# DESIGN AND COMMISSIONING SERVICES GUIDE

FACILITIES PLANNING & CONSTRUCTION

(REVISED APRIL 2011)



#### DCSG REVISIONS - APRIL 2011

#### **GENERAL / GLOBAL**

- Re-titled document as "Design and Commissioning Services Guide" (DCSG) instead of "Design Services Guide" (DSG)
- Modified statements re: design professional and design team as needed to also address commissioning services
- Moved definitions and descriptions of design phases and deliverables to newly titled chapter 5, and relocated chapter 5 contents (design reviews) to chapter 4
- Combined chapters on "Bidding & Contract Award," "Permitting," and "Construction Administration" into one chapter (7)
- Created new chapter 6 to address Building Information Modeling
- Created new chapter 8 to address Commissioning services
- Edited, augmented, deleted, and otherwise cleaned up outdated, incorrect, confusing, and poorly-worded directions

#### TABLE OF CONTENTS

- Moved statement re: use of model forms and definitions of major/minor projects to Chapter 1 (Introduction)
- Expanded TOC to list sub-sections of each chapter

#### 1.00 INTRODUCTION

- (General) Corrected terms like "Contractor" ("Builder" instead) and "Final Acceptance" ("Final Completion" instead)
- Incorporated statements re: major vs. minor projects from TOC and modified
- Augmented list of things UF will provide to address overall leadership of O/A/C/Cx team
- Combined sections on roles, responsibilities of design professionals
- Added new section to address roles & responsibilities of Cx agent
- Incorporated statement for, and link to, model forms and documents from TOC
- Added Cx agreement to list of "supporting documents"
- Corrected outdated reference to "C.A. and S/C Guide"
- Addressed use of Sharepoint for document/file sharing
- Relocated paragraphs on construction delivery method to this chapter
- Incorporated BIM throughout Guide

#### 2.00 SELECTION & EVALUATION

- Shortened title and modified verbiage throughout to address or include Cx consultants
- Acknowledged that continuing services contracts may be used to procure Cx instead of two-step, QBS for smaller scopes
- Cleaned up miscellaneous wording and terms, such as "FPC Director"

#### 3.00 CONTRACT NEGOTIATION AND INVOICING

- Modified title and verbiage throughout to address or include Cx consultants
- Cleaned up miscellaneous wording and terms, such as "FPC Director"
- Added PL insurance certificate to the list of items to be provided prior to the negotiation
- Added language re: a built-up estimate (by task and manhours) to go along with program budget and fee curve as a basis for negotiation
- Added verbiage re: the project-specific terms of the contract (section only addressed fee)
- Refined explanation of the negotiation process
- Called attention to template invoice forms on web and prohibited use of other forms

#### DCSG REVISIONS - APRIL 2011

- Largely re-wrote the language re: backup data for invoices
- Added a note encouraging the use of PDF/paperless invoices

#### 4.00 DESIGN SERVICES

- Relocated multiple sections and passages related to deliverables to revamped Ch. 5, including program verification, ASIs/field directives, and record documents
- Re-wrote General Info section to more clearly explain phases, deliverables, basic services
- Relocated to General Info section and edited misc. other passages such as "standard of care" and "cost estimates"
- Moved language re: construction delivery method to Ch. 1
- Moved utilities demand schedule requirements to BOD
- Added section re: delegated designs
- Expanded list of pre-design conference topics
- Moved requirements for topo survey to new Appendix 5-1; deleted "boundary survey" requirements
- Revised language re: material & equipment selection and added a blurb from the D&C Standards re: specific manufacturers named in those Standards
- Moved explanation of the ASB program from the Additional Services section to the Basic Requirements section, while still allowing for design changes stemming from art to be an additional service
- Revamped all explanations of typical additional services
- Added language re: new Florida Life Cycle Cost Analysis Program, with reference to forms and instructions on the DMS website

#### 5.00 DESIGN DELIVERABLES

- Expanded chapter previously devoted just to plan reviews & approvals to include relocated and edited sections of Ch. 4, including :
  - Common Requirements, edited and now including sections re: BOD, Quality Control, FL Product Approval, Energy Efficiency & LEED Certification, Renderings & Models
  - Program Verification, now first portion of Deliverables By Phase section
  - Space/Area Calculation, now including added a requirement to use an FPC template space table at each phase to summarize net and gross space and compare with the program and prior phases
  - Drawings
  - Specifications largely edited, including deletion of "referenced specs" since these leave too much open-ended and unfair research on the part of bidders
  - Addenda & Field Directives
  - Record Documents
- Broke out, revamped, and augmented phase-by-phase deliverable requirements in new Appendix 5-1, which is to be reviewed at contract negotiation and tailored as needed to the project
- Edited utilities demand schedule requirements and relocated from old Ch. 4 to the BOD section of new Appendix 5-1
- Added new section re: closeout/turnover documents to be used in conjunction with new Closeout Deliverables Matrix that will tailored to each project
- In Appendix 5-1, added a detailed explanation of what's to be included in the BOD and organized each stage/phase by design discipline

#### DCSG REVISIONS - APRIL 2011

#### 6.00 BUILDING INFORMATION MODELING (BIM) – published by June 2011

New chapter outlines the goals, purpose, and mechanics of designer-led BIM

#### 7.00 BIDDING, PERMITTING, AND CONSTRUCTION ADMINISTRATION

- Consolidated Chapters 6-8 into one
- Augmented, edited, and re-wrote all

#### 8.00 COMMISSIONING SERVICES

- New chapter generally outlines the purpose of Cx and explains the detailed requirements for Cx during design, construction & acceptance, and post-occupancy NOTE: This essentially mirrors the latest Cx contract (July 2010), so once this DCSG is adopted, subsequent versions of the Cx contract could be scaled back with reference to this Guide.
- Defines and explains the OPR
- Defines and explains the Systems Manual

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UNDER DEVELOPMENT ... COMING SOON

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#### 8.00 COMMISSIONING SERVICES

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#### 1.00. INTRODUCTION

#### 1.01. PURPOSE

This Design and Commissioning Services Guide (or "Guide" or "DCSG") is furnished as a guide to Design and Commissioning (Cx) Professionals providing services to the University and is intended to assist them in fulfilling both its contractual and professional responsibilities.

The Guide – which is geared particularly toward **major** construction or renovation projects (those with a construction cost of \$2,000,000 or more) – is incorporated by reference into the following contract templates for major UF projects:

- Agreement Between Owner and Professional
- Agreement for Design / Build Services
- Agreement Between Owner and Commissioning Agent

A series of renewable Continuing Services Annual Contracts are often used for the design and commissioning of *minor* projects. When warranted, due to the limited nature of project scope and shorter delivery timeframe, certain requirements of this Guide may be waived for, and/or are not applicable to, minor projects. Examples include the number of design phases and the content of design phase deliverables. The University Project Manager and Design Professional shall discuss and reach agreement on such waivers or exceptions during negotiation of the contract.

#### 1.02. EXECUTIVE SUMMARY

As a major land-grant university, the University of Florida has a student body of over 50,000, a distinguished faculty of over 4,000, and offers over 100 undergraduate majors, nearly 200 graduate programs, and professional degree programs that include dentistry, law, medicine, pharmacy, and veterinary medicine. The main campus in Gainesville occupies approximately 2,000 acres, including a district listed on the National Register of Historic Places, and maintains sites throughout the State in support of agricultural, medical, and other missions. For more information on UF, please visit <u>www.ufl.edu.</u>

The facilities that support this large, diverse population and mission are critical in both their function and their relation to the environment and "feel" of the University. Facilities design and construction or renovation at UF is an exciting, dynamic, and challenging undertaking. Multiple stakeholders with varied concerns and an array of design considerations will require the Design Professionals to be much more than simply talented designers. Such considerations include, but are certainly not limited to:

- A. Cost
- B. Constructability
- C. Functionality and performance of the facility and its systems
- D. Durability of materials and maintainability & efficiency of materials, equipment, and systems
- E. Energy efficiency, air quality, weather-tightness, and other sustainable or "green" considerations
- F. Esthetics
- G. Safety and security
- H. Context, siting, footprint, and compatibility with adjacent facilities
- I. Accessibility and paths of circulation / traffic
- J. Compliance with applicable codes and standards
- K. Increasingly complex, integrated, and interdependent technology and systems

The successful design team will produce concepts and systems that address these and other factors in a timely and readily understood design solution.

NOTES:

- A. The term Design Professional as used throughout this document refers to the team of professionals who collectively produce design & construction documents and provide construction administration services, whether or not this effort is led by an architectural firm and regardless of the project delivery method.
- B. The term Builder is used interchangeably with Contractor, General Contractor, Construction Manager, and Constructor in this Guide unless otherwise specified.

