-Template-for-Capital-Projects-under-2M.docx).
* Environmental Health and Safety (EHS) - Special attention will be paid to any particular hazards in connection with the project.
* Other key topics may include Operational Services (TFC, IT, Maintenance, Custodial, Security, Public Realm, etc.).
* Permitting - If permits are required for the project, the Planner/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.

Selecting Attendees

• All Project Team members should be present at the kick-off meeting.

• 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.

## 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.

A chartering session uses two-way communication to engage team members and other participants to define the “how” of the project, such as responsibilities, operating guidelines, etc. The POR template is currently used as an outline for the chartering process. For large projects, a supplemental communication plan may be required.

## Complete the Charter

A tangible product of this process is a written charter document (included in the [PMPOR](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Program-of-Requirements-PMPOR.doc)) that has been endorsed by all the participants of the chartering kickoff. Planner/PM can use the [PMPOR](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Program-of-Requirements-PMPOR.doc) provided templateto document the chartering process. The charter document is a written summary of the formal chartering elements for the project that includes, at a minimum, the team membership, project purpose statement, critical success factors, roles and responsibilities, and operating guidelines. The charter document is formally endorsed and shared with all individuals and groups with whom the team has primary interface and communications.

During the chartering session, 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.
* Quality creep: when project standards and specifications are not followed. An understanding of project quality standards and specifications should be documented in the charter.
* 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 Physical Planning and Capital Project Team for review and approval.

## Endorse the Charter

The charter document is prepared with input and endorsed by the Project Team. As the project progresses through all phases, it may be necessary to review the charter and revise and update the work plan.

## Endorsement by the Project Team

The Project Team (including the customer) is asked to provide a written endorsement of the charter and work plan.

## 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/2015/02/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.

The A/E 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, the A/E 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.

## In House Design/Planning

A Planner/PM may perform in house design/plans services for small projects. The use of in house design/planner must be discussed with the Director of Capital Projects or equivalent.

## Schematic Design Phase

Schematic Design (SD) is a critical phase where expectations are set and the design budget and schedule are established. Schematic design determines the general scope, preliminary design, and the urban character, scale, and relationships among the components of the project and the adjacent environment. During this phase, the customer details the specific requirements for the design option developed during programming.

The primary objective of SD 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 A/E 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 A/E 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. Follow the [Design & A/V guidelines for any shared spaces](https://facilities.med.wustl.edu/wp-content/uploads/2014/10/Design-and-AV-Guidelines.pdf) and the [Surplus FFE guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Surplus-Furniture-Guidelines.pdf) for all space.

1. **Equipment:**

Whether an office project or a laboratory project, all equipment must be documented and placement known prior to relocation. The PM/Planner should also review the [Emergency Power Guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2018/03/Emergency-Power-Guidelines.pdf). 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.

## Deliverables – Schematic Design

The deliverables for SD include site drawings, floor plans, elevations, building sections, equipment and furniture layouts, massing studies, updated project schedule, updated Statement of Estimated Construction Cost, [Basis of Design for Renovations and New Construction](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Basis-of-Design-for-Renovation-and-New-Construction.pdf), life cycle cost analysis and project specifications. The A/E must also present a summary of all changes from the POR.

## Distribute Deliverables for Review – Schematic Design

The 90-95% SD materials are submitted to the team for review with the [Transmittal Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Transmittal-Cover-Template.doc)included. If applicable, a review meeting is scheduled by the Planner/PM where written comments from the Project Team are provided and reviewed. The A/E is expected to respond to all comments in writing and submit revised materials as needed before SD is complete and accepted.

## Design Development Phase

The Design Development (DD) phase refines the scope of work previously approved in the SD phase. In this phase the project is developed to a greater level of detail to define a clear, coordinated description of all aspects of the project. Building systems, building equipment, fire protection, mechanical, electrical, structural, telecommunications, and plumbing are designed and coordinated through enlarged scale drawings, detailed elevations, and plans. The primary objective of the DD phase is to complete all designs layout and configurations required for the project. This requires the A/E and the Project Team to verify all parts of the design.

The A/E must graphically demonstrate the design to address all exterior and interior architectural and environmental elements as well as site design in order to communicate the total concept. Any change to the project’s scope or program after this phase will likely incur negative budget and schedule impacts.

## Deliverables – Design Development

The deliverables for the DD phase must include drawings for architectural and civil disciplines, structural disciplines, plumbing and mechanical disciplines, electrical disciplines, the project manual, final life cycle cost analysis, updated Estimated Statement of Construction Cost, updated project schedule and the [WUSM Drawing Review Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Drawing-Review-Checklist-1.doc).

## Distribute Deliverables for Review – Design Development

The 50% DD materials are submitted to the Project Team for review with the [Transmittal Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Transmittal-Cover-Template.doc) included. If applicable, a review meeting is scheduled by the Planner/PM where written comments from the Project Team are provided and reviewed. The A/E is expected to respond to all comments in writing and submit revised materials as needed before DD is completed and accepted.

## Construction Documents Phase

The Construction Documents (CD) phase is the last stage of design. The A/E is focused on finalizing the drawings and specifications for all components and systems of the building. A complete set of CDs provides a comprehensive, fully coordinated set of construction drawings and specifications that the A/E and Project Team use to determine the final construction cost, to obtain the necessary permits, and to use as bid documents to construct the project. Because the A/E is responsible for delivering the project as defined at the end of the DD phase, changes to the scope or program in this phase may incur negative budget impact and schedule delays.

The primary objective of the CD phase is to produce bid documents for the various trade contractors. In this stage the final notes, tables, and instructions for execution of the construction for the project is specifically defined into contract phases for prime contractor trades.

During this phase, an interim review is conducted of the drawings and specifications at 50% CD completion for constructability and to identify any conflicts or issues. When CDs are 90-95% complete, a final constructability review is conducted.

The cost information presented by the A/E at the CD phase must be based upon supportive cost information from the updated Statement of Estimated Construction Cost prepared at DD.

## Final Review of Deliverables

The CD materials are submitted to the team for review with the [Transmittal Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Transmittal-Cover-Template.doc) included. If applicable, a review meeting is scheduled by the Planner/PM where written comments from the team are provided and reviewed. The A/E is expected to respond to all comments in writing and submit revised materials as needed before CDs are completed and accepted.

## Approve Final Deliverables

Once the Planner/PM verifies that all comments have been addressed and all issues resolved, the cover sheet should be signed by the Director of Capital Projects or equivalent and the final deliverables accepted, which means the project is ready for bidding.

Once all signatures are received, the drawing set is ratified and the project is deemed to have been sufficiently reviewed, the project is ready for construction.

## Other Required Design Elements

**Plan Approval and Permits**

The Professional Service Provider is responsible for reviewing and 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.

Other plan approvals may include City Agencies, Alderman, WUMC, Executive Faculty, Board of Trustees, other Utilities, Donor and/or Neighbors.

For small projects where there is no A/E, the Planner/PM is responsible for securing any appropriate permits through the use of the General Contractor. 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.

**SDI – supplier diversity initiative**

The Planner/PM must ensure that the Project Team establishes SDI goals for both Enterprise Spend and MBE/WBE Workforce for various contracted components of the project. The form used to measure their performance on workforce throughout the project is the [SDI Utilization Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/SDI-Utilization-Form.xls) and must be attached to invoices for contract values over $100,000. Also, attach to the invoice the required [Direct Pay to MWBE](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Direct-Pay-to-MWBE-Form.xls) firms, whether the firm is a primary and/or subcontractor.

# Step 5: Selection of Contractor

This phase includes procuring the construction products and services required for successful project delivery. Methods of contractor selection include Design Bid Build, CM – GMP with Guaranteed Maximum Price, CM – At Risk, In-House Renovations (Owner Provided Service), and Continuing Services (utilizing Continuing Services Agreement). Although competitive bidding is recommended, projects <$25,000 can be directly negotiated with a contractor of choice without going through a formal competitive bid process. Sole Source Approval is required for all contracts >$25,000 that is not competitively bid.

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.

## Business operations

See Sole Source File in Business Operations Appendix 1.

## 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 Planner/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 Planner/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.*

## Bidding

This guideline focuses on the use of the Design-Bid-Build method that provides guidance when this project delivery method is best suited for a given project. This guideline can be utilized for both solicitation of contractors or vendors. Where the Design-Bid-Build process is utilized the following applies.

1. Design-Bid-Build Process
	* 1. Specification Preparation

The Architect/Engineer team is responsible for completion of the specifications to be included in the contract documents. The specifications should outline the requirements to be satisfied by any material, design, product, or service supplied to the project by the contractor. The A/E team should include all applicable [WUSM Design Standards and WUSM Construction Standards](http://facilities.med.wustl.edu/planning-construction/design-standards/) in the specifications. These standards have been developed to inform the design professionals of preferred manufacturers, installation requirements, and construction techniques that are desired by WUSM. The Planner/PM should review the project specifications with key stakeholders (e.g. Facilities Operations, EH&S, TFC/IT, etc.) to ensure that the standards are being appropriately applied on a project by project basis (depending on building, system type, etc.).

