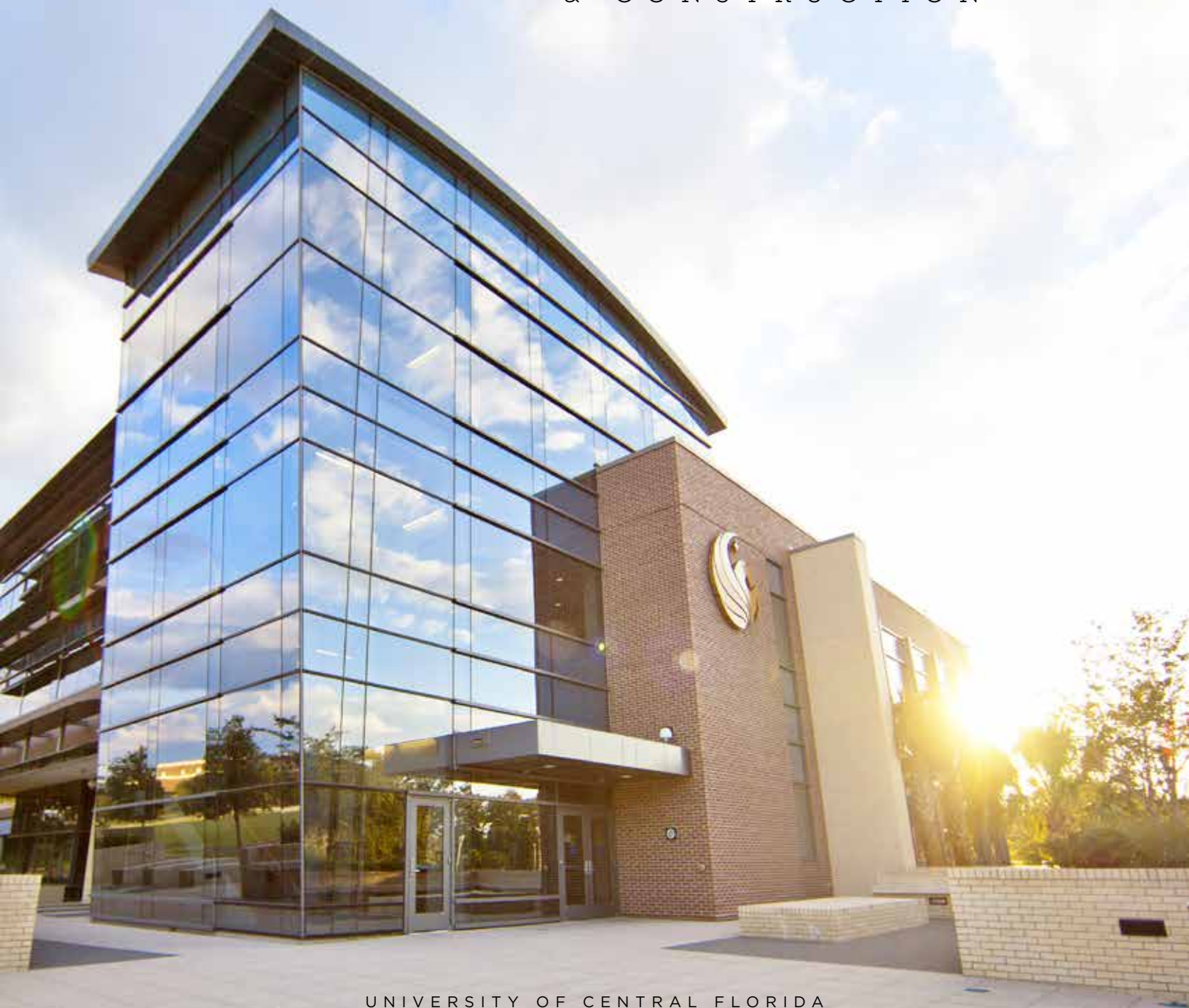




CAMPUS CLIENT GUIDE

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FACILITIES PLANNING
& CONSTRUCTION



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INTRODUCTION

A. Vision and Mission

The Facilities Planning and Construction Department is committed to providing proactive service and value to the campus clients we serve. Our goal is to deliver projects within budget and on time. Our project managers and leadership staff come from the architectural, engineering, interior design and construction industries, providing the university with a wealth of experience from which to draw for efficient and effective project execution.

Vision

To represent the University of Central Florida Core Values within the Facilities Planning and Construction Department through:

Integrity – to be honest and fair;

Scholarship – to create an exciting and safe campus environment to enhance student learning;

Community – to work with and be sensitive to our community neighbors and partners throughout the development of our campus and facilities;

Creativity – to design and construct facilities that embrace new technology and allow flexibility for future growth and change; and

Excellence – to provide the highest quality, sustainable service throughout the design and construction phases of our projects.

Mission

The mission of the UCF Facilities Planning and Construction Department is:

To ensure that the quality of UCF's physical environment supports the university's standards in teaching, research, service and campus life;

To excel in project delivery through leadership, integrity, passion and excellent customer service;

To create an exciting and safe campus environment for UCF students, faculty and staff to learn, teach, work and play;

To minimize the life-cycle cost and environmental impact of UCF facilities, while ensuring the design and construction of sustainable and maintainable facilities; and

To maintain a department culture of respect and dignity, where individuals are encouraged to lead, learn and grow.