#### 1.03. ROLE OF THE OWNER

UF will provide programmatic guidance, funding, design review assistance, construction permitting, and general oversight, coordination, and management of the project. UF Facilities Planning and Construction (FP&C or FPC) – <u>www.facilities.ufl.edu</u> – is specifically charged with managing <u>major</u> capital construction and renovation projects from inception through warranty, except those involving (only) upgrades or additions to utilities infrastructure and/or plants, which are managed by the Physical Plant Division (PPD) – <u>www.ppd.ufl.edu</u>.

The primary point of contact for Design and Cx Professionals is the FP&C or PPD Project Manager (UF PM). This individual serves as the Owner's representative and customer liaison, providing leadership and guidance on all aspects of the project. All project-related communications and actions shall be routed through the PM, including potential changes or variances, impacts to the budget or schedule, and dealings with agencies internal and external to UF. A backup PM is available on all major projects to ensure continuity in the absence of the primary PM.

Other entities that do or may play critical roles in UF design and construction, and with whom the Professionals must interact in coordination with the UF PM, include:

- A. State Fire Marshal (SFM) authority having jurisdiction on matters related to fire and life safety.
- B. Local Water Management District for on campus projects: St. Johns River Water Management District (SJRWMD) maintains jurisdictional authority for stormwater permitting and erosion control for the main UF campus.
- C. State Division of Historical Resources design reviews of projects impacting or adjacent to historic buildings or sites.
- D. Environmental Health & Safety (EH&S) building code enforcement agency; building construction permitting authority; liaison with SFM; Americans with Disabilities Act (ADA) review, inspection, and enforcement; provides regular construction inspection upon request and grants Certificate of Occupancy; can also provide miscellaneous services such as soil treatment, Indoor Environmental Quality Commissioning, and consultation on occupational safety, hazardous materials, industrial hygiene, and radiation control.
- E. Physical Plant Division (PPD) management, operation, and maintenance entity for UF grounds and "Education & General" (E&G) and Health Science Center (HSC) facilities; provides programmatic guidance and cost estimates for necessary extensions or upgrades to utilities infrastructures; provides design review input, construction inspection, utility outages, coordination of utility services, and dig permits.

NOTE: Other campus entities, including the Department of Housing & Residence Education, the Institute of Food & Agricultural Sciences, and the University Athletic Association, serve as the management, operation, and maintenance entity for their facilities.

- F. University Police Department (UPD) provides design review input on matters related to physical security and safety.
- G. Office of Information Technology (OIT) provides design review input on information technology, telecommunications, and (for certain buildings or end users) audio-visual standards.

- H. HealthNet provides design review input on and typically executes related to information technology, telecommunications.
- I. UF Facilities Design Review Committees provide programmatic and design phase review of campus projects as they relate to compliance with the adopted Campus Master Plan, impact on natural (trees and landscape, bodies of water) and manmade (adjacent facilities, roads, sidewalks and other hardscape) features, historically relevant or archaeologically sensitive areas, and transportation and parking facilities. These committees include:
  - 1. Land Use & Facilities Planning Committee (LUFPC)
  - 2. Lakes, Vegetation, and Landscape Committee (LVLC)
  - 3. Preservation of Historic Buildings & Sites Committee (PHBSC)
  - 4. Transportation & Parking Advisory Committee (TPAC)

More information on these entities and their relationship to design and construction can be found at the FP&C website.

For certain projects, including those with special Federal or grant funding, other external agencies and entities may be involved during design and construction. Examples include NIH, DOT, HUD, EDA, DOE, and FEMA. The Design Professional shall coordinate its efforts and otherwise comply with such entities in terms of agency-specific or project-specific standards, rules, or requirements.

As Owner, UF will provide:

- A. Project funding;
- B. The form of contract;
- C. A Facilities Program that outlines project scope and expectations, and which shall serve as the initial basis of design;
- D. Design and construction standards and guidelines to assist the Design Professionals in selection of construction materials and systems based on initial cost, maintenance, custodial/operating costs, sustainability, energy efficiency, and life expectancy;
- E. On-site weekly visits during the construction phase to assist the Design Professionals in ensuring that the project's schedule, budget, and quality are maintained;
- F. Review of design and construction documents to assist the Design Professionals in designing a facility that fully satisfies programmatic and functional requirements, while remaining within budget and adhering to applicable codes and standards.
- G. Template General Terms & Conditions and non-technical specifications to be tailored to the project and included in the construction documents;
- H. Template/model forms for various processes, including applications for payment and the construction inspection and closeout process;
- Administration of the LEED certification process; documentation as needed for certain LEED pre-requisites or credits; and training, as needed, for the project team on the processes and means for obtaining LEED certification;
- J. Oversight and guidance on Building Information Modeling (BIM); and
- K. Overall management to ensure cooperation and coordination between design, commissioning, and construction professionals, and between the project team and other internal and external stakeholders, including the end users of the facility.

#### 1.04. ROLES AND RESPONSIBILITIES OF THE DESIGN PROFESSIONAL

Design Professionals have a unique and profound opportunity to help literally shape the physical environment of the campus. The University, therefore, expects the Design Professionals to be <u>proactive</u> in their leadership and management of the project. Professional skill and expertise, timeliness, regular and effective communication, and coordination of internal and external team members are expected norms. Design of new facilities at UF is an open, public process, so the

Design Professionals must be diligent in seeking to understand the needs of the Owner; able to incorporate input from multiple, varied sources; and knowledgeable in the cost and constructability of products and systems they seek to include. Above all, as the Owner's consultant throughout design and construction, the Design Professionals shall act and advise in the best interests of the University.

The Design Professionals shall work with the PM and User Group to establish a schedule for services and design phases that fully accounts for reviews and presentations, production of cost estimates, holidays, and other conflicts or constraints. Once established, the Design Professionals shall meet or exceed design schedule milestones, or shall provide justification for deviations or extensions thereto. Likewise, during construction, the Design Professionals shall provide efficient management and administration to assist the contractor in meeting its contractual responsibilities and delivering the project on time.

The Design Professionals shall thoroughly evaluate design alternatives utilizing their own expertise, cost consultants, and/or (in the case of CM or D/B delivery) working with the Builder. Any value engineering or benefit analysis of design alternatives required to meet target budget must be completed in adequate detail to fully appraise the net impact of these choices on the project program, schedule, and cost. Reductions or deletions in project scope or quality made for economic reasons must be balanced with substitutions that provide adequate quality and service while meeting program and design intent. The Design Professional shall be fully cognizant of the cascading effect of "value engineering" and design alternatives on constructability and design coordination. Every effort must be made to provide comprehensive analysis of the net impact of value engineering and design alternatives choices.

The Design Professionals shall be competent in design practices, technical specifications and methods, and code requirements leading to a design solution that is within budget, aesthetically pleasing, functional, durable, efficient to operate and maintain, energy efficient, and compliant with codes and standards. Documentation shall be thorough and coordinated, and design concepts shall be developed and presented using the latest available technology. The Design Professionals shall incorporate all review commentary and code and permitting requirements of the various code/permitting agencies applicable to the project, and ensure that all permits are applied for and received in a timely fashion. During construction, the Design Professionals shall make inspections and observations with frequency and timeliness sufficient to ensure that the Contractor is complying with the requirements of the Construction Documents, and shall coordinate the processes for establishing Substantial Completion and Final Completion.

Communication that establishes or resolves a question of scope, budget, or schedule shall include the UF PM and shall be documented in writing. The Design Professionals shall record the minutes of such meetings, presentations, and conferences, and shall furnish copies of these minutes within five working days to all participants. The minutes shall be concluded with the following statement: "It is the responsibility of all meeting attendees to bring all omissions, corrections, and/or errors in these minutes to the attention of the undersigned and the University within five working days."

In the case of Design/Build (D/B) delivery – regardless of whether the D/B is a pairing of design and construction firms or a single, consolidated D/B firm – the role of the design professionals as agents of the Owner remains the same throughout the project. This includes, but is not limited to, responsibilities during the Construction Administration and post-occupancy phases.

#### 1.05. ROLES AND RESPONSIBILITIES OF THE COMMISSIONING PROFESSIONAL

UF's use of the Commissioning (Cx) process predates its adoption of sustainable design and construction and the regular practice of obtaining formal Leadership in Energy & Environmental Design (LEED) certification. The normal scope of Cx services for UF projects – and the fact that the Cx professional is an independent 3<sup>rd</sup> party not associated with the design team –

automatically qualifies major UF projects for the "enhanced" Commissioning LEED credit, but the University's goals for Commissioning extend far beyond the LEED certification process.