1. Front End and Contract Documents

The Planner/PM is responsible for issuing the [Formal Invitation to Bid (ITB)](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/formal-invitation-to-bid/) to the Architect/Engineer to be updated with project specific information and issued with the specifications. The ITB includes the following:

* Instructions to Bidders
	+ Outlines the procedure for receipt and opening of bids. The Bidder’s Proposal should be completed on the form provided to the Bidder in the ITB. An original plus two copies of the Bid must be submitted in a sealed envelope as described to Washington University Resource Management. The PM is responsible for coordinating the bid due date and time with the Senior Contract Management Liaison in WUSTL Resource Management.
	+ Outlines the process for the Bidder’s to obtain the contract documents. Contract documents may be sent to local printers, issued as PDFs via email, uploaded to an A/E FTP site or WUSTL Dropbox for download by the Bidder. The Planner/PM is responsible for coordinating the document distribution with the A/E.
	+ The Planner/PM, in conjunction with the A/E, if applicable, may set a time and place for a mandatory Pre-Bid Meeting, which will be included in the Instruction to Bidders document. The Pre-Bid Meeting is an opportunity for the bidders to examine the site, ask questions, and allow potential bidders to attain a complete understanding of the bid documents. A standard [Pre-Bid Meeting Agenda](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Pre-Bid-Meeting-Agenda-.doc) is available for use by the Planner/PM. Any changes to bid documents during the bid period will be performed by the A/E via a written addendum. The A/E will then deliver this addendum to the bidders at a stipulated and/or agreed upon time frame (including post-bid addenda) and the bidders will acknowledge receipt of this addendum as part of their bid submittal.
	+ If a potential bidder perceives any conflict, error, omission, or discrepancy on or between any of the bid documents, the bidder may submit a request for interpretation or clarification. The request for interpretation or clarification must be submitted in writing as indicated in the [Formal Invitation to Bid (ITB)](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/formal-invitation-to-bid/). The A/E’s response to this submittal and all such interpretations and other supplemental instructions will be in the form of a written addendum to the Plans issued to all Bidders. All addenda so issued shall become a part of the Contract Documents.
* The [Formal Invitation to Bid (ITB)](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/formal-invitation-to-bid/) should include the Form of Bidder’s Proposal. The Planner/PM is responsible for working with the Architect/Engineer, when applicable, to populate the Form of Bidder’s Proposal. The Form of Bidder’s Proposal should request that the Bidder submit all information necessary for a thorough evaluation of project requirements. This includes but is not limited to the cost proposal and CSI breakout, bid alternates or unit prices, schedule, MBE/WBE participation, insurance limits, bonding capacity, etc.
* The Planner/PM should forward the following additional documents for the A/E to include in the ITB.
	+ Purchase Order – (optional) for contract amounts less than $100,000
	+ Draft of Contract – [Standard Form of Agreement Between Owner and Contractor – Stipulated Sum](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Standard-Form-of-Agreement-Between-Owner-and-Contractor-Stipulated-Sum.pdf) or [Short Form Construction Agreement](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Short-Form-Construction-Agreement.pdf), depending on project size.
	+ [Used Lamp Disposal Policy](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Used-Lamp-Disposal-Policy.pdf)
	+ [Washington University General Conditions Matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/General-Conditions-Matrix.docx)
	+ [Washington University General Conditions of Contract](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/General-Conditions-for-Contracts.pdf)
	+ [Wage Rate Sheet](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Wage-Rate-Sheet.pdf)
	+ [Safety Guidelines for Contractors](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Safety-Guidelines-for-Contractors-1.pdf)
* The A/E is responsible for preparation of the Contract Documents – drawings and specifications. The Planner/PM should prepare any additional contract documents to be included with the Bidder’s Package. Additional contract documents include, but are not limited to, schedules, logistics documents, etc.
* A list of the Contract Documents should be outlined in the [Formal Invitation to Bid (ITB)](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/formal-invitation-to-bid/)**,** listed by name of preparer, drawing or specification number, title, last revision number and date.
1. Determination of Bidders List

The Planner/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), [MCITS approved Low Voltage Contractor List](https://facilities.med.wustl.edu/wp-content/uploads/2017/04/Low-Voltage-Contractor-List.pdf)and the [A/V Vendor List](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/A-V-Vendor-List.pdf). The Planner/PM should consult and receive approval on this contractor list from the Director of Capital Projects prior to issuing the Invitation to Bid.

1. Out to Bid

 The bid time frame is established depending upon the project size and/or complexity. Additionally, the bid notice identifies the bid duration and address location for bid submittal.

1. Receipt of Bids

Currently all bids are accepted paper or electronically with approval. Unless approval is granted by Resource Management, all bids must be delivered to Resource Management at 700 Rosedale, St. Louis, Mo 63112­­­­­

1. Bid Opening

All bids are opened by Resource Management with the Planner/PM in attendance, then initialed and dated by the Senior Contract Liaison. Requested bidding information, including any alternates, voluntary alternates, exclusions and project construction durations are identified and tabulated on the Bid Tab Summary Form included in the [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) that the Planner/PM has developed based on the Bidder’s Proposal Form, for a later in depth review and evaluation by the Planner/PM.

1. Bid Tab Summary Analysis

The Planner/PM should use the completed Bid Tab Summary to evaluate all bids received to determine the lowest, qualified bidder. The lowest, qualified bid should be copied into the column indicated on the form for comparison back to the Preliminary Budget for the construction scope. The Planner/PM should review the results noted in the Bid Tab Summary with the Director of Capital Projects to ensure the project is on budget prior to proceeding. Any bid alternates that may be included shall also be reviewed with the Director of Capital Projects at this time to determine whether or not the project is able to accept them. After this review is complete and upon approval, the Planner/PM should send a completed copy of the Bid Summary Cover Memo along with the Bid Tab form located in the [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-4.xls) to the Director of Capital Projects for final review and approval and the Business Office accounting representative who forwards it to the Senior Contract Liaison with Resource Management for his/her file.

1. **Construction Manager with a Guaranteed Maximum Price (CM-GMP)**

A [CM RFP](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/CM-RFP-CBHQ-Sample.docx) is an invitation to selected companies to submit a proposal to serve as Construction Managers. The RFP is typically focused on two parts: Part 1 Pre-Construction, a cost for Pre-Construction Services and Part 2 Construction Phase, a proposal that includes: the CM fee stated as a percentage of their estimated construction value, estimate of general conditions based on the [Washington University General Conditions Matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/General-Conditions-Matrix.docx), overall construction cost opinion for the project and their recommendation for the project contingency, a proposed construction schedule identifying the project durations and overall timeline, identification of their project team, their anticipated MBE/WBE participation on the project and any other items the project specific RFP would request. The award is based upon the lowest qualified proposal after evaluating all of the required criteria noted above. The RFP uses a sealed bid method.

*It should be noted that the CM – GMP with guaranteed maximum price is typically utilized on larger new construction projects where it is advantageous to bring a construction manager on board during the design process to help establish the construction budget, provide cost evaluations through the design process and ensure that the project remains on budget and ultimately provides a guaranteed maximum price. Typically the RFP review and selection process requires added time to complete an “evaluation phase” whereby evaluators are reviewing respondent proposals, short listing respondents for interviews and final selection. The evaluation phase of an RFP tends to add time to the procurement process.*

## Bidding

This guideline focuses on the use of the CM – GMP method using the CM RFP that provides information about the project WUSM is requesting proposal for.

The Planner/PM begins by preparing a [CM RFP](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/CM-RFP-CBHQ-Sample.docx) outlining the project scope, the services needed, and selection criteria.

The **RFP** is reviewed by the Director of Capital Projects before it is sent to Resource Management. Planner/PM identification and recommendation of the Selection Committee (SC), if required, is forwarded along with the RFP draft. The Planner/PM incorporates any edits to the RFP.

The Planner/PM then works with the Director of Capital Projects to formalize the preliminary list of contractors based on a review of the [WU Master Contractor List](https://facilities.med.wustl.edu/wp-content/uploads/2018/02/Master-Contractor-List.pdf), [MCITS approved Low Voltage Contractor List](https://facilities.med.wustl.edu/wp-content/uploads/2017/04/Low-Voltage-Contractor-List.pdf) and the [A/V Vendor List](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/A-V-Vendor-List.pdf).

## RFP Submission Process

1. Planner/PM forwards to Resource Management for final review and then the document is sent out by the Planner/PM to the selected contractors.
2. The Planner/PM conducts a pre-bid conference and issues responses to questions, as applicable during the proposal period. The Planner/PM is responsible for meeting logistics. After deadline for questions, the Planner/PM issues a final response to incorporate all pre-submittal questions per the time frame noted in the RFP.
3. After the proposals are received, the Planner/PM will enter the evaluation criteria responses into a CM RFP Evaluation for use in evaluating each proposal.
4. The Planner/PM, along with the Director of Capital Projects, sends a short list recommendation to Assistant Vice Chancellor/Assistant Dean of Facilities (AVC) who in turn forwards to the Associate Vice Chancellor of Administration and Finance (VC) for approval.
5. Upon response of approval or recommended action, Planner/PM will perform logistics and create interview schedule, addenda and questions. The Planner/PM will notify shortlisted firms of the interview date, time, and location. Planner/PM and SC develop the interview weighted evaluation criteria. A copy of the questions and interview criteria must be sent to SC and shortlisted contractors prior to the interview.