B. Organizational Chart, Roles and Responsibilities

Project Managers

UCF project managers are the primary points of contact for your projects. They will meet with you to understand the scope of your project, create a written scope-of-work document for your review and comment, manage the continuing service architects and engineers needed to design your project, create funding documents with complete scopes of work for your approval, manage the construction of your project, review and process all financial transactions during the project (invoices, pay-applications, etc.), and obtain the necessary paperwork to properly close out a project. In addition to the updates provided on e-Builder, your project manager will regularly communicate with you about the status of your project and inform you when your input and action are needed. Your project manager should be the first person you call if you have problems or concerns.

Support Personnel

Our project coordinator is responsible for processing all new minor project requests, entering them into our tracking database, and providing critical status updates to the Facilities Planning and Construction (FP&C) department leadership and clients. Our technology manager provides computer-aided design (CAD) and building information modeling (BIM) graphics support to the department, maintains our FP&C website, and stays abreast of the latest software options to help with other departmental needs. Our document control specialist maintains our project archive and assists our project management team with forms, documents and project archiving. Our project administrator assists the project management team with project archiving and support functions.

Managers

Our managers are responsible for the daily operation of the department. They manage special projects for the department and keep a close eye on the status of all active design and construction projects. They work closely with the project managers to determine the appropriate design and construction companies to use for rotation/justification work, ensuring that our procurement policies are being followed. They are involved in all major projects, ensuring quality delivery throughout the design, bidding and construction phases. If you have any issues with your project manager, you should discuss these with a manager to allow them the opportunity to review and correct the situation.

Director

The director is responsible and accountable for the overall operation and performance of the department. The director meets regularly with clients to ensure that priority projects are being addressed, and coordinates with other Facilities and Safety directors to ensure project goals and objectives are achieved. The director plays a major role in the design, bidding and construction of all major projects. If issues cannot be addressed with your project manager or an associate director, you should discuss them with the director.



C. Partner Departments

Facilities Operations

www.fo.ucf.edu – Facilities Operations is focused on operating and maintaining buildings and assets, both on our main campus and remote campuses, which make UCF a great place to live and learn. They implement preventative maintenance programs and perform corrective maintenance work to ensure that every building is safe, functional, clean and attractive. They also support all recycling efforts by students and faculty. Facilities Operations is composed of Housekeeping, Maintenance and Recycling.

Utilities & Energy Services (U&ES)

www.energy.ucf.edu – The U&ES mission is to maintain energy-efficient operations of building systems through education, optimization, implementation and verification, while providing professional leadership and fostering sustainable growth. U&ES is responsible for providing and supporting a wide variety of mission-critical services at the university, including green building accreditation, commissioning, building automation system specification, integration, enterprise management, and utilities and energy management services for all campus buildings, comprising 7.8 million gross square feet of space.

Resource Management

www.rm.fs.ucf.edu – Resource Management performs multiple support functions within Facilities and Safety (F&S), including warehouse receiving and storing, contract audit and management, F&S accounting and human resources, F&S information technology, real estate management, policy and procedure management, postal services, records storage and destruction, and surplus property management.

Landscape & Natural Resources

www.green.ucf.edu – Landscape and Natural Resources enriches the community by creating and maintaining an inviting and sustainable outdoor environment, providing high-quality service for

operational activities, and generating research and educational initiatives that guide conservation and stewardship of natural resources.

Environmental Health & Safety (EH&S)

www.ehs.ucf.edu – EH&S promotes a culture of safety, health and environmental protection in collaboration with the university community, to support education, research and service. They are dedicated to reducing injuries, accidents and environmental impact, while ensuring compliance through high-quality training, comprehensive workplace evaluation, hazardous materials management from acquisition to disposal, managing regulatory information, and minimizing future potential liabilities.

Quality Management & Improvement (QM&I)

QM&I provides internal oversight to Facilities and Safety directors via standard reporting, and provides crucial information on employee compliance with policies and procedures. It also verifies that completed work is in accordance with best practices, industry standards and safety standards. Its specialists conduct annual facilities condition assessments to provide updated building and site condition information. A “Customer Inquiry” service is available for faculty and staff to discuss or report issues.

Office of Instructional Resources (OIR)

www.oir.ucf.edu – OIR designs, selects and installs multimedia systems and equipment across all UCF campuses to maintain a consistent experience for faculty and students in all of our learning spaces, and to ensure UCF multimedia standards are met. OIR is also closely involved in the Technology Fee project process since many of these projects have a multimedia component.

Technology Services (UCF IT)

www.it.ucf.edu – UCF IT, an operating unit within the Information Technologies and Resources Division, provides central information technology resources – including software, databases, computer networks, telephones and staff – to support the academic, research and business activities of the university. FP&C coordinates closely with UCF IT on all projects that require telecommunications infrastructure and/or services. UCF IT is the sole provider of UCF’s telecommunications systems and is responsible for their design, standards and guidelines, installation, operation and maintenance. This includes, but is not limited to, outside plant duct bank, outside copper/fiber systems, structured cabling, main and intermediate distribution frames (MDF/IDF), cable television network infrastructure (wired and wireless), the distributed antenna system (DAS), two-way radio system, and many other technology-related services.

construction. Architects and professional engineers are responsible for designing projects to all applicable codes, laws and standards. Projects with life safety components, projects over \$50,000 in value, and projects with HVAC systems over 15 tons require architects and/or engineers. Refer to the EH&S website at <http://www.ehs.ucf.edu/buildingcode/bcfaq.html> for additional information on when architects and engineers are required.

General Contractors

For projects with a defined scope that do not need significant cost estimating or pre-construction services, a general contractor (GC) is most often used. General contractors typically bid our projects using our “GC Quotes” process, which is outlined on page 13. This ensures competitive bidding among pre-qualified groups.