Commissioning consultant(s) are typically hired early in design and, as with design professionals, are competitively selected on their experience, past performance, and staff credentials. For projects with smaller Cx scopes, the Cx professional(s) may be hired through a Continuing Services Annual Contract.

During design, the primary duties of the Cx consultant are to "peer review" the design for all systems being commissioned and to maintain/update the Owner's Project Requirements (OPR) document. During construction, the Cx consultant performs inspections, witnesses and documents functional performance tests, and otherwise confirms the operation and optimization of building systems and components prior to turnover to and occupancy by the University. Following construction, the Cx professionals work with operations and maintenance staff, building occupants, and the contractor(s) to further refine, test, and optimize building systems for a year or more after Substantial Completion.

As with design professionals, and as the Owner's consultant throughout design and construction, Cx professionals shall act and advise in the best interests of the University.

See Chapter 8 for more information.

#### 1.06. SUPPORTING DOCUMENTS and DOCUMENT MANAGEMENT

Use of UF and/or FPC model forms and documents is required. View or download the latest editions from the FPC Website at <u>www.facilties.ufl.edu</u>.

Along with this Guide, the following documents either help form the contract between the Owner and consultant, or are crucial in the production of a facility that is compliant and in keeping with the Owner's vision. <u>All</u> members of the design and commissioning teams shall become familiar with these documents, especially as they affect procedural and legal issues in the performance of the design services and construction contracts.

- A. Facilities Program, including OPR
- B. UF General Terms and Conditions
- C. Agreement for design services:
  - 1. Agreement between the Owner and Professional (Construction Management projects);
  - 2. Agreement between the Owner and Professional (Design/Bid/Build projects);
  - 3. or Agreement for Design / Build Services.
- D. Agreement for construction services:
  - 1. Agreement for Construction Management Services;
  - 2. Owner-Contractor Agreement;
  - 3. Agreement for Design / Build Services .
- E. Agreement between the Owner and Commissioning Agent
- F. Florida Building Code
- G. UF Design and Construction Standards:
  - 1. University of Florida Design and Construction Standards
  - 2. UF OIT or HealthNet Telecommunications Standards
  - 3. Office of Academic Technology Classroom Standards
  - H. LEED (Leadership in Energy and Environmental Design) rating system requirements, plus associated or referenced standards, including ASHRAE, IESNA, UPC, and IPC
- I. Closeout and Inspection Procedures, Forms, and Checklists
- J. Campus Master Plan (latest adopted version)
- K. UF BIM Execution Plan and Level of Detail (LOD) Table

Major projects will normally make use of a UF-furnished "Sharepoint" file-sharing database to facilitate the transfer of documents and other information. In order to access this system, the active members of the design, commissioning, and construction teams will be required to obtain a UF identification number and "GatorLink" account.

Additionally, project teams should incorporate a paperless approach to project and document management to improve efficiency and support the University's sustainability goals.

#### 1.07. CONSTRUCTION DELIVERY METHOD

A variety of project delivery methods are used for work at UF, including Construction Management (CM), also known as CM-At-Risk, Design/Build (D/B), and traditional Design-Bid-Build (or "hard bid"). In the case of CM and D/B delivery, teams are selected – as with Design and Commissioning Professionals – solely on the basis of qualifications, past performance, proposed staffing & approach, and other project-specific criteria. For Design-Bid-Build projects, a pre-qualification process may be used to ensure only capable, qualified, and stable firms are permitted to bid or a Best Value award process may be used to gauge both price and technical qualifications.

The CM works with the Owner and Design Professional during design to estimate and generally review the design documents, eventually producing one or more Guaranteed Maximum Price (GMP) proposals for construction of the Work. The CM is expected to act as a fully vested member of the project team by suggesting alternative methods and/or systems and providing expert guidance on issues of cost, constructability, logistics, and scheduling. This does not, however, relieve the Design Professional from being ultimately responsible for designing within the Owner's budget. Likewise – in the case of D/B, where the design and construction entities fall under a single contract with the Owner – the Design Professionals are expected to serve as the Owner's agent and are in no way relieved of their duties & responsibilities as enumerated within this Guide.

For Design-Bid-Build projects, the Design Professional is often solely responsible for complete and detailed estimates of its work, in addition to global responsibility for budget compliance. The Professional(s) must also strive to produce nearly flawless construction documents on such "hard bid" projects to minimize change orders, and may be tasked with assisting the Owner in developing pre-qualification or "Best Value" award criteria to help ensure the quality and capability of the pool of bidders.

END OF SECTION

## 2.00. SELECTION AND EVALUATION OF DESIGN & COMMISSIONING PROFESSIONALS

#### 2.01. CONSULTANT SELECTION

Selection of Design and Commissioning (Cx) Professionals is accomplished in accordance with Section 287.055 of the Florida Statutes, commonly called the Consultant's Competitive Negotiation Act, and UF Board of Trustees policy. This procedure is used to select such professionals based on criteria such as experience, qualifications, past performance, building type expertise, and staff credentials, rather than fee or price.

Professional services solicitations are advertised, in accordance with Florida Statutes, in a publication with appropriate minimum daily circulation for appropriate duration. Most commonly, UF advertises on the *Florida Administrative Weekly* (a state-wide publication). Project-specific information, such as the facility program and the Project Fact Sheet, is available for review at the FP&C website (www.facilities.ufl.edu) throughout, and often prior to, placement of the advertisement.

A committee consisting of the FP&C Assistant Vice-President, the UF Project Manager (UF PM), one or more User Group representatives, and a representative of the operation & maintenance entity (often UF PPD) conducts the selection process in two phases: a short-listing to three or more teams based on a written submittal and an interview session for each of the short-listed teams.

The written submittal consists of a Letter of Application, a completed University of Florida Professional Qualifications Supplement (PQS), and copies of relevant Florida licenses and credentials. Proposals are scored on the applicants' relative past performance (including work at UF), experience & ability, and certain project-specific criteria, such as building type experience.

Short-listed applicants are then interviewed and re-evaluated for their relative standing in the areas as delineated in the project specific criteria.

Evaluations are based on the team of professionals proposed for a given project, not only the firms themselves. Submissions or presentations that are not tailored specifically to the University of Florida and the project in question are highly discouraged.

Award of a contract to the selected firm is subject to approval by the Vice-President for Business Affairs and successful negotiations. Applicants interested in work at the University of Florida are encouraged to review the applicable template contract (A/E, D/B, Cx) prior to submitting.

NOTE: For projects with smaller Commissioning scopes, the Cx professional(s) may be hired through a Continuing Services Annual Contract.

#### 2.02. CONSULTANT EVALUATIONS

The quality of services rendered by Design and Commissioning Professionals will be evaluated periodically during the course of the contract in accordance with UF rules and policies. These performance ratings will be maintained by FP&C and used as part of the "past performance" criteria for future work. These evaluations document the performance of the team as a whole, including all sub or specialty consultants, throughout design and construction.

Professionals under contract for a major project or a minor project which is not under a continuing contract will be evaluated by the University on a project by project basis, (a) semiannually, in March and September, during the contract term, (b) upon completion of a project, and (c) at any

time the University determines there has been a material change in the quality of the firm's performance occurring during the contract term. Design Professionals under continuing contracts with the University will be evaluated by the University on all projects performed by the architect or engineer during the contract term. These evaluations will occur (a) semiannually, in March and September, during the contract term, and (b) at any time the University determines there has been a material change in the quality of performance during the contract term.

END OF SECTION

#### 3.00. CONTRACT NEGOTIATION AND INVOICING

#### 3.01. PREPARATION

The University of Florida is the contracting authority for all professional services agreements. Upon completion of the Design or Commissioning Professional selection, an Agreement between the Owner and consultant (Design Professional, Commissioning Professional, or Design/Builder) shall be negotiated using the standard UF template. The UF Project Manager (UF PM) shall schedule negotiation meeting(s) with representatives of the Professional and UF to discuss and settle the terms, conditions, fees, and schedule for Basic Services, plus any additional services to be included in the Basic Services Agreement.

Prior to the negotiation meetings, the Professional shall review the project scope and proposed budget with the UF PM and visit the project location to become familiar with the conditions of the project site. The Professional shall also obtain and review the "supporting documents" listed in Chapter 1 of this Guide, along with other supporting documents that may define or relate to the Professional's services. The Professional shall then provide the following items to the UF PM in advance of the negotiation meeting:

- A. Fee proposal for basic services;
- B. Proposed design schedule and assumed construction duration;
- C. Proposed schedule of hourly staff rates for the Professional and its consultants;
- D. Proposed project-specific terms or changes to the Agreement, if any;
- E. Fee proposals for site surveys, studies, tests, energy modeling, additional site visits, and other additional services known to be necessary;
- F. A copy of the ACORD certificate for Professional Liability insurance for the Professional and its consultants (see Agreement for stipulations);
- G. Other information considered necessary or relevant by UF or the Professional.