## Interview/Select cm

After the interview, the SC scores the interviewed firms based on presentation and submits their evaluation to the Planner/PM. The interview scoring and evaluation of short-listed firms are based on information submitted by respondents at interviews in conjunction with the interview selection criteria. The Planner/PM calculates results and presents the scoring matrix to the Director of Capital Projects. The Director and the AVC review the matrix and make award recommendation to the AVC of Administration and Finance for final approval. The Planner/PM will initiate the preparation of the [Standard Form of Agreement Between the Owner and Construction Manager](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Standard-Form-of-Agreement-Between-Owner-and-Construction-Manager1.pdf), which will include:

* Detailed description of their project management, control, and delivery approach for the project
* Initial GMP amount
* List of sub-contractors, if any known at this time
* Preliminary project schedule
* Required forms for the Standard Forms of Agreement contract utilizing the [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contracts-Checklist1.xlsx) from Business Operations (including insurance certificate) if applicable

## Complete Contract

In addition to the contracts checklist, the following documents must be submitted by the Planner/PM:

* Workers Compensation Certificate
* Employers Liability
* Professional Liability Insurance
* Commercial General Liability
* Comprehensive Auto Insurance
* Umbrella Coverage
* Specific coverage amounts can be found in the [Insurance Limits for Contractors](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Insurance-Limits-for-Contractors.pdf) and [Insurance Limits for Architects and Engineers](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Insurance-Limits-for-Architects-Engineers.pdf)

Upon receiving all checklist items, Business Operations will prepare the contract for Planner/PM review. After their review and approval, Business Operations will electronically send the contract to the CM for signature.

Contracts are first signed by the CM and submitted to Business Operations via email, mail or courier.  Business Operations prepares contract for WUSM signature process and routes to all applicable internal levels.  Located in the offices of Business Operations is a Sub-Delegation of Signature Authority document that details the levels of signature authorization levels.   If for any reason, contract approvals are not achieved, the contract will be re-routed for modifications or will be canceled and closed as applicable to the situation. If for any reason there are edits to any original documentation, they must be initialed by all parties.

1. ***Construction Manager at Risk – CM at Risk***

A Formal Request for Proposal (RFP) utilizing the [CM RFP](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contracts-Checklist1.xlsx) is an invitation to selected companies to submit a proposal to serve as Construction Managers. The RFP is typically focused on two parts: Part 1 Pre-Construction, a cost for Pre-Construction Services and Part 2 Construction Phase, a proposal that includes: the CM fee stated as a percentage of their estimated construction value, estimate of general conditions based on the [Washington University General Conditions Matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/General-Conditions-Matrix.docx), overall construction cost opinion for the project and their recommendation for the project contingency, a proposed construction schedule identifying the project durations and overall timeline, identification of their project team, their anticipated MBE/WBE participation on the project and any other items the project specific RFP would request. The award is based upon the lowest qualified proposal after evaluating all of the required criteria noted above. The RFP uses a sealed bid method.

*It should be noted that the CM – At Risk has not been utilized by the School of Medicine.*

## business operations

See Contracts PO File in Business Operations Appendix 1.

## Bidding

This guideline focuses on the use of the CM – At Risk method using the CM RFP that provides information about the project WUSM is requesting proposal for.

The Planner/PM begins by preparing a [CM RFP](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/CM-RFP-CBHQ-Sample.docx) outlining the project scope, the services needed, and selection criteria.

The RFP is reviewed by a Director of Capital Projects before it is sent to Resource Management. Planner/PM identification and recommendation of the Selection Committee (SC), if required, is forwarded along with the RFP draft. The Planner/PM incorporates any edits to the RFP.

The Planner/PM then works with the Director of Capital Projects to formalize the preliminary list of contractors based on a review of the [WU Master Contractor List](https://facilities.med.wustl.edu/wp-content/uploads/2018/02/Master-Contractor-List.pdf), [MCITS approved Low Voltage Contractor List](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Low-Voltage-Contractor-List-1.pdf) and the [A/V Vendor List](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/A-V-Vendor-List.pdf).

## RFP Submission Process

1. Planner/PM forwards to Resource Management for final review and then the document is sent out by the Planner/PM to the selected contractors.
2. The Planner/PM conducts a pre-bid conference and issues responses to questions, as applicable during the proposal period. The Planner/PM is responsible for meeting logistics. After deadline for questions, The Planner/PM issues a final response to incorporate all pre-submittal questions per the time frame noted in the RFP.
3. After the proposals are received, the Planner/PM will enter the evaluation criteria responses into a [CM RFP Evaluation Matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/CM-RFP-Evaluation-Matrix.xlsx)) for use in evaluating each proposal.
4. The Planner/PM along with the Director of Capital Projects sends a short list recommendation to Assistant Vice Chancellor/Assistant Dean of Facilities (AVC) who in turn forwards to the Associate Vice Chancellor of Administration and Finance (VC) for review and approval.
5. Upon response of approval or recommended action, Planner/PM will perform logistics and create interview schedule, addenda and questions. The Planner/PM will notify shortlisted firms of the interview date, time, and location. Planner/PM and SC develop the interview weighted evaluation criteria. A copy of the questions and interview criteria must be sent to SC and shortlisted contractors prior to the interview.

## Interview/Select cm – at risk

After the interview, the SC scores the interviewed firms based on presentation and submits their evaluation to the Planner/PM. The interview scoring and evaluation of short-listed firms are based on information submitted by respondents at interviews in conjunction with the interview selection criteria. The Planner/PM calculates results and presents to the scoring matrix to the Director of Capital Projects. The Director and the AVC review the matrix and make award recommendation to the AVC of Administration and Finance for final approval. The Planner/PM will initiate the preparation of the [Standard Form of Construction Management Agreement between the Owner and Construction Manager](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Standard-Form-of-Agreement-Between-Owner-and-Construction-Manager1.pdf), which will include:

* Detailed description of their project management, control, and delivery approach for the project
* Initial contract amount
* List of sub-contractors, if any known at this time
* Preliminary project schedule
* Required forms for the Standard Forms of Agreement contract utilizing the [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contracts-Checklist1.xlsx) from Business Operations (including insurance certificate) if applicable

## Complete Contract

In addition to the contracts checklist, the following documents must be submitted by the Planner/PM:

* Workers Compensation Certificate
* Employers Liability
* Professional Liability Insurance
* Commercial General Liability
* Comprehensive Auto Insurance
* Umbrella Coverage
* Specific coverage amounts can be found in the [Insurance Limits for Contractors](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Insurance-Limits-for-Contractors.pdf) and [Insurance Limits for Architects and Engineers](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Insurance-Limits-for-Architects-Engineers.pdf)

Upon receiving all checklist items, Business Operations will prepare the contract for Planner/PM review. After their review and approval, Business Operations will electronically send the contract to the CM for signature.

Contracts are first signed by the CM and submitted to Business Operations via email, mail or courier.  Business Operations prepares contract for WUSM signature process and routes to all applicable internal levels.  Located in the offices of Business Operations is a Sub-Delegation of Signature Authority document that details the levels of signature authorization levels.   If for any reason, contract approvals are not achieved, the contract will be re-routed for modifications or will be canceled and closed as applicable to the situation. If for any reason there are edits to any original documentation, they must be initialed by all parties.

1. **Design Build**

A Formal Request for Proposal (RFP) utilizing the [Design Build RFP](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Design-Build-RFP.docx) is an invitation to selected companies to submit a proposal to serve as Design Build Contractors. The RFP focuses on Design Phase Activities, Pre-Construction Activities, Bidding and Award Activities, Construction Phase Activities and Warranty Activities. The Design Build firm is required to assemble a team of architects, engineers, sub-contractors and consultants necessary and solicit a cost for design and construction of the complete building program. Their proposal typically is broke down into two components: Part 1 Pre-Construction Activities with a lump sum cost for Pre-Construction Services and a fee for the Design Phase as a percentage of direct cost of construction and Part 2 Construction Phase with a fee stated as a percentage of construction value, estimate of general conditions based on the [Washington University General Conditions Matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/General-Conditions-Matrix.docx), overall construction cost opinion for the project and their recommendation for the project contingency, a proposed construction schedule identifying the project durations and overall timeline, identification of their project team, their anticipated MBE/WBE participation on the project and any other items the project specific RFP would request. The award is based upon the lowest qualified proposal after evaluating all of the required criteria noted above. The RFP uses a sealed bid method.

*It should be noted that a formal Design Build process is seldom used at the School of Medicine. There may be an occasion where the School of Medicine hires an MEP contractor as a contractor-led design build vendor for small scale MEP system projects.*

## business operations

See Contracts PO File in Business Operations Appendix 1.

## Bidding

This guideline focuses on the use of the Design Build method using an [invitation to bid](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/formal-invitation-to-bid/) that provides guidance when this project delivery method is best suited for a given project. This guideline can be utilized for both solicitation of contractors or vendors. Where the Invitation to Bid process is utilized the following applies.

1. Invitation to Bid Process
	* 1. Specification Preparation

The Architect/Engineer team is responsible for completion of the specifications to be included in the contract documents. The specifications should outline the requirements to be satisfied by any material, design, product, or service supplied to the project by the contractor. The A/E team should include all applicable [WUSM Design Standards and WUSM Construction Standards](http://facilities.med.wustl.edu/planning-construction/design-standards/) in the specifications. These standards have been developed to inform the design professionals of preferred manufactures, installation requirements, and construction techniques that are desired by WUSM. The Planner/PM should review the project specifications with key stakeholders (e.g. Facilities Operations, EH&S, TFC/IT, etc.) to ensure that the standards are being appropriately applied on a project by project basis (depending on building, system type, etc.).