CONTINUING SERVICE VENDORS

UCF has elected to hire continuing service vendors (architects, engineers, construction managers, general contractors, electrical contractors, mechanical contractors, roofers, etc.) for the delivery of design and construction work with a construction value under \$2 million, or with a professional service cost under \$200,000. Continuing service vendors are used to expedite the delivery of projects and to ensure that vendors are qualified to provide service to the university. The certification and competitive selection of professionals and contractors for major and minor projects is governed by Board of Governors regulations 14.055 and 14.0055, and Florida Statutes 1013 and 287.055.

Professional Services (architects, professional engineers, landscape architects, threshold inspectors and registered surveyors)

Professional services are involved in projects that require signed/sealed drawings for bid, permit and



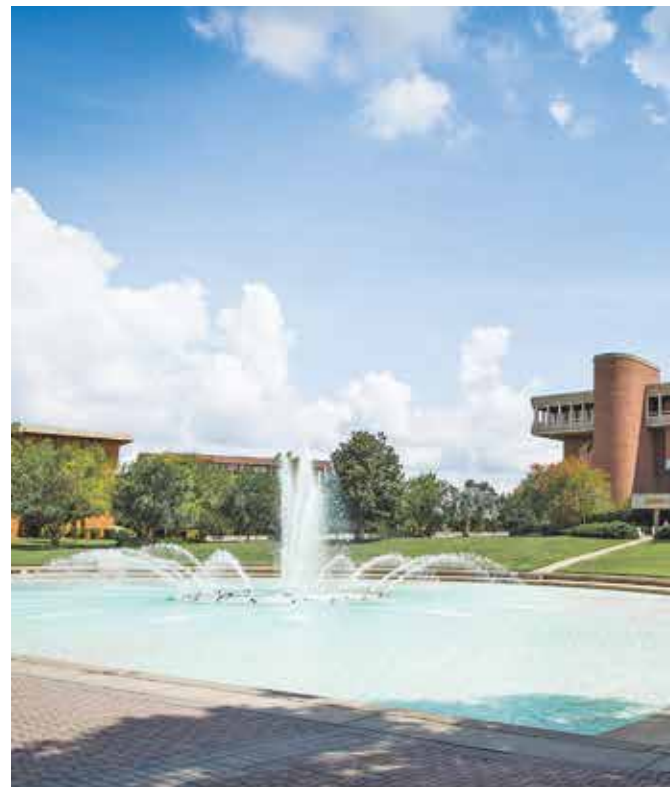
Construction Managers

For projects that are sufficiently large or complex; that require cost estimating, value engineering or scheduling during the design phase; that require investigation through extensive contractor-selective demolition during design; and/or with schedules that require early purchasing of long-lead equipment, a construction manager (CM) is typically selected during design to provide cost estimating, drawing reviews and value-management solutions, in accordance with BOG regulation 14.0055. This group will then provide a guaranteed maximum price (GMP) for the project's construction phase. A CM is hired separately from a professional service consultant.



Design Builders

For projects that require a single source of accountability for both design and construction, a design builder (DB) is typically selected, in accordance with BOG regulation 14.0055. The DB firm will provide a lump-sum price for design, bidding and construction.



Building Envelope

Building envelope consultants provide valuable services related to the forensic analysis of existing buildings for roof and building skin leaks, review of designs for new buildings, inspection of system installations during new construction or renovations, and the creation of re-roofing documents for renovation, restoration and repair projects.

Commissioning

Commissioning is a professional service dedicated to ensuring that the owner's project requirements are fully implemented in any design and construction project. Commissioning agents act as a third-party extension of the university to provide quality control on projects. Their primary focus for UCF has been on energy (mechanical and electrical systems), but their scope can extend as far as the owner desires.



Single-trade Contractors (painting, drywall, roofing, mechanical, electrical, landscape, etc.)

FP&C has a number of single-trade contractors under contract to service our campus projects without incurring the overhead cost of a general contractor.

There are many benefits to using Continuing Services Vendors:

1

The vendors have been fully vetted in the request for proposals (RFP) and interview process, ensuring that they have the qualifications, stability and resources to properly execute your project.

2

The vendors are licensed and insured.

3

The vendors are familiar with UCF design and construction standards and minimum requirements.

4

The vendors are familiar with the UCF permitting process, which will expedite your project's review and approval time.

5

The vendors have an incentive to provide "best value," through quality, time and cost, as their ongoing contract with UCF will be affected by poor or costly performance.

A list of our current continuing service vendors is located at:

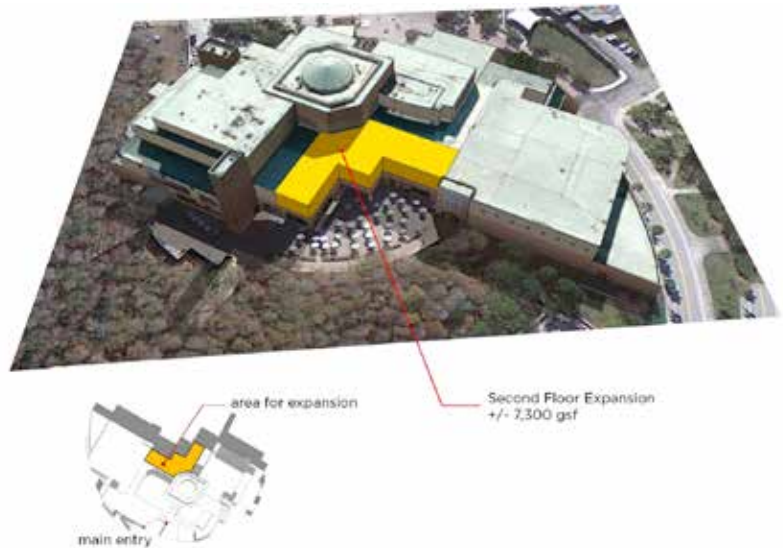
<http://fp.ucf.edu/sites/default/files/projects/ContinuingServicesFirms.pdf>