#### 3.02. NEGOTIATIONS

#### A. FORMAT & PURPOSE

The negotiation will be conducted as a face-to-face meeting or telephone conference. The negotiation will be chaired by the Assistant Vice-President of FP&C or designee, and attended by the UF PM, FP&C Contract Administrator, and the Professional, along with key consultants if deemed necessary.

The negotiation shall include a detailed review of project-specific requirements, timeframes, terms, provisions, services, and stipulations, all of which are addressed in a series of exhibits to the Agreement. All terms and conditions shall be reviewed during the negotiation to ensure that the proposed fee matches the parties' understanding of the scope and requirements of service. Particularly for Design Professionals and Design/Builders, the project schedule shall be discussed and finalized, with attention paid to the amount of time allotted for review of design submittals at each phase and a phase-by-phase review of the deliverable requirements outlined in Chapter 5 and Appendix 5-1 of this Guide.

B. FEES

The fees paid for Professional services shall be fair, competitive, reasonable, and rooted in both historic and current data for projects of similar scope. The compensation shall be negotiated based on such historic data, the approved facilities program budget, the FP&C fee curve, the Professional's estimate of manhours by design discipline, task, and/or phase, the level of complexity, the scope of required services, the schedule, and the project/building type.

#### C. FAILURE TO REACH AGREEMENT

Should the Owner be unable to negotiate satisfactory terms with the firm considered to be the most qualified at a price the Owner determines to be fair and reasonable, negotiations with that firm will be terminated, then begun anew with the second most qualified firm. Failing accord with the second most qualified firm, negotiations with that firm will be terminated, then started with the third most qualified firm ... and so on. Should the Owner be unable to negotiate a satisfactory contract with any of the selected firms, negotiations may be re-started following the original order of priority or the selection process itself may be re-started.

#### D. CONTRACT EXECUTION

Upon completion of successful negotiations, assuming availability of funds, the UF PM will finalize and facilitate execution of the contract, transmitting a fully executed copy to the Professional, along with a Notice to Proceed signed by the FP&C Assistant Vice-President or designee.

Design and Commissioning Professionals shall not commence work until in receipt of a completely executed Agreement and a Notice-to-Proceed (NTP). Design Professionals shall not proceed to the next design phase until in receipt of a phase NTP. Failure to comply may result in non-payment for work accomplished prior to the date of approval or notice.

Contact amendments, if necessary, shall be negotiated, documented, executed, and distributed in the same manner as the original agreement.

Services beyond those included in the original Agreement must be directed by UF in writing by means of an Additional Services Authorization prior to commencement of such services by the Professional. See Chapter 4.

#### 3.03. INVOICING

#### A. GENERAL

- 1. It is the intention of UF to expeditiously approve all properly rendered invoices for professional services and reimbursable expenses. In order to ensure timely processing, invoices must be properly prepared using the UF form, signed, inclusive of all substantiating information and backup data, and provided to the UF PM.
- 2. The Professional shall submit invoices only for those basic services, additional services, and reimbursable expenses specifically authorized by the agreement or by Additional Services Authorization.
- 3. Line item descriptions and fee amounts shall match the schedule of fees provided in the Agreement.
- 4. Invoices shall be signed by the firm's President, CEO, or other designee as authorized in writing by the President or CEO.
- 5. Invoices may be submitted at the completion of a phase or specific deliverable, monthly, or as otherwise allowed by the Agreement.
- 6. Invoices not properly prepared as to form, content, or substantiation will be returned to the Professional for revision and resubmission.

#### **B. FORMAT & CONTENT**

Template invoice forms for both Design and Commissioning consultants are available for review and use on the FP&C website at www.facilities.ufl.edu. The use of any other invoice form is not permitted.

Invoices shall be numbered consecutively beginning with number one (01), continuing in numerical order throughout the life of the contract, and shall identify or include the following:

- Invoice Number
- Date .
- Professional's Name, Address, and Federal I.D. Number
- Project Name & Number
- Description of Phases, Services, Deliverables, and ASAs
- Contracted Fee for each Phase, Service, Deliverable, and ASA
- Percent Complete, Amount Due (total), Amount Previously Billed, and Amount Due (this invoice) for each Phase, Service, Deliverable, and ASA
- **Total Contracted Fee Amount**
- Initials for Supporting Documents
- Signature / Certification

Additional Services Authorizations executed to date shall be listed on the invoice, including Authorizations not being billed.

The Professional shall submit one original certified invoice with copies of all of the required backup data and information as outlined below, plus one electronic (searchable PDF) copy of same.

#### C. SUBSTANTIATION AND BACKUP DATA

In order to comply with the Comptroller's Rules promulgated to meet the requirements of Florida Statute 287.057, the information outlined below is required for payment of the item invoiced.

- 1. ALL Invoices. Enclose consultant invoices (if applicable) and status/field reports if not previously sent.
- 2. Design Phase Invoices. For payment at the conclusion of a design phase or upon completion of a specifically billable deliverable, the deliverable must be submitted and approved. In the case of a design phase completion, enclose the NTP or Letter of Activation for the next phase.
- 3. Bidding Phase Invoices. Provide a copy of the Bid Tabulation, along with the Design Professional's recommendations concerning contract award.
- Construction Administration Phase Invoices. Include an approved copy of the Builder's 4. latest Pay Certification/Signature page indicating the Builder's percent complete. For final invoices, enclose a copy of the completed Certificate of Final Completion.
- 5. Additional Services Invoices: Enclose an executed copy of the ASA, along with consultants' invoices if applicable. For not-to-exceed (NTE) authorizations, provide time sheets and other evidence as required to substantiate the time and resources spent on the required services and attach a letter indicating final invoice when the remaining unspent portion of the NTE allowance is to be returned to the Owner.

NOTE: The additional services being billed shall have been completed and approved.

- 6. Commissioning Professional Invoices. Cx services shall be billed in accordance with the terms of, and schedule of fees outlined in, the Agreement for Commissioning Services.
- 7. Personnel Time Expenditure or Overtime Charges (beyond Basic Services). Enclose:
  - a. A copy of the Authorization;
  - b. Time sheets, or a recapitulation sheet indicating the individuals name, specific days, hours and tasks performed (highlight the personnel time and differentiate it from other assignments on the time sheets);
  - c. Calculations to show how the personnel time expenditure charge was determined (Hourly Rate) x (Overhead Multiplier) x (Number of Hours) = Personnel Time Expenditure Charge.
- 8. Travel and Per Diem Charges (beyond Basic Services). Provide:
  - a. A copy of the Authorization;
  - b. An itemization of the individual(s) traveling, purpose of the trip, departure and destination locations, and the time & date of departure and return;
  - c. Calculations for automobile mileage charges based upon the rate \$/mile rate stipulated in the Agreement and a standard Department of Transportation road map;
  - d. Receipts for lodging, airfare, rental automobiles, parking, tolls, etc., as allowed in the Authorization.
- 9. Telephone Charges (beyond Basic Services). Generally, telephone calls are not considered to be a reimbursable expense, having been included within the Basic Services fee or as a part of the overhead and profit multiplier. Only in special cases will an authorization be made for telephone calls, and the authorization will specify what telephone charges are allowable with a not-to-exceed limit. Attach to the invoice for such billings:
  - a. A copy of the Authorization;
  - b. A phone log illustrating the purpose of call(s) and the names of the individuals placing and receiving the call(s);
  - c. Paid invoices/receipts of bills showing the calls being billed.
- 10. Document Reproduction Charges (beyond Basic Services). Provide:
  - a. A copy of the Authorization;
  - b. A completed Documents Distribution Record;
  - c. Copies of paid invoices/receipts for the reproduction costs being billed.
- 11. Fees Paid For Securing Approval of Authorities. Provide:
  - a. A copy of the Authorization;
  - b. A copy of the consultant's invoice, if applicable;
  - c. A copy of the Authority's approval document.
- 12. Advertising Costs. Attach to the Invoice:
  - a. A copy of the Authorization;
  - b. A copy of the newspaper or advertising agency paid invoice/receipt;
  - c. An original notarized proof of advertisement.