1. Front End and Contract Documents

The Planner/PM is responsible for issuing the [Formal Invitation to Bid (ITB)](https://facilities.med.wustl.edu/planning-construction/project-delivery/project-delivery-tools-and-references/formal-invitation-to-bid/wusmfs2/fmddepts/Shared/Project%20Delivery%20Manual/Step%205/Front%20End%20Package) to the Architect/Engineer to be updated with project specific information and issued with the specifications. The ITB includes the following:

* Instructions to Bidders
	+ Outlines the procedure for receipt and opening of bids. The Bidder’s Proposal should be completed on the form provided to the Bidder in the ITB. An original plus two copies of the Bid must be submitted in a sealed envelope as described to Washington University Resource Management. The PM is responsible for coordinating the bid due date and time with the Senior Contract Management Liaison in WUSTL Resource Management.
	+ Outlines the process for the Bidder’s to obtain the contract documents. Contract documents may be sent to local printers, issued as PDFs via email, uploaded to an A/E FTP site or WUSTL Dropbox for download by the Bidder. The Planner/PM is responsible for coordinating the document distribution with the A/E.
	+ The Planner/PM, in conjunction with the A/E, if applicable, may set a time and place for a mandatory Pre-Bid Meeting, which will be included in the Instruction to Bidders document. The Pre-Bid Meeting is an opportunity for the bidders to examine the site, ask questions, and allow potential bidders to attain a complete understanding of the bid documents. A standard [Pre-Bid Meeting Agenda](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Pre-Bid-Meeting-Agenda-.doc) is available for use by the Planner/PM. Any changes to bid documents during the bid period will be performed by the A/E via a written addendum. The A/E will then deliver this addendum to the bidders and the bidders will acknowledge receipt of this addendum as part of their bid submittal.
	+ If a potential bidder perceives any conflict, error, omission, or discrepancy on or between any of the bid documents, the bidder may submit a request for interpretation or clarification. The request for interpretation or clarification must be submitted in writing as indicated in the [Instructions to Bidders](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Front-End-Package.zip)**.** The A/E’s response to this submittal and all such interpretations and other supplemental instructions will be in the form of a written addendum to the Plans issued to all Bidders. All addenda so issued shall become a part of the Contract Documents.
* The ITB should include the Form of Bidder’s Proposalin the Formal Invitation to Bid package.The Planner/PM is responsible for working with the Architect/Engineer, when applicable, to populate the Form of Bidder’s Proposal. The Form of Bidder’s Proposal should request that the Bidder submit all information necessary for a thorough evaluation of project requirements. This includes but is not limited to the cost proposal and CSI breakout, bid alternates or unit prices, schedule, MBE/WBE participation, insurance limits, bonding capacity, etc.
* The Planner/PM should forward the following additional documents for the A/E to include in the ITB.
	+ Draft of Contract – [Standard Form of Agreement Between Owner and Contractor – Stipulated Sum](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Standard-Form-of-Agreement-Between-Owner-and-Contractor-Stipulated-Sum.pdf) or [Short Form Construction Agreement](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Short-Form-Construction-Agreement.pdf), depending on project size.
	+ [Used Lamp Disposal Policy](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Used-Lamp-Disposal-Policy.pdf)
	+ [Washington University General Conditions](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/General-Conditions-for-Contracts.pdf)
	+ [Wage Rate Sheet](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Wage-Rate-Sheet.pdf)
	+ [Safety Guidelines for Contractors](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Safety-Guidelines-for-Contractors-1.pdf)
* The A/E is responsible for preparation of the Contract Documents – drawings and specifications. The Planner/PM should prepare any additional contract documents to be included with the Bidder’s Package. Additional contract documents include, but are not limited to, schedules, logistics documents, etc.
* A list of the Contract Documents should be outlined in the Instructions to Bidders, listed by name of preparer, drawing or specification number, title, last revision number and date.
1. Determination of Bidders List

The Planner/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), [MCITS approved Low Voltage Contractor List](https://facilities.med.wustl.edu/wp-content/uploads/2017/04/Low-Voltage-Contractor-List.pdf) and the [A/V Vendor List](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/A-V-Vendor-List.pdf)**.** The Planner/PM should consult and receive approval on this contractor list from the Director of Capital Projects prior to issuing the Invitation to Bid.

1. Out to Bid

 The bid time frame is established depending upon the project size and/or complexity. Additionally, the bid notice identifies the bid duration and address location for bid submittal.

1. Receipt of Bids

Currently all bids are accepted by paper or electronically with approval. Unless approval is granted by Resource Management, all bids must be delivered to Resource Management at 700 Rosedale, St. Louis, Mo 63112­­­­­

1. Bid Opening

All bids are opened by Resource Management with the Planner/PM in attendance, then initialed and dated by the Senior Contract Liaison. Requested bidding information, including any alternates, voluntary alternates, exclusions and project construction durations are identified and tabulated on the Bid Tab Summary Form included in the [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) that the Planner/PM has developed based on the Bidder’s Proposal Form, for a later in depth review and evaluation by the Planner/PM.

1. Bid Tab Summary Analysis

The Planner/PM should use the completed Bid Tab Summary to evaluate all bids received to determine the lowest, qualified bidder. The lowest, qualified bid should be copied into the column indicated on the form for comparison back to the Preliminary Budget for the construction scope. The Planner/PM should review the results noted in the Bid Tab Summary with the Director of Capital Projects to ensure the project is on budget prior to proceeding. Any bid alternates that may be included shall also be reviewed with the Director of Capital Projects at this time to determine whether or not the project is able to accept them. After this review is complete and upon approval, the Planner/PM should send a completed copy of the Bid Tab Summary included in the [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) to the Senior Contract Liaison with Resource Management for his file.

1. **In-House Renovation & In-House Project Support**

For minor projects, Planner/PM’s are encouraged to take advantage of services available through the School of Medicine for minor renovations including but not limited to: carpentry, painting, installation of artwork, equipment repair, lock changes, minor casework modifications and flooring.

The Planner/PM should request a proposal through ServiceNow for utilization of the In House Renovation group for minor renovations.

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 Planner/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 Planner/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 Planner/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 Planner/PM shall provide Business Operations the items required under the [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contracts-Checklist1.xlsx) for preparation of a purchase order. Once the contractor has been determined, the Planner/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 Planner/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 Planner/PM does not have the option of seeking competitive bids.

## design build – minor projects <$250,000

1. Utilize [Short Form Bidder’s Proposal](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Short-Form-Bidders-Proposal.doc) and the [Short Form Instruction to Bidders](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Instruction-to-Bidders-Short-Version.doc) using the same procedures as major projects. The minor projects bidder’s package is simply a shortened form version.
2. Design build should be used if it has been determined that there is no need for an architect or engineer on the project. Where the project scope of work can be explained to the bidding contractor(s) via a verbal description and/or by in-house generated drawings or sketches. The contractor(s) will bid the work and the winning contractor will be responsible for sealing and signing the drawings, if required.
3. The contract documents will consist of theShort Form Bidder’s Proposal and the Short Form Instruction to Bidders. The contract will be a stipulated sum fixed fee contract or time and materials short form if >$100K and a P.O. for projects <$100K.
4. When bidding the project, the contractors must always follow the [WUSM Design Standards and WUSM Construction Standards](http://facilities.med.wustl.edu/planning-construction/design-standards/) unless agreed in writing from the Washington University Planner/PM.

## 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

Upon approval by the Director of Capital Projects, the Planner/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 Planner/PM should use the completed the Bid Tab Summary and the Bid Summary Cover Memo included in the [Preliminary Estimate Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Preliminary-Estimate-Form-5.xls) to review against the Preliminary Estimate. If the construction bids came in at or below the Preliminary Estimate, the Preliminary Estimate can be used to generate the resolution amount for funding approval. If the construction or other bids are higher than the Preliminary Estimate, the Planner/PM should gain approval from the appropriate stakeholders and then adjust the Resolution Budget to reflect the actual bids received for Project Funding.

At this time, a thorough review of the POR should be completed by the Planner/PM and any changes should be reviewed and endorsed by the Project Team. 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-Description2.pdf) & [Planner](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Manager-Planner-Job-Description.pdf) Responsibilities: The initial project planning effort should identify how the project management duties will be delivered throughout the project. The Planner/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. 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 Planner/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)

Also referred to as the Pre-Construction Meeting, this is a time for the Project Team to meet to review the project scope, review the work plan and define roles and responsibilities for all team members. An update of the charter may be required at this time. All project team members should attend this meeting – including, but not limited to the department representative, Planner/PM, Facilities Representatives, EH&S, Architect and Engineer, General Contractor and Subcontractors. 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 Planner/PM. Please note that prior to taking an existing space off line for construction, the Planner/PM is responsible for reporting the start and substantial completion target dates to the Physical Planning team to ensure the space is properly decommissioned for construction, operations is informed and the plan for return to occupancy is coordinated with other entities within OFMD. This is critical to our ongoing space planning and reporting of both active and inactive space.