DESIGN SERVICES

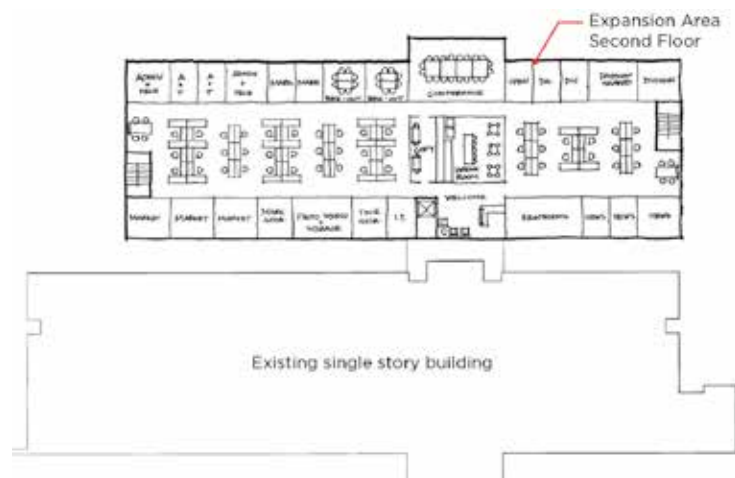
A. Feasibility Studies

FP&C can provide basic feasibility studies for your project to help determine the viability and rough cost, using existing building documentation, field investigations and professional expertise. Our team is comprised of architects, engineers, interior designers and construction industry professionals, who provide a wide range of experience to assist with your project needs. We can also contract third-party design professionals for more in-depth studies and analyses.



B. Space Planning and Analysis

FP&C can provide space planning studies for your project. Our team of seasoned industry professionals can assist you with an analysis of your needs (program) and conceptual layouts. We can also contract third-party design professionals for more in-depth studies and analyses.



B. Space Planning and Analysis (cont.)

FP&C can provide detailed floor-plan options for consideration. In some cases, where the adjustments do not affect life safety items (sprinklers, emergency egress, fire alarm changes, etc.), or exceed \$50,000 of construction cost, these plans may be used for bid and construction.



C. Concept Design

FP&C can provide concept-design imagery to help envision the direction of the project, and to gather financial support for the project. We can also contract third-party design professionals for more in-depth or elaborate concept-design services.



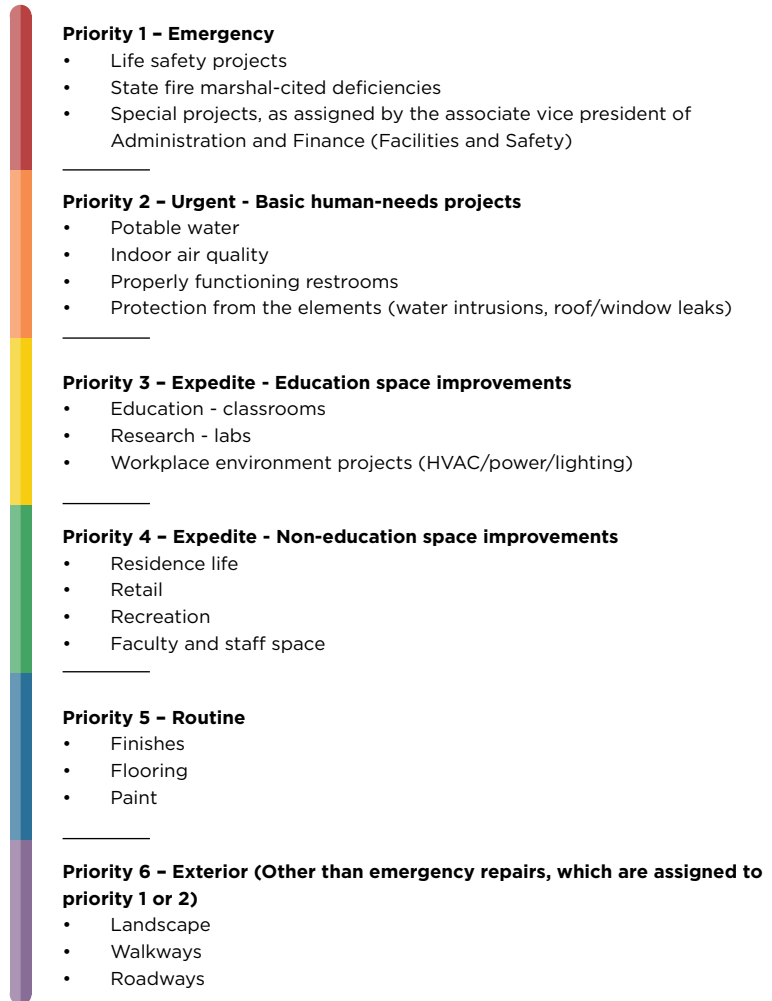
PROFESSIONAL SERVICES — MINOR PROJECTS

Minor projects, or facilities improvement projects, are all campus projects with a construction cost of less than \$2 million and professional services (architects, engineers, etc.) with fees under \$200,000. All minor projects on the UCF campus must be managed by FP&C, which ensures that projects are designed and constructed to meet UCF design and construction standards, are properly designed to building and life safety codes, are properly permitted, comply with regulatory agencies, comply with state statutes and BOG regulations, and that qualified vendors are used to ensure quality and accountability.