#### D. PAST DUE INVOICES

If there are outstanding or past due billings when submitting a new invoice, please indicate such past due billings on a separate document. In no case should an item previously invoiced be shown on a later invoice in the "amount due" column. It should only appear under "previously billed." Contact the UF PM or Contract Administrator (C.A.) to inquire about the status of an invoice.

END OF SECTION

#### 4.00. DESIGN SERVICES

#### 4.01. GENERAL INFORMATION and REQUIREMENTS

A. BASIC SERVICES and PHASES

The University of Florida requires Design Professionals to provide the following as basic services:

- 1. Program Verification (including development of the draft Basis of Design)
- 2. Design Services (including architecture, civil engineering, landscape architecture, structural engineering, mechanical engineering, electrical engineering, plumbing and fire protection engineering, and design & integration of telecommunications, security, and audio/visual systems ... plus other specialty disciplines as identified in the facilities program and/or during the selection process)
- 3. Bidding Services
- 4. Construction Administration
- 5. Post-Occupancy Services
- 6. Other services as defined in the Agreement

Major project designs are typically developed through a Program Verification effort, followed by five distinct design phases, with a formal deliverable provided for review at the end of each – Conceptual Schematic Design, Advanced Schematic Design, Design Development, 60% Construction Documents, and 100% Construction Documents. A 7<sup>th</sup> deliverable (Conformed Bid Documents) is then produced to incorporate 100% CDs comments.

The size and scope of each project will be considered in determining whether fewer or more than the standard phases and submittals are required. Some projects may be large or complex enough to require/allow additional submittals. The number and duration of phases, and the schedule for and quantity of deliverables, will be discussed and agreed upon during contract negotiations. See Chapter 3, Chapter 5, and Appendix 5-1.

B. DELEGATED DESIGN

A complete list of all delegated designs and delegated engineering documents shall be included in the Basis of Design document.

NOTE: Delegated engineering shall comply with F.A.C. 61G15-30 – 61G15-34.

NOTE: Delegated design of fire protection systems is not permitted for UF projects.

#### C. STANDARD OF CARE

The Design Professional is expected to keep the University informed on the status of project issues, the project schedule, cost or budget issues, and matters relating to quality and sustainability (including LEED certification). Having been selected on the basis of its qualifications and past performance, the Design Professional is also expected to be aware of, and to comply with, all applicable laws, codes, rules, and standards, and shall comply with Authorities Having Jurisdiction over the project. Moreover, the Design Professional shall coordinate its efforts with other agents of the Owner – such as Construction Managers and Commissioning consultants – and shall generally act in the best interest of the University.

#### D. PROJECT SCHEDULE

As the design phase progresses, the Design Professional shall work in concert with the UF Project Manager (PM) and Builder (if applicable) to refine and update the baseline schedule incorporated into the Agreement. Such coordination shall consider:

- 1. The User Group's availability
- 2. Timeframes for, and formats of, design review meetings
- 3. Monthly meeting dates of the (4) faculty-based facilities review committees
- 4. The Builder's allotted period for producing cost estimates or GMP proposals (if applicable)
- 5. The plan for any "fast track" packaging of certain trades for early bidding and execution on CM and D/B projects
- 6. Holidays and other constraints
- E. COST ESTIMATES

The Design Professional shall provide a construction cost estimate at the end of each phase of design as part of basic services in accordance with the Agreement. Detailed construction cost estimates developed in conjunction with the Construction Manager or Builder shall be presented in CSI format and given in recognizable units for estimating purposes (such as square feet, cubic yards, tons, etc). Should the estimate exceed the available budget, the Design Professional shall revise the design as required to match the project construction budget.

F. DESIGN PRESENTATIONS and FACILITY DESIGN REVIEW COMMITTEES

For on-campus projects, the Design Professional shall prepare submittals for, and make presentations to, each of the (4) faculty-based facilities design review committees during the Schematic Design (Conceptual or Advanced) and Design Development phases. These Committees are: Land Use and Facilities Planning; Lakes, Vegetation and Landscaping; Preservation of Historic Buildings and Sites; and Transportation & Parking. For more information, see www.facilities.ufl.edu/comittees.htm.

Such presentations shall include the use of drawings, sketches, renderings, static models, and/or three-dimensional models as needed to explain or gain approval of design concepts. As part of the committee presentations, a project-specific "Campus Master Plan Checklist" shall be prepared and distributed to explain how the project will comply with provisions of the approved Master Plan. Pending approval by the Vice-President for Business Affairs, the committees' review comments shall then be incorporated into the design documents.

Similar presentations may be required for user/donor groups, other agencies, and the public.

#### G. MINUTES OF MEETINGS, CONFERENCES AND CALLS

The Design Professional shall take notes of the proceedings of all conferences, meetings and conference telephone calls which deal with matters of scope, design, and basic input or project development. From these notes, the Design Professional shall develop minutes of the proceedings and send copies to the UF PM and all participants. The Design Professional should keep a log and notes on all incoming and outgoing calls related to the project. These can be invaluable later in resolving any disputes that may arise.

#### H. PUBLIC INFORMATION RELEASE

Any proposed press releases must receive approval by the University prior to release. The nature of the services of the Design Professional requires that discretion be used in the release of any information – including design images – throughout the project.

#### 4.02. PRE-DESIGN CONFERENCE

A Pre-Design Conference will be scheduled by the UF PM and attended by the UF PM, the Design Professional, the User Group, and other UF entities involved in construction or renovation projects. In addition to the requirements of this Guide and key provisions and terms of the Agreement, the following issues will be reviewed:

- 1. Project schedule and key dates & milestones
- 2. Communications and document management
- 3. Reporting requirements, including space tracking during design
- 4. Cost control, reporting, estimating; value engineering; and reconciliation
- 5. Timing and content of design deliverables and reviews
- 6. BIM execution, approach, and roles & responsibilities
- 7. UF Design & Construction Standards
- 8. UF Policies, Forms, and Standards
- 9. FP&C non-tech specs and General Terms & Conditions
- 10. Other UF planning documents
- 11. Art in State Buildings program
- 12. UF Committees, schedule and presentation requirements
- 13. Work by, or coordinated with, others
- 14. Permitting and code compliance requirements
- 15. Inspection requirements
- 16. Commissioning scope, responsibilities, and coordination
- 17. EH&S, SFM, and ADA requirements
- 18. PPD issues, roles, and contacts
- 19. UPD issues, concerns, and requirements
- 20. Sustainability, energy efficiency, and LEED certification
- 21. Energy rebate program
- 22. Construction issues to be addressed during design
- 23. Coordination with and impact on adjacent buildings, projects, and/or ongoing activities
- 24. Project closeout procedures and documents
- 25. Invoicing procedures

#### 4.03. DESIGN SUBMITTALS AND REVIEWS

At each design phase, as stipulated in the Agreement and Chapter 5 of this Guide, the Design Professional shall submit appropriately detailed design documents to the University and other reviewing agencies for approval. Provide the number of copies specified in the Agreement, along with electronic (PDF and DWG or RVT) copies of all drawings, specifications, reports, and other materials.

Typical reviewers include FP&C, EH&S, PPD, OIT or HealthNet, the user group, and the Commissioning Professional(s). The UF PM will compile and consolidate all UF review comments, with an emphasis on functionality, program adherence, cost control, esthetics, design quality, sustainability and energy conservation/efficiency, and adherence to UF standards and applicable codes. The UF PM will coordinate the comments of others and help resolve any conflicting comments.

Review meetings for each design submittal will be arranged by the UF PM and attended by all reviewing UF entities, the commissioning consultant(s), and other reviewing agencies, if applicable. These may take the form of a "stand-up review" at the beginning of the review period – where the Design Professionals describe and explain the design intent and highlight critical items – and/or a traditional joint review at the end of the review period, where comments by all reviewers are discussed. For the latter, the UF PM will endeavor to make review comments available to the design team prior to the meeting.

Within 10 work days of the joint review meeting(s), the Design Professional shall provide written responses to all review comments, incorporating changes to the design as needed, and shall record and distribute minutes of significant discussions held during the review meeting(s). Other changes or potential changes to the design stemming from review comments, value engineering efforts, or cost estimates shall be included in the responses to comments.

Following the review of each design submittal, receipt of satisfactory responses by the Design Professional to all review comments, verification that the design is within budget, and determination that the submittal is otherwise compliant and acceptable to the University, the UF PM will approve the design submittal in consultation with the FP&C Assistant Vice-President and provide written authorization to proceed to the next phase.