During the Pre-Construction Meeting, the Planner/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)**.** Planner/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). Planner/PM should also reference the[WUMC Communications Contact List](file:///G%3A%5CShared%5CWUMC%20Facilities%20Officers%5CWUMC%20Communications%20Contact%20Information.xlsx) and the [Used Lamp Disposal Policy](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Used-Lamp-Disposal-Policy.pdf). The Planner/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 Planner/PM who will then forward it to the Administrative Coordinator, who will then input the request into ServiceNow. The Planner/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 Planner/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 Planner/PM. During this meeting, the Planner/PM should discuss the Emergency Contact and Caution Signage guidelines, [caution signage](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Construction-Disruption-Signage-3.docx) 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.

Following the meeting, the Planner/PM should update the charter document to include all construction activities as discussed.

## DEVELOP PROJECT SCHEDULE

Following the Pre-Construction Meeting, the Planner/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 Planner/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. See the [Owner Provided Services Responsibility Matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Owner-Provided-Services-Responsibility-Matrix.xlsx) for roles and responsibilities of the Planner/PM and other various project stakeholders. 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.
* Medical School Central Information Technology Services (MSCITS) – 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 Planner/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 Planner/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.
		- The Planner/PM should provide notification to Custodial Services regarding closing off the work area for construction so that adequate notice is given to temporarily stop custodial cleaning in the work area.
	+ [Facilities Operations Outage Communications Guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2014/10/Planned-and-Emergency-Outage-Guidelines-2.5.16.pdf) should be discussed and scheduled as soon as possible after the notice to proceed is issued. If a contractor needs to 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 Planner/PM who is responsible for coordinating the outage with Facilities Operations and any impacted customers.
* Protective Services – 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.
* Transportation Services – For projects that require street or parking lot closings.
* 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 Planner/PM should notify the Space Information Planner and the Zone Supervisor of Facilities Operations of the affected area that the space is moving to construction (start and end dates).
	+ The Planner/PM should utilize the Move Management/FFE Coordinator as applicable for planning support. The Move Coordinator role is included in the [Owner Provided Services responsibility matrix](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Owner-Provided-Services-Responsibility-Matrix.xlsx).
* Other project specific groups as required.

## field verification - testing and inspections and commissioning

The Contractor is typically responsible for scheduling testing and inspections at the appropriate stages of construction. However, the Planner/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 Contractor, Planner/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.
* The Planner/PM obtains written direction from applicable design professionals for any certified test or inspection that failed to meet specified requirements. For any observed condition not in conformance with the contract documents, the Planner/PM coordinates correction notices through the AE to the Contractor so that appropriate action can be taken to correct the deficiencies.
* The Planner/PM collects and files the certified test and inspection reports in the project file.

The Contractor is typically responsible for scheduling commissioning activities at the appropriate stages of construction. The Planner/PM is responsible for monitoring of the commissioning effort including any enhanced commissioning that is part of the project scope. If utilizing a commissioning agent, they should be engaged at the beginning of the design process as well as Facilities Operations.

* The Commissioning Agent forwards copies of startups and inspection reports to the Contractor, , and the appropriate design professionals who review and verify that the test and inspection reports are confirming work in place is in compliance with the contract documents and performance requirements. A copy is forwarded to the Planner/PM for their information and review.
* The contractor and Planner/PM obtain written direction from applicable design professionals for any item discovered during commissioning that failed to meet specified requirements. For any observed condition not in conformance with the contract documents, the Planner/PM coordinates correction notices through the AE to the Contractor so that appropriate action can be taken to correct the deficiencies.
* The Planner/PM collects and files the commissioning report in the project file.
* The Planner/PM should distribute the commissioning report to Facilities Engineering – the Computer Room, Zone Supervisor and Building Technician(s).

## planner/pm contract administration

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

* + Monitor contractor performance of project safety requirements
	+ Participate in progress, coordination and Owner-Architect-Contractor meetings
	+ Review and approve monthly pay applications
	+ Review monthly schedule updates
	+ Review status of “Record” drawings
	+ Coordinate special inspections and school required outages and permit process
	+ Review and distribute shop drawings and submittals
	+ Review process for Requests for Information (RFI) and [Change Orders](http://www.uh.edu/plantops/forms/project-delivery/Change_Order_Form.pdf)
	+ Review and update [Project Cost Report](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Cost-Report-Test-Project.pdf) for [monthly financial forecast](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Financial-Forecast-Sample-Template.xlsx)
1. Throughout the course of construction, the Planner/PM, A/E, prime contractors and at least one Customer representative from the Project Team meet as needed to report on the construction activities, and to track submittal status, RFIs, budget, schedule and Owner Services. This is also a time to resolve conflicts and contract document discrepancies. The Prime Contractor’s PM will set the agenda, lead the meetings and document the decisions and outcomes of the meetings. The Prime Contractor’s PM will issue the meeting minutes within 72 hours. In addition to periodic project meetings, special meetings may be called to address particular situations, consider specific problems and develop unique solutions.
2. A critical function of the Planner/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 Planner/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.
3. The Planner/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 Planner/PM. The financial update should be completed prior to the Financial Forecast meetings. Attendees for the financial forecast meeting are the Director of Capital Projects, Business Operations Representative and Planner/PM.

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

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

## project reporting

Depending on the size and complexity of a project, the Planner/PM may be required to provide periodic reports to management on the project status. This project report should be completed on a monthly or bi-monthly basis and include updates on the following:

* Project Status
* Project Financial Summary Report
* Design Changes or Decisions Required
* LEED Updates
* MBE/WBE Participation – Both contract values and workforce participation.
* Schedule
* Safety

The Planner/PM is responsible for compiling the report. The report should be reviewed with the Director of Capital Projects before distribution to management.

## Site visits and field reports

Throughout the construction phase of the project, the Planner/PM should perform periodic site visits to review the progression of construction against the contractor schedule and to review the quality of installation against the contract documents. Discrepancies observed by the Planner/PM in the work being performed should be brought to the contractor’s attention and the A/E team. An A/E Field Report will be issued to the contractor for correction of the improper installation. The Planner/PM should engage other OFMD stakeholders for periodic review of the project systems. These personnel can often provide expertise in their specific work category and assist the Planner/PM with installation review and troubleshooting. Concerns by OFMD stakeholders should be brought to the Planner/PM’s attention. The Planner/PM will review and forward to the A/E for review and direction to the field.

The Planner/PM is also responsible for managing the Architect and Engineer field reports. The Planner/PM should ensure that the A/E is performing site visits and providing the documentation that is required by the contract. The A/E is responsible for following up on any required corrective actions issued to the contractor and should submit notification to the Planner/PM that items have been resolved.

## 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 Planner/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 Planner/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 Planner/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 Planner/PM to communicate project progress and changes to team members, management, customers and stakeholders, and gives Planner/PM the justification for making any adjustments to the plan. It also enables Planner/PM to measure current progress against the original work plan.
3. Once the execution of the project begins, potential changes to the project need to be managed. Ideally, changes that develop in the project should be recognized and acted upon in a proactive manner rather than waiting for them to happen and then reacting to them. During many projects, changes are not recognized because of the focus on completing the tasks at hand.
4. *Schedule Impacts*
	1. Delays in completing a project are often the culmination of a number of events. The Planner/PM must work with the A/E and/or contractors to monitor the schedule closely and work to resolve issues in a timely manner.
		* Delays can be caused by the owner, the contractors or other situations. If there are concurrent delays, one for which the owner is responsible and one for which the contractor is responsible, no damages are pursued or awarded. Time extensions may be granted to contractors with no monetary compensation, such as in the case of delays due to severe weather or other situations where the contractor is not responsible. Such time extensions are approved as a [Change Order](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Change-Order-Definitions.doc). **Planner/PM should reference the Standard Form of Agreement for detailed information concerning delays.**
		* The acceleration of work is the act of requiring work to be performed prior to the approved schedule to accommodate or reflect delays beyond the control and through no fault of the contractor (i.e. severe weather). The contractor may request a Change Order for acceleration. All schedule modifications, including acceleration, must be reviewed and approved by the Planner/PM prior to execution of change.
		* When considering a change the A/E or Planner/PM will determine the potential cost or impact the changes may have on a project. The A/E or Planner/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/PCO-Reason-Terms.xls)**.** 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. Planner/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. Upon receipt of this form, the Planner/PM needs to review with the Director of Capital Projects to determine the next steps, including but not limited to determining the funding source. Additional funds and University Leadership approval for these requests must be provided prior to execution. The Planner/PM should not use Contingency to cover the additional costs resulting from a Department Requested change.

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

When a change order is submitted by a contractor, architect, or other consultant, the Planner/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 Planner/PM should engage the Architect or Engineer during the review process to confirm that the change order pricing is accurate.

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

* The reasonability of any time extension requested through a detailed review of the baseline Master Project Schedule and the current schedule;
* The claimed quantities are consistent with the determined basic scope;
* The quoted labor and material unit prices are appropriate for the determined scope using benchmarks and recent experience of known costs and/or Means unit cost data adjusted for the locale, job conditions, and time driven escalation;
* Any charges for general conditions costs are consistent with the terms and conditions of the contract and with the scope and schedule of the changed work. (Note: general conditions costs are largely time driven.); and
* Subcontractor and Contractor mark-ups are consistent with the terms and conditions of the contract, paying particular attention to mark-ups other than standard overhead and profit line items.