A. Project Priorities

Because of the volume of our project workload, FP&C must prioritize all projects. We meet regularly with campus clients to discuss the priority of their individual projects and to ensure that their needs are being met. See the chart at right, which illustrates the priority order of our projects.

It is also important to note, **projects that have no client activity for over 30 days will be cancelled.** We cannot keep inactive projects open indefinitely. If a project becomes active again, we can change its status back to active without restarting the minor projects process.



B. Scope-of-work (SOW) Definition

Minor projects range in size, scope and complexity. No two projects are identical, and, as such, every project will have a unique scope of work and schedule. It is the responsibility of our project managers to visit your site/building/space and develop a complete scope of work for project bid and execution.

SOW for small projects (generally under \$50,000 without life safety modifications) can often be developed within FP&C without the use of continuing service architects or engineers. These include projects such as minor electrical modifications, minor room adjustments and finish updates (carpeting, painting, etc.).

Projects larger than \$50,000, and projects under \$50,000 that have life safety modifications to sprinklers, fire strobes, fire alarm systems, egress lighting, exit signs or any other life safety component will need the services of a continuing service architect and/or engineer. These professionals will create code-compliant, signed/sealed documents that will be the basis of bidding and constructing the work. Professional services, and the liability that the professional is assuming in designing the project, are not free. Campus clients should expect to pay between \$5,000 and \$200,000 in continuing-service architect and engineering fees alone, depending on the scope of the project. Hourly rates for professionals are consistent and are negotiated at the time of contract execution, ensuring they are competitive and in line with state and industry standards.

C. Design Team Selection

We have a number of continuing-service architects and engineers available to produce the construction documents required for our campus projects. The selection of these vendors for individual projects must comply with state requirements, as reflected in Facilities and Safety policies and procedures (<http://www.fs.ucf.edu/Policies/P&P.htm>). Professional service firms are required to be selected based on their qualifications to perform a given project. If an agreeable and fair fee cannot be negotiated with the most qualified firm, the second most qualified firm can be considered.



D. Project Budget

It is *critical* for you to share your total project budget with your UCF project manager at the start of a project. Our team has significant experience with design and construction, and they can tell you if your budget is realistic for your scope. Communicating your total project budget can only help the project succeed. Without knowing the budget, projects can be over-scoped and over-designed, wasting the client's time, FP&C time, designer time and contractor time. The closer we can tailor the scope to your budget, the more likely the project will come in on budget. Many projects are also significantly underfunded for the amount of scope needed. In these cases, we can facilitate the creation of a full project estimate to help campus clients seek additional funding for their projects.

It should be noted that Facilities and Safety (F&S) departments do not have funds to support project costs. Our E&G budgets only partially cover our personnel and operating expenses. F&S sometimes receives deferred maintenance funds, but these are used for building repairs and maintenance, such as failing mechanical systems, roof replacements and other issues related to supporting the aging buildings on our campus. This money cannot be used for program enhancements, new-equipment support or fixing life safety issues caused by end-user building modifications. These must be fully funded by the requesting department.



E. Phases and Deliverables

Phases and deliverables of minor projects vary, depending on the scope and speed of each project. Below is a list of common phases and their corresponding deliverables. These can be discussed with your project manager at the start of each project to determine which are necessary.

- **SCHEMATIC DESIGN** – This phase outlines the overall scope of the project. Deliverables typically include conceptual floor plans, building elevations, renderings and narratives to define the direction of the project.
- **DESIGN DEVELOPMENT** – This phase outlines the specific scope of the project and is intended to reveal its full complexity. Deliverables typically include floor plans, life safety plans, reflected ceiling plans, civil plans, structural plans, mechanical, electrical and plumbing (MEP) plans, hardware schedules, and specifications.
- **CONSTRUCTION DOCUMENTS** – This phase fully illustrates and details the scope of the project for permitting and bidding. Deliverables typically include floor plans, life safety plans, reflected ceiling plans, civil plans, structural plans, MEP plans, hardware schedules, exterior sections and details, and specifications.
- **PERMITTING AND BIDDING** – Contract documents are reviewed by the state fire marshal (SFM) and the Building Code Office (BCO) for code and life safety compliance. Typically, documents are sent out for bids concurrently to save time, with code comments addressed via addendum. SFM review can take up to 30 days, by statute. This should be addressed in the client's schedule and expectations.
- **CONSTRUCTION** – This phase is the building of your project, including demolition, testing, re-building, inspections and acceptance by the owner. This phase does not end until a certificate of completion or certificate of occupancy is issued by the BCO.
- **CLOSE-OUT** – This final phase includes the paperwork required to complete a project, including the assembly of warranties, as-builts, payment application reconciliation, final punch-list inspections, as-built documents and record documents.

F. Construction Team Selection

Minor construction projects must be delivered in accordance with Facilities and Safety policies and procedures. For more information, visit: <http://www.fs.ucf.edu/Policies/P&P.htm>.

General Contractor Quotes (GCQuotes)

GCQuotes is a process used by UCF to request and receive bids, quotes and related correspondence, in order to ensure fair competition among companies. GCQuotes is the only delivery option when competitive bids among continuing service vendors are desired. The rules related to GCQuotes are as follows:

- GCQuotes must be used for all projects with a construction value over \$10,000, unless written approval for a justification award is obtained from the associate vice president of Administration and Finance (Facilities and Safety).
- GCQuotes must be used solely for the purpose of establishing a price for funded projects and will not be used for obtaining estimates.
- Purchase orders will not be issued until after the project award.
- Award decisions will be made within 30 days of quotes, to avoid expiration.