#### 4.04. OTHER BASIC REQUIREMENTS

#### A. MATERIAL AND EQUIPMENT SELECTION

The University of Florida encourages the use of quality building materials. In general, materials shall be selected to provide optimum service and lowest maintenance for the dollars spent. Products and materials manufactured in the U.S. and Florida should be specified if possible as a best practice. Projects pursuing LEED certification must incorporate regionally-available products and materials. Federally-funded projects may require incorporation of, and adherence to, Buy American provisions.

Drawings and specifications shall be prepared so that the bidder will be permitted a choice of materials or equipment that are equally satisfactory for the purpose intended and are comparable in cost and quality when subjected to open market competition.

The Design Professional shall comply with the provisions of UF Design and Construction Standards or justify proposed variations and obtain University approval of same.

NOTE: Manufacturers listed in these Standards are included to establish a standard acceptable to the University and are not intended to exclude others unless specifically stated. "Or equal" is implied even if not stated unless the list of acceptable manufacturers is appended with the phrase "No others are acceptable," in which case substitutions are not allowed.

The use of asbestos or asbestos-based materials (including vinyl asbestos tile) is prohibited in buildings being renovated, remodeled or constructed for the University.

#### B. CODE COMPLIANCE AND LIFE SAFETY

The Design Professional shall provide with each design submittal a listing of all codes and regulations applicable to design of the project. The Design Professional shall abide by and certify compliance with same by signing & sealing construction documents at the 100% CDs and/or Conformed Bid Documents stage, and at issuance of partial documents for fast tracked construction.

The Design Professional shall ensure that the design optimizes life safety and accessibility under the following order of precedence:

- 1. Prevention of loss of life and personal injury.
- 2. Protection of materials and equipment of high monetary value and of records that would be difficult to replace.
- 3. Protection of buildings and their components.

Where a question of code interpretation exists, the Design Professional shall contact the UF PM and/or UF EH&S for assistance and clarification. Visit <u>www.ehs.ufl.edu</u> for more information on the UF Building Code Enforcement program.

#### C. STATUS REPORTS

The Agreement between Owner and Professional requires the Design Professional to prepare status reports throughout design and construction. At a minimum, such reports shall be submitted with each pay application from the Design Professional. The construction status report may be used to document and report the Design Professional's weekly site visits. These reports shall cover all work through the end of the previous month, with special emphasis on items that are of critical importance to the extent that they may cause future delays or problems. Information provided shall be in sufficient detail to give a concise overview of the project. The Design Professional shall submit all such reports to the UF PM in electronic (searchable PDF) form, with copies of construction phase reports to the Builder.

#### D. EDUCATIONAL FACILITIES AS EMERGENCY SHELTERS

Section 1013.372 of Florida Statutes provides that protective public shelters should be considered when constructing educational facilities. The Design Professional shall assist the University (EH&S) in the evaluation of the proposed construction for appropriateness for use as a protected public shelter. The degree of compliance will depend on factors which vary with the type, size, location, and cost of the individual structure or facility. Unless specifically instructed otherwise, the Design Professional will consider such protective construction in the planning and shall provide an evaluation of its cost.

#### E. ENERGY DATA & INFORMATION

The Design Professional will be required to provide information, data, calculations, and other information related to energy usage, efficiency, conservation, and cost savings for code compliance, LEED certification, energy rebates, and other purposes.

NOTE: Per F.A.C. 61G15-30.010, engineers who prepare Energy Conservation Compliance calculations and certify the accuracy thereof, shall verify that the building construction documents conform to compliance calculations. Data used in calculations shall be under the signature, date and seal of the responsible design professionals. The Engineer of Record for energy conservation compliance calculations shall retain the signed, dated and sealed data as provided for in Rule 61G15-30.009, F.A.C., Retention of Engineering Documents.

#### F. ART IN STATE BUILDINGS

Established in 1979, Florida's Art in State Buildings Program acquires artwork for new public facilities built with State funds. It requires that up to 0.5% of the construction budget appropriation (up to \$100,000) be set aside to acquire artwork for permanent display in the public areas in, on, or around that facility. As part of its Basic Services, the Design Professional:

- 1. Shall participate in the artist selection process
- 2. Shall provide and/or augment its design drawings as needed to illustrate potential public art locations inside or around the facility
- 3. May be asked to provide a brief description or statement about the building/site as related to potential public art locations
- 4. May be asked to participate in site visits by the potential (shortlisted) artists
- 5. Shall work with the selected artist in planning for the display and/or installation of the art

#### 4.05. ADDITIONAL SERVICES

In addition to basic services, Design and Commissioning Professionals may be asked to provide additional compensable services. Such services must be agreed upon in advance and authorized in writing using the UF Additional Services Authorization (ASA) form. Services will be agreed upon for either a lump sum (LS) amount or for hourly rates with a Not-To-Exceed (NTE) total if the exact scope of services cannot be determined. The Professional shall anticipate the need for additional information or services in support of the project and initiate any proposals for additional services that are not a part of the basic services contract. Typical additional design services include:

#### A. PROGRAMMING

The Facilities Program is a suite of documents, prepared by or for the Owner, setting forth the conditions and objectives for a building project, including its general purpose and justification, quantity, type, adjacencies, and finishes of spaces, compliance with the UF Master Plan, site characteristics, an analysis and estimate of site utilities, schedule, budget, and other project-specific goals or requirements. The Program is normally provided by UF to the Design Professional, but for certain projects the Design Professional may be requested to prepare the program or refine an existing program. This work is usually negotiated on a lump sum basis authorized prior to commencement of the work.

#### B. SURVEYS

If available, a topographical survey of the project site will be provided to the Design Professional by the University. If a survey is not available, the Design Professional shall arrange to have one conducted by a licensed surveyor, who will serve as a consultant to the Design Professional.

The limits of the survey shall be determined by the Design Professional and shall include the known limits of construction, including actual or estimated "offsite" corridors for utilities connections.

Two (2) signed and sealed copies of the survey shall be provided, along with electronic copies in both PDF and DWG form.

See Appendix 5-1 (CSD phase) for specific topographical survey requirements.

#### C. SUBSURFACE (GEOTECHNICAL) INVESTIGATIONS

When the Design Professional determines, with University concurrence, that information on subsurface conditions is needed, arrangements for the necessary investigations shall be made upon written authorization.

Any investigation undertaken should be extensive enough to provide all the information needed to complete the design and should be closely monitored by the Design Professional. Upon receipt of a geotechnical report, the Design Professional shall send two (2) signed and sealed copies to the UF PM, along with an electronic copy.

Typical requirements for subsurface investigations include:

1. A full and comprehensive report prepared by a qualified registered professional with graphical indication of the soil strata in each test location and a written narrative analysis of the tests and their meaning with regard to design of the proposed construction.

- 2. Borings and test pits shall extend to stable soil below the bottom of all proposed foundations. A field log of each boring shall be made, recording the thickness, consistency and character of each soil layer encountered. Samples of each layer shall be taken and retained for later reference.
- 3. The amount of elevation of ground water encountered in each pit or boring, its possible variation during the seasons and its effect on the subsoil shall be determined. High and low levels of nearby bodies of water that affect the ground water level should also be determined and noted.
- 4. Appropriate laboratory tests shall be performed to determine the safe bearing value, compressibility, and characteristics of the various soil strata encountered.
- 5. Tests shall be made to determine if the soil has chemical characteristics, which would adversely affect foundations or metallic conduits or pipe.
- 6. Percolation tests.
- 7. Radon survey.

#### D. ROOF INVESTIGATIONS

The Design Professional shall, as a Basic Service, visually inspect roofs for projects that include re-roofing or roof replacement and research the roof's construction and maintenance history with the operation & maintenance entity (PPD or other). Further destructive or non-destructive analysis, if warranted or required, would be considered an additional service. Examples include infrared/thermographic analysis, nuclear moisture profile analysis, fastener pull tests, and test cuts/cores to confirm the roof composition or determine if hazardous materials (asbestos, e.g.) are present. See the UF Design & Construction Standards, Section 07500.

#### E. MEASURED DRAWINGS

Usually required for renovations or additions that will be appended to an existing facility, such drawings will be provided to the Design Professional by the University if available. If unavailable, or if the data is suspected to be outdated, the Design Professional should develop an additional services proposal for this service.