The Planner/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 Planner/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 draft. The Planner/PM will review and approve the draft. Business Operations will route the change order for signatures and execution.

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

## business operations

See Change Order File in Business Operations Appendix 1.

## construction audit

On large projects (greater than $5M), University policy stipulates the Planner/PM must utilize the services of an independent Construction Auditor. The Office of University Compliance and Internal Audit has developed a list of construction audit firms to choose from. The Planner/PM is responsible for soliciting proposals and writing contracts to the selected Auditor. The Planner/PM can request that the Auditor review change orders for compliance with the contract terms.

## Approve Payment Requests

Contractor payments are submitted monthly and should be reviewed and approved according to the [WUSM Payment Authorization Levels](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/WUSM-Payment-Authorization-Levels.pdf). Process 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).

## business operations

See Progress Payments File in Business Operations Appendix 1.

## Approve Payment Requests (cont.)

For contract values under $100,000, contractors are allowed to request payment using a simple invoice. For contract values over $100,000, contractors must submit requests for payment using the [Application and Certification for Payment](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Application-and-Certification-for-Payment.xls). Business Operations will route all pay applications and invoices to the Planner/PM for review and approval. Timely approval of payment requests is important. All invoices should be submitted with the following information:

* Contract or Purchase Order Number
* Project Number
* Project Name
* Planner/PM

If the Planner/PM does not approve the invoice for any reason, the Planner/PM will clearly document the reason for rejection of the pay application routing slip. The Planner/PM will return the pay application to Business Operations who will contact the contractor to discuss the required correction. The Contractor will resolve the issues with the pay application or invoice and submit a corrected copy. The corrected copy must note all the information above and be titled with the verbiage “CORRECTION”.

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

The Business Operations Representative is responsible for verifying the following information if required:

* The Schedule of Values is approved prior to the first payment request being processed
* Invoices for new stored material being billed have been received
* Material stored does not exceed the total line item amount of the Schedule of Values, including the percent of material billed to date
* A/E and Planner/PM signatures have been received
* Retainage is calculated correctly
* Lien waivers and monthly SDI utilization information has been submitted

The Planner/PM will review the payment requests for critical items, for the percent complete to date and accuracy.

*For larger projects, the Planner/PM can request that the contractor submit a “pencil copy” of the pay application for review, prior to submission of the final pay application for the period. This will allow the Architect and Planner/PM to review and approve the draft for items included in the billing, prior to routing for Architect’s approval and processing. The Planner/PM may also be required to work with an Auditor who is responsible for reviewing pay applications and tracking invoice adjustments required to keep billings compliant with contract terms.*

The Planner/PM is also responsible for reviewing pay applications and invoices submitted by the architect or other contractors, as well as in-house charges.

## certificate of substantial completion/ punch list management

During the creation of the project schedule, the Substantial Completion Date will be noted by the Contractor. At an appropriate time prior to this noted date, the Planner/PM will verify with the Contractor that Substantial Completion will be achieved by the date established. This can be done by walking the project site. When notified by the Contractor that they are ready for Substantial Completion inspection, the Planner/PM notifies the A/E to perform site inspections to determine whether substantially complete and to generate a punch list noting all items needing correction or completion. As part of the site inspection, the Planner/PM should invite the customer to attend in order to address any concerns.

The A/E should document all punch list items as noted during the walk through for distribution to the contractor. The Planner/PM is responsible for reviewing the punchlist for accuracy and completeness. The Architect will distribute the punchlist to the contractor for completion. Re-inspections are scheduled as required until all items are resolved and signed off. The Planner/PM is responsible for determining that the project is substantially complete and that the space can be occupied for its intended use.

Substantial Completion is the date at which the project, or a designated portion of the project, is sufficiently complete - in accordance with the construction contract documents, so that the owner may use or occupy the building or designated portion thereof. This includes the completion of life safety systems, weather-tight envelope, and adequate protection of building occupants and equipment. Warranty periods begin on the Substantial Completion Date.

For projects utilizing the services of an A/E, the A/E is responsible for issuing the Certificate of Substantial Completion for the project. For projects where an A/E is not utilized or required, the Planner/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. The Planner/PM should complete the Project Space Utilization Form and deliver it to the Space Planner who will review for accuracy and approvals and forward to the Space Coordinator to update the Space Information System. Please note, if the project has multiple phases, the Project Space Utilization Form, along with project Record Documents, should be completed at the end of each phase.

The Planner/PM is responsible for routing the Certificate of Substantial Completion to the contractor and Director of Capital Projects for signature. Business Operations may assist in this process and will update the Project Management software to include the date of substantial completion for record keeping purposes.

## 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 by the contractor prior to completing the terms of the contract. The contract must resolve all punch list items within 30 days of substantial completion.

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

The Planner/PM will assess the overall quality of items on the punch list. If the list is excessive, then there is likelihood that the project is not truly substantially complete.

# Step 7: Activation, transition and closeout

## Building Transition

Activation Activities Include:

* The Planner/PM should confirm that the attic stock specified in the construction documents has been provided by the General Contractor. The attic stock should be stored in an agreed upon location, coordinated with Facilities Operations.
* The Planner/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 substantial completion and occupancy.
* The Planner/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 Planner/PM should confirm that all building systems have been tested and commissioned and that Facilities Operations has received copies of all final commissioning reports.
* The Planner/PM is responsible for scheduling building systems equipment training has been with the Contractor, Facilities Operations and the Users.
* The Planner/PM should confirm that all IT communication services have been established (Medical Networking Services and TFC).
* The Planner/PM should confirm that all locks are installed, keys have been delivered to users, and access control has been initiated by Protective Services.
* The Move Coordinator should ensure that all wayfinding and Room ID signage is installed prior to occupancy.
* The Planner/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 Move Coordinator is responsible for move Planning with User Groups. The Move Coordinator should provide updates to the Planner/PM on a pre-determined basis throughout the move planning process.
* The Planner/PM is responsible for completing the [Close Out Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Close-Out-Checklist.xlsx) at the end of each project.
1. **Facilities Staff Training and Orientation:**

Before the Facilities Operations maintenance staff is to take full responsibility of a new building or renovation project the Planner/PM is to schedule with the General Contractor training and orientation session(s) with the subcontractors or vendors of the new systems. This would include using the basis of design as a roadmap to train Facilities staff on building automation system(s), lighting controls, HVAC equipment, electrical systems and other such systems that will become the responsibility of the OFMD maintenance staff. For larger training efforts where numerous staff may have to learn the systems, the sessions should be electronically recorded for future use and stored in a format easily accessible to maintenance personnel.

1. **Department/Customer Training**:

In the event of new equipment installation by the Project Team, the Planner/PM will ensure the Contractor 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 Planner/PM should discuss with the General 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 Move Coordinator is to contact **Custodial Services** (custodial supervisor in charge of the area where the recently completed space is located) to set-up an orientation walk-through ([agenda for orientation](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Agenda-for-Orientation.doc)). If restroom/break area/lactation room dispensers have not already been provided, the Move Coordinator should request the quantity of each type of dispenser to be delivered for installation. Installation of dispensers should be previously agreed as part of the Contractor’s scope of work. Location of each dispenser is to be agreed upon with the users and custodial for service access.

The Move Coordinator should discuss project timing and custodial needs with the Custodial Services Manager as well as 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.

**Environmental Health and Safety (EHS**) should be familiar with the project from previous project reviews but it is good to communicate date of occupancy. When planning a move, the Move Coordinator should 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)). EHS is to be involved with all laboratory moves. They should be informed of other moves and will determine involvement at such time. 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) or [Infection Control (WUSM)](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Infection-Control-Risk-Assessment-WUSM1.pdf) for a final inspection. Please also view the [IRCA Bleach Protocol](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/ICRA-Bleach-Protocol.pdf).

If a project has Access Control requirements, the Planner/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 ([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)). 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 Planner/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.

1. **Custodial Preparation of Rest Rooms:**

During construction, the Move Coordinator should familiarize the Custodial staff with the new restrooms and give timeline for stocking with paper towels, toilet paper, soap and waste receptacles. The Move Coordinator should follow up to confirm date for start of regular service based upon occupancy.

1. **Utility Account Transfer (or Establishment):**

The Planner/PM should coordinate with Facility Operations regarding the start date of the new occupancy. If a utility account needs to be transferred from construction to ongoing WUSM account, inform Business Operations and Facilities Operations of the appropriate date (see [utility account transfer guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Utility-Account-Transfer-Guidelines.pdf)).

## Final Commissioning – Test & Balance

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 Planner/PM should follow up regularly to make sure this is completed. The Planner/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 Planner/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 Planner/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 Planner/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 from the Contract Documents. Sometimes additional costs are involved due to the change. The Planner/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 Planner/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:**

([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)) Working with the Move Coordinator, the Planner/PM should establish the move time frame at the beginning of the project and show it on the construction schedule as a separate line item. Initially the time frame spans a week or several weeks depending on the size of the project. The Planner/PM should discuss with the customer the exact timing of the move and factors that determine the timing. 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 may be planned around grant due dates, national conferences that the department attends, experiments that need to be completed, working hours of staff involved and other such issues. The Planner/PM is to work with the customer and the entire team to determine the best approach. When the time frame is established, communicate to all involved and document on the project schedule. The Move Coordinator will develop additional details about the move with the selected mover and the customer.