Please refer to the link above for full policy details.

Rotation

Projects under \$10,000 in construction cost may be rotated among continuing service vendors, in accordance with Facilities and Safety policies. Facilities Planning and Construction tracks these rotation awards on a single spreadsheet, which is audited twice per year to ensure that rotation of projects is occurring. These projects are typically single-trade contractor or small GC projects.

Justification

Projects over \$10,000 in construction cost may use GCQuotes, or may be awarded based on justifications to the associate vice president of Administration and Finance (Facilities and Safety). Justification projects are typically construction manager and design builder projects. Justifications must be substantiated by one of the following reasons:

- Type of project (contractor's familiarity with a type of project – classroom, lab, etc.)
- Location of project (contractor's current or recent work in a building)
- Client group (contractor's familiarity with a client group)
- Contractor's expertise on similar projects
- Contractor's workload and due dates, as they relate to the ability to meet time requirements when expediting the project is required
- Fair share of work
- Contractor's demonstrated past performance in terms of quality, time and budget

Hard Bid

If a campus client wants to use contractors outside our continuing service vendors, then a project can be hard bid to the public. However, this approach is not generally recommended, as it will cause a significant increase in duration to the project schedule. Hard-bid advertisements are required to have a minimum 30-day notice to the public, they require pre-qualification of contractors to ensure the bidders have the experience and resources needed to perform a project, and they require public bid openings of sealed bids. Generally, the low bidder must be awarded, and that could be a contractor who is not qualified for the job and/or is unfamiliar with the UCF process and standards. This process is recommended for minor projects where the reward (lower costs)-to-risk (less qualified contractor who may submit change orders for any drawing discrepancies) ratio is great.

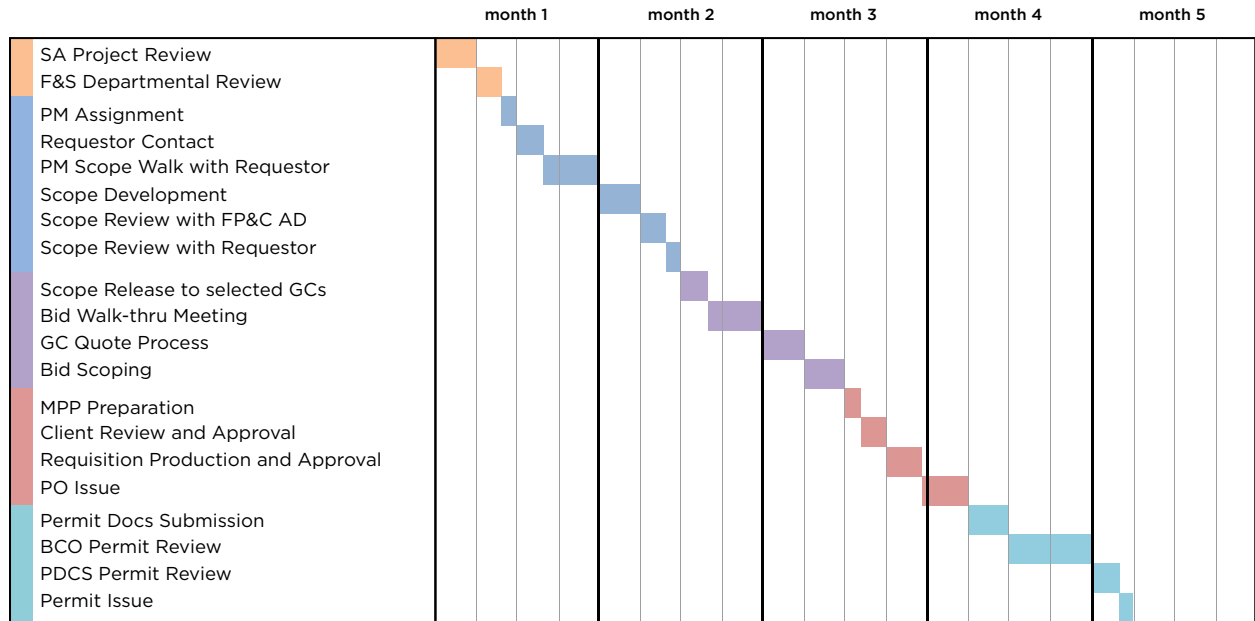
G. Minor Project Schedule

Minor projects range in size, scope and complexity. No two projects are identical, and, as such, every project will have a unique scope of work and schedule.

There are many steps to the scoping, award and execution of a project – even for a seemingly simple project. The diagram below illustrates the minimum steps required of a project from inception to construction start – without architectural/engineering and without state fire marshal (SFM) involvement, along with typical durations for each task. Some of these may be expedited for high-priority projects, but we have found these to be typical durations, given client, FP&C and contractor workloads. Projects without architectural/engineering but with SFM review typically add **three weeks** to the schedule below (five months total, not including construction time) for additional SFM review time. Projects with architectural/engineering design and SFM review typically add a minimum of **three months** to the schedule below (seven-plus months total, not including construction time) for architectural/engineering design time, UCF review time and SFM review time.

The schedules below do not include construction time, which will vary depending on the availability of the space and the scope of work. It is critical that you plan projects well in advance of your deadline, and communicate schedule needs with your FP&C team as early as possible.