- F. ASBESTOS SURVEYS, TESTING, AND ABATEMENT
  - 1. General:
    - a. Prohibition: In accordance with F.S. 255.40, "The use of asbestos or asbestos-based fiber materials is prohibited in any building, construction of which is commenced after September 30, 1983, which is financed with public funds or is constructed for the express purpose of being leased to any government entity."
    - b. The Design Professional shall become familiar with the Asbestos Program administered by UF EH&S. See <u>www.ehs.ufl.edu</u>.
    - c. Asbestos surveys complying with current State and Federal requirements shall be conducted prior to any building renovation/remodeling or demolition. EH&S may authorize abbreviated sampling of suspect material for projects of less than 160 square feet or 260 linear feet and asbestos response actions related to operation and maintenance activities. Partial or limited surveys prior to renovation projects may be approved with the concurrence of EH&S and the project's licensed asbestos consultant.
    - d. It is University policy that all asbestos-containing vinyl floor tile, sheet vinyl, mastic, and caulk in existing buildings be abated prior to installation of new.
    - e. Include formal abatement specifications and/or "work plans" or call for coordination of same with others if provided under a separate contract.

- 2. Surveys, Testing, and Abatement:
  - a. Involve the EH&S Asbestos Coordinator and, prior to any demolition activity, notify the DEP's area contact.
  - b. Review existing reports with the EH&S Asbestos Coordinator and the UF PM.

#### G. ENERGY MODELS AND LIFE CYCLE COST ANALYSES

Energy models as required by code or for LEED certification and life cycle cost analyses as required by law/rule or as requested by the University are considered additional services.

In accordance with F.A.C. 60D-4.003(1), the selection of major energy-consuming equipment and architectural components for new and existing State facilities must be made on the basis of a life-cycle cost analysis of alternative designs. One means of complying is to use the Florida Life-Cycle Cost Analysis Program (FLCCA Program), which was developed to comply with this rule and the broader *Florida Energy Conservation and Sustainable Buildings Act of 2008* (F.A.C. 60D-4). Requirements, instructions, and a spreadsheet-based tool for the FLCCA Program can be found on the Department of Management Services website at http://dms.myflorida.com.

See the Agreement for other stipulations and parameters regarding life cycle cost analyses.

#### H. DESIGN MODIFICATIONS TO ACCOMMODATE ART

Accommodations for artwork shall be accounted for, or even integrated into the Construction Documents if possible. If a completed design must be modified to support or accommodate artwork, however, the Design Professional may submit an additional services proposal.

#### I. ADDITIONAL PROJECT SCOPE

During the course of the project, the Design Professional may be asked to design additional elements or modify previously approved documents, systems, or elements. The Design Professional shall consult with the UF PM and refer back to the program, the original fee proposal, negotiation minutes, and the Agreement. If the new request is neither a basic service nor a service incorporated into the Agreement, then an additional services proposal may be submitted. Common examples of added scope include:

- 1. Designing additive or deductive alternates beyond the scope of the original program.
- 2. Securing and paying for permits.
- 3. Designing off-site utility or roadway improvements neither included in the original program nor discussed and agreed upon during the original contract negotiation.

#### J. PROLONGED CONSTRUCTION ADMINISTRATION

Refer to the Agreement between Owner and Professional or Design/Builder for definition. The fee is calculated as follows:

Additional Service Amount =  $[(A \div B) \times 0.8] \times [C-B]$ 

- 1. A = the original contract fee for construction administration
- 2. B = the number of days in the original construction contract
- 3. C = actual number of construction days, minus any days added by change order for which the Architect/Engineer was compensated by an Additional Service Authorization.
- 4. The original construction administration fee assumes a heavy workload at the beginning and end of construction. The 0.8 factor recognizes that these efforts have already been

considered in the fee and the prolonged portion are days in the middle of the construction period.

#### K. TESTING

Materials testing and other tests are normally specified in the construction documents by the Design Professional and included in the Builder's cost of work. In some cases, though, the University may procure such tests through the Design Professional, in which case an Additional Service Authorization is warranted. Examples include soil compaction tests, concrete or mortar strength tests, welding tests, or the witnessing of factory tests for mechanical equipment.

#### END OF SECTION

#### 5.00. DESIGN DELIVERABLES

Major University of Florida construction and renovation projects are typically executed through five (5) standard design phases. Appendix 5-1, at the end of this chapter, outlines the default submittal requirements at each design phase. This list – and the quantity and timing of each design phase – shall be reviewed and considered by the University and the Design Professional during negotiation of the Agreement, adjusted as needed for the demands and particulars of the project being executed.

Factors that may impact the quantity, timing, and duration of design phases – and the deliverable requirements for each – include:

- Facility type (research/lab, classroom, library, office, housing, sports/recreation, etc.)
- Location (main campus vs. off campus)
- Project delivery method (CM, D/B, Design-Bid-Build)
- Schedule requirements or constraints
- Accuracy and completeness of the Facilities Program, OPR, and other pre-design information

#### 5.01. DELIVERABLE REQUIREMENTS COMMON TO ALL DESIGN PHASES

A. BASIS OF DESIGN (BOD)

The BOD is essentially the design team's translation of the project's goals and requirements – first into design concepts, then design documents, then construction documents. The BOD is drafted and maintained by the Design Professional throughout design and construction, while the Owner's Project Requirements (OPR) document is drafted by the Owner during programming and maintained throughout design and construction by the Commissioning Professional. The OPR describes the owner's functional goals & requirements, while the BOD expresses how those requirements will be met.

The BOD records the concepts, assumptions, calculations, decisions, rationale(s), and product selections used to satisfy applicable regulations, standards, and guidelines and to otherwise meet the owner's goals and requirements. It is a "living document" that must be updated throughout design and construction by the Design Professional so that an "as-built" version of the document can accompany the record drawings, operation & maintenance manuals, and other documents provided during project closeout to substantiate what was designed and built, and why.

See Appendix 5-1 for a template list of specific components of the Basis of Design document.

#### B. SPACE SUMMARY & AREA CALCULATION

At the end of each phase of design, the Design Professional shall calculate the area of the facility to be constructed or renovated using AutoCAD or BIM as outlined below. Space quantities shall be tabulated using the University's form to allow for a comparison at each phase to the original Facilities Program and prior design submittals.

1. Gross Square Feet: Determine the total building gross square feet by adding the sum of the floor areas of the building included within the outside faces of exterior walls for all stories, or areas that have floor surfaces. Gross area should be computed by measuring from the outside face of exterior walls, disregarding cornices, pilasters, buttresses, etc., which extend beyond the wall face. Gross area should include basements (except unexcavated portions), attics, garages, enclosed porches, penthouses, mechanical equipment floors, lobbies, mezzanines, all balconies (inside and outside) utilized for operational functions, and corridors, provided they are within the outside face lines of the building. Stairways, ducts, and mechanical service shafts (but not elevator shafts) are to

be counted as gross area on each floor through which the shaft passes. Exclude open courts and light wells, portions of upper floors eliminated by rooms or lobbies that rise above single floor height, but include non-enclosed covered walkways.

- 2. Net Assignable Square Feet: Determine the sum of room areas excluding non-assignable areas. Room area is defined as the net area of the room in square feet, measured between the inside surfaces of walls and partitions. Non-assignable areas include interior circulation space (including stairs), custodial areas, mechanical and electrical rooms, structural areas, public rest rooms, exterior circulation space (including stairs), elevators, elevator machine rooms, elevator shafts, and telecommunications & security equipment areas.
- 3. **Non-Assignable Square Feet**: Determine the net room area of all non-assignable spaces as defined in Item #2 above.
- 4. **Impervious Surface Gross Square Feet**: Measure impervious surfaces created as part of the project site plan including sidewalks, service drives, parking, plazas, etc., excluding areas covered above.

Designers shall consult the State Requirements for Educational Facilities (SREF) – <u>www.fldoe.org/edfacil/sref.asp</u> – which serves as the University's space planning guideline, particularly Chapter 3 for space programming guidance and Chapter 6 for space size and occupant design criteria.

#### C. QUALITY CONTROL

The Design Professional shall thoroughly review, check, and coordinate all elements of each submittal, including those of consultants, to eliminate errors, omissions, and conflicts. These checks shall be made by persons other than those preparing the material. The name of the reviewer shall be indicated on all drawings, computations, and other submittals. If design reviews indicate a lack of such quality assurance & control, such materials may be rejected and returned for revision.

Each design submittal shall include a statement confirming that the design:

- meets the requirements of the facilities program, the Owner's Project Requirements (OPR), the Basis of Design (BOD), or approved updated versions of the same
- has been coordinated between disciplines for consistency, quality, and constructability
- complies with the UF Design and Construction Standards and UF Telecommunications Standards

NOTE: Proposed deviations to the UF Design and Construction (or Telecommunications) Standards shall be submitted in writing by the Design Professional, with justification and other background information as necessary to explain the variance and gain approval.

D. FLORIDA PRODUCT APPROVAL

As required by Florida Statutes, the Builder must provide information on certain structural and building envelope products and components to Authorities Having Jurisdiction, which is normally UF EH&S. See "Florida Product Approval Info Sheet" on the "Forms" page of the EH&S Building Code Enforcement website (www.ehs.ufl.edu/buildcode).