1. **Determine Items to be moved, purchased or discarded:**
2. **Furniture:**

Very early in the programming/design phase of a project, the Planner/PM and Resource Management will 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.

1. **Equipment:**

Whether an office project or a laboratory project, all equipment must be documented and placement known prior to relocation. For laboratory projects, the Planner/PM should work with the A/E and Customer for completion of 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 [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 the stickers should remain on the equipment until the move is completed.

1. **Other Contents, Items:**

The Move Coordinator should walk through the customer’s current location to observe any other possible items to move and ask if there are any other items or contents to move such as files in a storage room not visible, or other equipment that may be arriving from a vendor or other location. The Move Coordinator will document such findings and include in the design and planning. Please note this section may also apply to items that have regulatory requirements (e.g. HIPAA, employee records, etc.) where close coordination and communication with the customer may be necessary to ensure compliance.

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

The Planner/PM is to schedule a meeting (or several if needed) with the Networking Services PM, the TFC Analyst, the customer that is moving and their Desktop support staff who manage their computers. The purpose of the meeting is to review 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 with 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.

1. **Welcome Packets:**

The Planner/PM should follow the [Welcome Packet Process Guidelines](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Welcome-Packet-Guidelines.pdf) for moves into renovated and new space.

## Selection of Mover and Specialty Movers

1. **Mover Bidding:**

The Planner/PM should work with the Move Coordinator in the selection of the mover for the project. Resource Management has several pre-qualified movers with standing agreements. (**See list of prequalified movers.** [**https://resourcemanagementsecure.wustl.edu/suppliers/sl/SitePages/Category.aspx**](https://resourcemanagementsecure.wustl.edu/suppliers/sl/SitePages/Category.aspx)**)** (Senior Resource Management Liaison is the present Contract Liaison for movers in Resource Management.) Depending on the size of the move, bids will need to be received for moving services. (See bidding policy <https://resourcemanagementsecure.wustl.edu/ps/pages/policies-and-procedures.aspx>)

The Move Coordinator sets up a pre-move bidder walk-through to review all the areas and items to be moved. The Move Coordinator should provide movers with the time frame and phases of the move and floor plans of the areas being vacated and moved into.

After mover bids are received, the Move Coordinator will carefully review and take note of the amount of move materials provided, protection for building finishes, number of man hours and days for the move and number of trucks used for the move. This assists with the detailed comparison and planning for the actual move.

1. **Specialty Movers:**

Some laboratory equipment can be moved by furniture/contents movers but many pieces of lab equipment will need specialty movers (<https://resourcemanagementsecure.wustl.edu/suppliers/sl/SitePages/Laboratory.aspx>) 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 Planner/PM and requested by the Move Coordinator. (See [Contracts Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Contracts-Checklist1.xlsx).)

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

## Development of Move Plan / Detailed Move Schedule

The Planner/PM with the Move Coordinator should initiate move planning and customer transition meetings between the Project Team, Operations staff, building occupants, and other stakeholders that are involved in the day-to-day operations of campus buildings and grounds prior to substantial completion (depending on the complexity of the project). It is important to begin early to allow adequate time to address issues or prepare agreements prior to building occupancy and turnover to Facilities Operations and other school departments. This will allow time to identify and resolve key issues prior to the completion of the project. Meetings should continue on a regular basis until the project is complete and occupied. A follow up meeting should also be conducted just before the warranty expires (11 months after substantial completion). The Planner/PM should work with the Move Coordinator to complete the [Customer Transition Meeting Agenda](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Customer-Transition-Meeting-Agenda.doc).

The Move Coordinator should consolidate all of the items/activities in the [Move Planning Schedule](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Move-Planning-Schedule1.mpp) to clearly document and establish expectations for all involved. Consider move timing with logistics including the number, type and size of elevators of the building being vacated and the same for the building moving into. The Move Coordinator should contact Building Managers and/or OFMD staff to understand if scheduled elevator maintenance and/or replacement is planned during the move period. If elevators are older, alert for possible need for service response on short notice. Consider other contingencies while move planning, such as weather, other events on campus and other activities in origin or destination buildings.

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

The Planner/PM, along with the Move Coordinator, should schedule a meeting with all the necessary stakeholders to establish the exact move date(s). This will usually include the customer, the mover, the customer’s desktop support IT person, MSCITS, TFC, EHS (if a lab and/or lab support), Facilities Operations, Protective Services and potentially others depending on the move. Using the mover’s bid showing hours required, determine if the move is a single day or needs multiple days or multiple weeks. Establish the date(s) and document for all. Begin planning all the activities working backwards for all preparations to be complete by necessary time for a smooth move.

1. **Keys / Access Control:**

The Planner/PM is responsible for procurement, installation and distribution of keys and cores. Refer to the [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) for process and contact information. The doors with locks will have been determined during Design Phase. Allow four to six weeks for making the cores by the key core vendor. Be sure the cores are on site for installation at least a week prior to the move as a guide. Determine by the size of the project if the contractor or if Facilities Operations will install the cores.

1. **Signage:**

The Move Coordinator will be responsible for determining the signage schedule with the User and Sign Shop during design and construction. The Move Coordinator will place the signage order and monitor installation. Allow several weeks for the production of the signs depending on quantity. The Move Coordinator should determine the timing of the sign installation with the sign vendor. Room signs should be installed prior to the move to assist with room identification. If there is a delay in the delivery of signs, the Move Coordinator should coordinate installation of temporary signs to assist with the move.

1. **Appliances / Vending Machines:**

If a project is purchasing appliances such as refrigerators, microwaves, water dispensers, etc., the Planner/PM should contact the Move Coordinator to work with the vendor for delivery date and location. This information should be clearly identified in the PO with the vendor. Resource Management has recommended vendors for purchasing such items (<https://resourcemanagementsecure.wustl.edu/suppliers/sl/SitePages/Category.aspx>).

The Move Coordinator should coordinate vending Machines with Resource Management for our approved vending supplier. Move Coordinator is to coordinate delivery of machines per above. A determination of product mix in the machines will need to be determined and some users will have strong preferences.

1. **Furniture:**

The furniture installation date should be established early during the construction phase. The Planner/PM should continue to coordinate with the furniture vendor and Resource Management Furniture and Design for status. Depending on size of project, installation may take up to a week or longer if a large project. Understand the sequencing of installation, such as open office systems furniture that has voice/data cabling and power within the framework. The Planner/M is responsible for coordination with the contractor’s trades and the furniture installer when necessary.

Resource Management will schedule a date with the furniture vendor and the customer for a furniture punch list determining any items that need repair correction, or completion. Resource Management will obtain dates for completion of such items from the vendor and track accordingly, providing progress updates for completion to the Planner/PM and customer.

1. **Data Activations / Phone Installation:**

The Planner/PM should refer to the [Phone Data Activation Guidelines](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Phone-Data-Activation-Guidelines.pdf). Exact data ports to be activated will have been determined earlier in the planning stages by the IT/TFC Project Managers and Departmental contacts. The low voltage subcontractor is to prepare “as-builts” for low voltage indicating the port number for each location. This must be completed and delivered to MSCITS and TFC prior to activations. The Planner/PM should begin this coordination during construction.

The Planner/PMN and Customer should allow several days for the network jumper cables to be installed and the cross connects to be completed in the network closet. The cross connects can be done concurrent with furniture installation. All work surfaces, desks, or tables where phones will be installed should be in place prior to installation of the actual phones. The Planner/PM should coordinate well in advance (at least 2 weeks) with TFC regarding the date for installation of the phones.

TFC/IT Project Managers should determine the date with the users when the new phones will become active and when the lines will be switched from the prior location. It is possible in some cases to have the phones active in both locations for a short time during the move transition.

1. **Audio Visual:**

Portions of the Audio Visual (AV) installation are roughed-in during construction. The final installation of components and some wiring is done after construction is complete. The Planner/PM should coordinate with the AV vendor for dates they will have access to the space for installation and the duration necessary to complete their work. Allow for testing of the new system and in some cases, the Planner/PM should schedule a training session for the users with the AV vendor for familiarity in use of the new system.

1. **Specialized Equipment:**

The Move Coordinator should closely coordinate with the customer and EHS as there may be several specialized pieces of equipment each with different vendors moving or installing (use the[Equipment Schedule Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Equipment-Schedule-Form.xls)). The Move Coordinator should also walk the path of travel from where the piece of equipment will be unloaded to the project area to ensure there are no restrictions with regard to floor loading, overhead clearance and width of the path. There may also be issues with turns and corners and elevator size and use. These will all need to be properly reviewed in order for the move to have a clear path for a smooth delivery. Some vendors will be coming from out of town which requires advanced coordination and communication with all stakeholders. Coordination in setting and connections should be considered.

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

For lab moves, the Move Coordinator 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. **Move Training:**

Most moves will go smoothly when thoroughly planned and involve the necessary stakeholders to the move. For lab moves, the Move Coordinator should work with EHS to conduct safety training via PowerPoint or handouts to ensure compliance with safety practices and regulatory requirements for handling hazardous materials. The Move Coordinator is to schedule the move training meetings depending on project need and size.