Projects without Architectural/Engineering Design or SFM Review



H. Minor Project Cost

Minor projects have a number of cost components, depending on the project's scope of work. Below is a listing of the most common project costs:

- **DESIGN COST** – The costs of architectural and/or engineering services for minor projects are typically generated by anticipated hours spent, multiplied by an agreed-upon hourly rate. These costs can also be calculated using the Department of Management Services (DMS) fee curve, which is referenced by Florida statute as an acceptable method for professionals to calculate their fees. This curve relies on the cost of construction and complexity of a project to determine fees. These typically range between 8 and 15 percent of the construction cost for a project, depending on size and complexity.
- **PRE-CONSTRUCTION COST** – For construction manager and design build projects, a CM or DB fee is typically charged on minor projects. This fee ranges from 0.8 to 1 percent of the construction cost for a project, depending on size and complexity.
- **CONSTRUCTION COST** – The base cost from the selected contractor to execute the project includes all subcontractor costs, contractor general conditions, and contractor overhead and profit.
- **PROFESSIONAL SERVICES** – FP&C requires payment to help cover our costs associated with each project. We charge a flat 3 percent of construction cost for all projects, with a minimum \$150 for projects without architectural/engineering involvement and \$500 for projects with architectural, engineering, construction manager or design builder involvement, or contractor construction estimates. These minimums must be paid at the beginning of each project, and will be applied to the overall project management services at the time of complete project funding. It should be noted that these costs provide a mere 9 percent of our FP&C annual budget, while our department spends approximately 90 percent of our time on minor projects.
- **BCO FEES** – The UCF Building Code Office (BCO) charges a permit fee on the total cost of every project, which covers the cost of drawing reviews and construction inspections. The building code fee calculator is located at <https://www.buildingdepartment.fs.ucf.edu/wp-content/uploads/information/2020%20Permit%20Fee%20calculator.xlsx>.
- **SFM FEES** – The SFM charges a review fee on all projects that require SFM involvement.
- **OFFICE OF INSTRUCTIONAL RESOURCES (OIR) COSTS** – If projects include multimedia equipment supplied by OIR, these costs will be added as a separate line item to the overall project cost.
- **COMPUTER SERVICES AND TELECOMMUNICATIONS COSTS** – If projects include a telecommunications scope that is hardwired into the project (cabling, switches, etc.), these costs will be added as a separate line item to the overall project cost.
- **WORK ORDER ITEMS** – On some projects, Facilities Operations' assistance is needed to complete the project. In these cases, work order costs will be added as a separate line item to the overall project cost.
- **CONTINGENCY** – Unforeseen conditions can happen on any project, and FP&C recommends that a 10 percent contingency be added to all projects in order to have funding readily available in case project issues arise. All unused contingency money will be returned to the client at the end of every project.



Construction Estimates

Clients have several options to receive construction estimates for their projects:

- For basic projects, your FP&C team can provide a rough estimate of your project, based on recent and similar projects that we have completed. However, these are just ballpark numbers and are not hard estimates. They do not guarantee the actual cost of the project.
- Projects can be awarded to a construction manager (CM) or design builder (DB) early in the design process. The CM or DB will construct the project after design is complete, which eliminates competition from other contractors. However, when given a construction budget early in design, they are responsible to help ensure that the design and scope of work stay within the available funding. Using a CM or DB can be a great option when adhering to a specific budget is more important than obtaining aggressive pricing on a project.

- Construction estimates can be developed by our continuing service contractors. These are one-time estimates and require a one-time fee for the work involved in creating the estimate. These estimates are based entirely on the scope of work developed by the client, the FP&C project manager and the design consultants. The advantage of these estimates is that they are more accurate, so you can plan for full funding, and they still allow for competitive-scope bidding using our GCQuote system. The cost for this estimate service is as follows:

PROJECTS \$10,000 - \$50,000

Contractor: \$1,000

PROJECTS \$50,000 - \$200,000

Contractor: \$1,500

PROJECTS \$200,000 - \$2,000,000

Contractor: 1% with \$5,000 max



PROFESSIONAL SERVICES — MAJOR PROJECTS

Major projects are projects with a construction cost greater than \$2 million and with professional services (architects, engineers, etc.) fees greater than \$200,000. All major projects must be managed by FP&C. This ensures that projects are designed and constructed in compliance with state and regulatory agency requirements, that they meet UCF design and construction standards, that they are properly designed to building and life safety codes, that they are properly permitted, and that they are properly inspected during construction.

Major projects have many steps, approvals and complexities. They take years to fund, design, permit and construct. The full description of a major project process is too lengthy to describe in this document, however, here are a few key components of a major project:

A. Funding

Major projects are typically funded through state funds (PECO), student-fee funds (CITF), university funds, deferred maintenance funds or donations. It is important to note the difference between project cost and construction cost. Construction cost is only the value of the construction project that the GC, CM or DB contractor has in the contract. Project cost takes into account the construction cost, as well as additional “soft” costs, such as design fees, permit fees, professional services, furniture, equipment, telecom infrastructure and contingency. In a typical project, the cost breakdown is as follows:

- design, permitting, professional management: **10%**
- construction cost: **80%**
- furniture, fixtures and equipment (FFE): **10%**

The above percentages vary per project and are constantly evaluated as the scope of a project becomes more defined. For example, a parking deck will have minimal furniture and equipment, allowing this portion of the project funds to be allocated to the design and construction costs. An office, classroom or lab project will have a large amount of furnishings and equipment.