1. **Damages**

The user is responsible for reporting any damage claims to the Move Coordinator 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 Planner/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 Planner/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.

## Project Close-out

## Turn over Record Documents

The Contractor, usually via the A/E, must deliver all O&M manuals to the Planner/PM for review prior to staff training on the equipment. The Planner/PM will work with the Contractor to schedule and manage the equipment start up and training. All building materials (also known as “attic stock”) must be delivered after the final punch list work is completed and accepted. The Planner/PM with work with Facilities Operations to coordinate the appropriate location of attic stock. Attic stock should be secured and managed by Facilities Operations.

The record documents are a record of formal change orders as well as modifications required to construct the facility. The contractor turns over the electronic copies of the record documents, including as built drawings to the A/E or Planner/PM as part of construction close out. The Planner/PM will then deliver them to the Space Information Coordinator using the [Transmittal Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Transmittal-Cover-Template.doc). The Planner/PM should complete the [Project Space Utilization](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Space-Utilization-Form-3.xlsx) and deliver it to the Space Planner who will review for accuracy and approvals and forward to the Space Coordinator to update the Space Information System.

It is important that all Project Team members are familiar with OFMD’s [Records Management Guidelines](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.

A complete project record is required and must be completed prior to administrative closeout.

## Final Endorsement and Occupancy

After final inspection and sign-off by the appropriate regulatory authorities, the Planner/PM will ensure all final inspections have been completed and approved. The Planner/PM will complete a [Project Occupancy Notification Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Occupancy-Project-Closure-Notification-Form-1.doc) and place it in the Project Record with copies distributed to Space Information Planner, Senior Director of Facilities Operations and the Facilities Integrated Service Center Lead. Upon receipt of a [Certificate of Substantial Completion](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Certificate-of-Substantial-Completion-Standard-form.doc)**,** the Planner/PMsubmits to Business Operations to record and route for signature to the Director of Capital Projects. The facility or area may be occupied and the warranty period begins. This notification relays that the space has now been turned over to the customer and should be included in any applicable insurance policy for the University.

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 Planner/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 Planner/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 Planner/PM and OFMD until the expiration of those warranties.

## Final Payments

After the A/E or Planner/PM confirms that the contractor has completed all punch list items and delivered all record documents, the A/E or Planner/PM will recommend that the project be formally accepted by signing the Contractor’s final payment request. Final payment requests (billing for 100% contract completion) are approved by the Planner/PM. When prime does not self-perform all work, the Planner/PM will ensure a release of liens certificate is produced. This is normally produced by the contractor and signed by the subcontractor(s).

## 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 Planner/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.

Close out activities revolve around:

* [Close Out Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Close-Out-Checklist.xlsx)
* [Project Assessment](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Survey-Guidelines.pdf) Guidelines
* [Customer Survey Form](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Customer-Survey-Form-2.docx)
* [Professional Services Evaluation](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Professional-Services-Evaluation.doc.docx)
* [Construction Contractor Evaluation](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Construction-Contractor-Evaluation-2.docx)
* [Space Utilization Form](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Space-Utilization-Form-3.xlsx)

## business operations

See Project Close-Out File in Business Operations Appendix 1.

## Project Checklists

The Planner/PM and Business Operations will use the [Close](https://facilities.med.wustl.edu/wp-content/uploads/2018/01/Close-Out-Checklist.xlsx) Out [Checklist](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Close-Out-Checklist.xlsx) for project close out.

The Close Out Checklist is required to be completed by the Planner/PM and Business Operations. The first section of the checklist is completed by the Planner/PM. All items must be completed before the project can be moved to “Administrative Close Out.” The Planner/PM will work with the Director of Capital Projects or equivalent to verify all items are complete. A final signature from the Director of Capital Projects will be placed on the Project Closeout Checklist to verify the information. The Fiscal Administrator can then change the project status and notify Property Accounting that the project is ready for complete close out and reconciliation.

The Planner/PM must confirm that all work deliverables have been completed and accepted. After the final invoices, no other costs will be incurred. The Planner/PM must complete their section of the Project Closeout Checklist and the Director of Capital Projects or equivalent is ultimately responsible for verifying the completion of all required steps to move a project from Post Construction to Administrative Close Out.

Once a project is in Administrative Close Out, the Planner/PM’s direct role is complete and it is up to Business Operations to complete administrative and financial close out. The Planner/PM will monitor this process and follow up as necessary.

Business Operations will complete their section of the Project Closeout Checklist. Once all items have been completed and Property Accounting has closed the project fund, the project status can be changed to “Closed.”

## project Evaluations

The Planner/PM will work with the Records Coordinator to ensure that project evaluations are completed for A/E, GC and customers within 90 days of customer occupancy. Copies should be sent to the Office of the AVC to be compiled for the Strategic Indicators Quarterly Report.

## 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.

The Records Coordinator and the Space Coordinator will work with the Planner/PM to prepare documents for final filing and archiving. The electronic files are located on the G-drive under “G/DSGN&CON/Projects”. 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 Planner/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 Planner/PM is responsible for ensuring all project billing is received and closed out properly, including internal billing. [Notice of Intent to Close Project](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Occupancy-Project-Closure-Notification-Form.doc) will be utilized for this purpose. 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: BUSINESS OPERATIONS

Purpose of the Manual

The goal of the Project Delivery – Business Operations Support Manual (PD-BOSM) is to integrate into key steps as well as support the Project Delivery process. This manual will identify and document the processes and controls that the Business Office performs at each phase of the project.

This manual serves as a comprehensive summary of the key processes, procedures, tasks, and tools involved in the financial processes 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 Business Operations and the Planner/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-BOSM will assist in educating new Capital Projects and Business Operations staff and serve as a day-to-day reference. 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-BOSM 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.](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Project-Delivery-Manual-Documents-Guidelines.pdf)

Overview of the Manual

The first section of the PDM-BOSM describes the steps in the Project Delivery Process and the Business Operations role in the process.

The Business Operations tasks in the project phases are as follows:

 **Step 1: Needs Development**

1. Obtain Project number from Construction Management System (ND 6)- [Project Creation File](https://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-1-Project-Creation.doc)

**Step 2: Scope Development**

1. [**Project Approval Process File**](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-2-Project-Approval-Process.pdf)
	1. Create Resolution (SD10)
	2. Setting up funds (SD13)
	3. Notify stakeholders of funding (SD14)
	4. Create work request in Service Now (SD15)

**Step 3: Selection of Design Team**

1. Prepare standard agreement (SDT8)- [Contracts Procedures File](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-3-Contracts-Procedures.doc)
2. Send contract to A/E for signature
3. Create purchase order

**Step 4: Design Phase**

N/A

**Step 5: Selection of Contractor**

1. Prepare the [sole source justification](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Sole-Source-Justification-Form1.doc)  (SC4)
2. [**Project Approval Process File**](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-2-Project-Approval-Process.pdf)
	1. Write resolution (SCP5)
	2. ECPR agenda item?
3. [**Contracts PO File**](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-5-Contracts-PO.pdf)
	1. Issue PO or Standard form of agreement (SCP5)
	2. Contract/PO signed and fully executed (SCP6)

**Step 6: Construction Phase**

1. Review and process progress payments (CP16B)- [Progress Payments File](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-6-Progress-Payments.pdf)
2. Process change orders as necessary (CP23)- [Change Orders File](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-6-Change-Orders.doc)

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

1. [**Project Close Out File**](http://facilities.med.wustl.edu/wp-content/uploads/2015/02/Step-7-Project-Close-out.pdf)
	1. Review Encumbrances & remaining set asides
	2. Close out project
	3. Post - vendor financial evaluation

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.

# APPENDIX 2: 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 |
| FIRM | Facilities Infrastructure Renewal Maintenance |
| 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 Information Service Center |
| ITB | Invitation To Bid |
| MSCITS | Medical School Computing and Information Technology Services |
| MEPFP | Mechanical, Electrical, Plumbing and Fire Protection |
| O&M | Operations and Maintenance |
| OGC | Office General Council |
| Service Now | On line work request |
| PDM | Project Delivery Manual |
| PM | Planner/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 3: 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.  |

# APPENDIX 4: SUMMARY OF TOOLS FOR PROJECT DELIVERY

Operations & Facilities Management Project Delivery Web Site

Step 1: Needs Development

Step 2: Scope Development

Step 3: Selection of Design Team

Step 4: Design Phase

Step 5: Selection of Contractor

Step 6: Construction Phase

Step 7: Transition, Activation and Closeout

Other References:

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 Facilities

Jim Stueber, Senior Director of Facilities Operations

Steve Sobo, Director of Capital Projects

Kristen Windmiller, Senior Planner III

Katie Aholt, Project Manager

John Brauer, Senior Project Manager

Paul Duell, Senior Project Manager

Michelle Gubin, Communication & Facilities Administration Manager

Cheryl Kilwin, Planner

Tina Long, Moves Coordinator, FFE

Janice Otis Van-Horn, Fiscal Administrator

Regina Sykes, Senior Business Analyst & Facilities Integrated Service Center Manager

Joanne Johnson, Staff Recognition and Community Outreach Program Coordinator

Jennifer Carney, Project Controls Coordinator

Sameer Kapileshwari, Consulting Engineering, Senior Project Manager