B. Design Phases

Major projects have multiple phases of development and refinement. These are similar in title to minor

project phases but often have additional deliverables (though large minor projects have the same deliverables as major projects). At the conclusion of each phase, a design review workshop is held to allow all Facilities and Safety, and client representatives to review and comment on the details of the project. The typical phases of a project and its general deliverables are described below:

Programming

Programming is the earliest phase of a project and is the time when the overall design objectives of a project are established. Items provided in this phase include:

- Owner’s Project Requirements (OPR) – Narratives outlining the overall design objectives of the project, from building user groups and their needs, to hours of operations, to building mechanical, engineering and plumbing systems and required performance.
- Site Selection
- Building Program – A detailed list of required spaces in a building. This program includes both net areas (classrooms, offices, break rooms, conference rooms, laboratories and other usable space) and gross areas (mechanical rooms, electrical rooms, restrooms, circulation, wall thicknesses and other spaces not generally seen by building users but that are required to make a building function). The ratio of net-to-gross space varies per building, from approximately 1:1.5 for office type buildings to 1:1.7 for research buildings.

Schematic Design (conceptual and advanced)

Schematic design is sometimes a single phase and sometimes broken into two phases — depending on the project schedule. In this phase, the design team will take the program information and turn it into multiple options for building layouts. These options will be presented in a series of design review meetings, and, ultimately, will result in a single design scheme that is approved for further development. Deliverables of this phase include:

- Conceptual renderings, illustrating the exterior and interior design of the project
- Conceptual floor plans, illustrating the layout of the project
- Conceptual sections and elevations, illustrating the exterior and interior design of the project
- Basis of design (BOD) narratives of building systems that describe how the owner's project requirements (OPR) will be met (including descriptions of architectural, structural, mechanical, electrical, plumbing and fire protection systems)
- A preliminary cost estimate by the DB or CM indicating the construction cost of the proposed design, to ensure that the project stays on budget
- The schedule for design and construction

Design Development

Design development is the phase where the many variables of a project are resolved. By the end of this phase, the floor plans and exterior design should be finalized. All unique conditions of the building should be identified for the DB or CM to properly price the design. Deliverables of this phase include:

- Updated conceptual renderings, illustrating the exterior and interior design of the project
- Final floor plans, illustrating the layout of the project
- Draft-reflected ceiling plans, illustrating the devices going in the ceiling of the project

- Draft building sections and elevations, depicting all unique conditions of the project
- Proposed interior finishes for review and comment
- Draft civil, landscape, structural, mechanical, electrical, plumbing, fire protection and interior design drawings
- Preliminary specifications for product review and comment
- Updated BOD narratives of building systems, describing how the OPR requirements will be met
- An updated cost estimate by the DB or CM, indicating the construction cost of the proposed design, to ensure that the project stays on budget
- The updated schedule for design and construction

Construction Documents

Construction documents (CDs) is the phase where the details of the project are fully drawn and specified, so the project can be bid and permitted for construction. This phase is typically broken into two sections — 50 percent CDs and 100 percent CDs — so, design reviews can be performed through the process. Deliverables of this phase include:

- Updated conceptual renderings, illustrating the exterior and interior design of the project
- Final floor plans, illustrating the layout of the project
- Final-reflected ceiling plans, illustrating the devices going in the ceiling of the project
- Final building sections and elevations, depicting all unique conditions of the project
- Enlarged details of the construction
- Door schedules and details, indicating the door and door hardware types used on the project
- Final interior finishes approved by UCF
- Final civil, structural, mechanical, electrical, plumbing, fire protection and interior design drawings

- Final specifications for product review and comment
- Updated BOD narratives of building systems that describe how the OPR requirements will be met
- An updated cost estimate by the DB or CM indicating the construction cost of the proposed design, to ensure that the project stays on budget
- The updated schedule for design and construction

Permitting and Bidding

- The contract documents produced at the end of the CD phase are the documents on which the DB's or CM's guaranteed maximum price (GMP) will be based. The bidding process typically takes between six to eight weeks to complete.
- The contract documents produced at the end of the CD phase will be used for permit application. Permits are required from both our local BCO office and the state fire marshal representative.
- Comments on the drawings from both the permitting and bidding process must be answered by the design team. It is typical to issue an addendum to the 100 percent CD deliverables that responds to permit and bid comments, prior to the GMP.

Construction

- After acceptance of the DB's or CM's GMP and providing the contractor with a notice to proceed, the construction of the project can begin.
- Major projects vary in construction time, depending on their size and complexity.
- Weekly owner/architect/contractor meetings are held to review the status of the project and any outstanding issues that require UCF direction.
- A project achieves "Substantial Completion" when all life safety portions of the project are complete and the building can be occupied for its intended use. This status requires a Certificate of Substantial Completion from the architect, all permit inspections to be completed by the Building Code Office and the state fire marshal, and the Substantial Completion checklist to be completed

and approved by all F&S directors. A punch list of items that can be completed within 45 days of Substantial Completion must be provided to UCF.

- A project achieves "Final Completion" when the project is entirely complete, including all punch list and commissioning items.

Close-out

- The close-out phase includes the verification that all punch list items are complete, the assembly of warranties and other as-built documentation, the collection of subcontractor lien releases, and the final payment and retention release to the contractor.

C. Communications and Team Meetings

FP&C manages the entire process of major projects. It is our goal to foster open and clear communication and to obtain the input and feedback from all project stakeholders. At the completion of the project, we want all parties to be successful — the design team, contractor team, UCF support departments and UCF clients. The participation and feedback of all project stakeholders is critical to this success, so we encourage you to be proactive in your communication with your UCF project manager to ensure that your needs are being addressed.





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