The Design Professional must ensure, therefore, that products, materials, and systems subject to such approval are specified accordingly.

E. ENERGY EFFICIENCY and LEED CERTIFICATION

Beginning with Program Verification, the Design Professional shall confirm the goals, means, and strategies for maximizing energy efficiency and obtaining LEED certification at each stage/phase of design, normally as part of the Basis of Design document. Design professionals shall complete and upload documentation related to design phase LEED

credits within 45 days of delivery of the final comprehensive design submittal (100% CDs or Conformed Bid Documents).

Project-specific **Measurement & Verification (M&V) Plans** shall be developed for most projects striving to attain LEED certification, and possibly for some that aren't. Such plans, which shall follow the University's template, are typically developed by the mechanical engineer of record or energy modeler, then updated as needed by same throughout design and construction. Regardless of who authors the M&V Plan, the Design Professionals shall ensure that its goals and requirements are captured thoroughly in the construction documents (metering, control points & sequences, etc.).

#### F. RENDERINGS, MODELS, and ANIMATIONS

Particularly during the early stages of design, the Design Professional shall utilize interior and exterior renderings, sketches, perspectives, models, and other means as needed to illustrate design options, concepts, and solutions. The means for providing these deliverables – including, but not limited to AutoCAD, Revit, and Sketchup – are considered standard design tools and are inherently to be included as a Basic Service.

The Design Professional shall provide electronic copies of such deliverables – both in their native format(s) and in a readily-usable form (JPG, PDF, etc.) – to the University for its official use.

#### 5.02. DELIVERABLES BY PHASE

See Appendix 5-1 for a template list of requirements at each phase. This list shall be reviewed during negotiation of the Agreement and adjusted as needed for the needs and demands of each project.

NOTE: See Chapter 6 for BIM projects.

#### A. PROGRAM VERIFICATION

Prior to selection of the Design Professional (A/E or D/B), the University will fully or partially develop a project-specific Facilities Program (or "Program") to explain, outline, and justify the project. The Program conveys general and specific pre-design information such as:

- background on both the project/facility and the users/occupants
- project delivery method (Construction Management, Design/Build, or Design-Bid-Build)
   design goals
- quantification of space in terms of type, net and gross SF, adjacency, and finishes
- relationship of the project & site to the adopted Campus Master Plan
- site and utilities infrastructure information
- applicable codes
- overall project schedule
- funding source(s) and budget data
- a draft form of the Owner's Project Requirements (OPR) document
   NOTE: The OPR is updated as needed and maintained by the University until selection of the Commissioning (Cx) consultant, at which point the OPR becomes a "living document" that is updated throughout design and construction by the Cx consultant.

As the initial step in translating such goals and pre-design assumptions into design and construction documents, the design team shall meet with the user group, FPC, and other University officials to review and confirm or adjust the assumptions outlined in the Program and OPR. The primary objectives of this effort include:

- 1. Development of a clear understanding of the needs of the facility, its occupants/users, and their academic & operational mission(s)
- 2. Verification that all spaces essential to the function, operation, and support of the facility are accounted for and properly sized
- 3. Identification of the relationship of spaces to and with each other and the general character, finish, and furnishing of each space
- 4. Review and confirmation of site development strategies and constraints, utility infrastructure assumptions, and the project-specific Campus Master Plan checklist
- 5. Discussion of primary building systems mechanical, electrical, plumbing & fire protection, telecommunications, audio/visual, and security
- 6. Discussion of energy efficiency, sustainability, and LEED certification goals
- 7. Review of Operation & Maintenance considerations and goals
- 8. Review of applicable codes, standards, and guidelines
- 9. Review of special considerations where applicable such as historic preservation, vibration or acoustic sensitivities, hazardous materials, etc.
- 10. Finalization of the detailed design schedule, including key milestones and meetings
- 11. Review of the construction budget and programmatic estimating assumptions

Typically, the Program Verification effort leads to the Design Professional's production of an initial Basis of Design (BOD) document, which is to be provided as part of the Conceptual Schematic Design (CSD) submittal. See above and Appendix 5-1 for specific BOD requirements.

In cases where the Program was only partially developed by the University, the BOD – coupled with information or data that was incomplete or absent in the original Program – may be required as a separate deliverable in advance of CSD.

During Program Verification, the Design Professional shall call attention to the need for topographical, geotechnical, existing conditions, or other surveys that were not provided by the University or included in the consultant's Basic Services.

#### B. CONCEPTUAL SCHEMATIC DESIGN (CSD)

This deliverable shall convey the Design Professional's understanding of the confirmed program and OPR with both narratives and illustrations. Typically, computer-generated exterior and interior 3D perspectives and mass models are used to fully present the concept(s). Such illustrations are considered basic design tools and are inherently part of basic services.

The CSD deliverable shall illustrate and/or describe fundamental design parameters such as functional organization; building footprint; site development; massing, scale, and context of the building; basic exterior and interior finish materials; and major building systems.

Interactive design workshops (or "charettes") must be employed during this phase to allow the User Group and other university entities to participate in the design process. At the conclusion of the conceptual design charrette(s), the Design Professional shall make a presentation to explain the design and the influences that led to the proposed solution(s). Upon consideration by those in attendance, if a consensus can be reached, a concept will be selected for further development in the Advanced Schematic Design phase. Otherwise, multiple solutions may be developed further in ASD.

On-campus projects must be presented at either Conceptual or Advanced Schematic Design to each of the (4) UF facilities design review committees for review, commentary, and comparison with the concepts outlined in the program and in the current adopted Campus Master Plan. The Campus Master Plan Checklist should be used to evaluate the Master Plan concepts for each committee. Specifically, illustrate the proposed changes and effect of the

building footprint and utility routes on transportation and parking facilities, trees and other natural features, stormwater systems, adjacent facilities, etc. The architect and relevant consultants (as warranted) shall assist in the development and delivery of such presentations.

#### C. ADVANCED SCHEMATIC DESIGN (ASD)

The ASD submittal shall fully convey the design intent by explaining and/or illustrating these fundamental concepts or systems:

- site development, circulation, and contextual relationships with neighboring facilities
- site infrastructure particularly the routes, sizes, and impacts of distributed utilities
- building exterior massing, scale, materials, appearance, and contextual relationship
- building egress, ingress, and life safety provisions
- functional organization of the interior spaces
- interior finishes
- building systems, including building envelope, structural, mechanical, plumbing & fire protection, electrical, telecommunications, audio/visual, security, and conveying systems

This phase usually represents the final opportunity to significantly alter the program, floor plan(s), major building systems, and the footprint and orientation of the building without impacting cost and/or schedule.

#### D. DESIGN DEVELOPMENT (DD)

All significant design decisions should be captured in the DD submittal, as these documents will provide the basis for the detailed Construction Documents. At the completion of this phase, all major design, technical, logistic, procurement, and cost challenges should be resolved to eliminate carryover of research or exploration of alternatives to the next phase. The Design Professional shall present enough documentation to fully explain the quality level decisions and solutions that have been reached. This documentation shall consist of drawings, outline specifications, 2D elevations, 3D perspectives, models, material samples, and design documentation such as calculations, notes, and economic or engineering analysis. Cut sheets for lighting, plumbing, hardware, HVAC equipment, architectural specialties, special equipment, and other key elements are to be included, along with preliminary equipment schedules for mechanical, electrical, plumbing, and fire protection systems.

On-campus projects shall be presented for the final time at the Design Development stage to each of the four UF facilities design review committees for review, commentary, and comparison with earlier presentations. The Campus Master Plan Checklist should be used to evaluate the Master Plan concepts for each committee. Specifically, review the building exterior design, finalized site plan, tree removal and landscape plans, and the Campus Master Plan Checklist to illustrate the project's impact, context, and compliance with UF standards, historic preservation ideals (if applicable), the Campus Master Plan, and sustainability goals. The architect and relevant consultants (as warranted) shall assist in the development and delivery of such presentations.

Immediately following the DD stage – or prior to DD if floor plans are mostly settled – the Design Professional shall obtain room numbers from the FPC Space Planners via the UF PM by providing electronic copies of the floor plans in DWG or RVT format. Subsequent modifications to the floor plans shall be accompanied by reconfirmation of the room numbering scheme by the FPC Space Planners, with revisions to same as needed.

E. 60% CONSTRUCTION DOCUMENTS (CDs)

This submittal should include sufficient detail to construct the facility, including complete draft specifications, dimensioned architectural floor plans, reflected ceiling plans, finishes schedule, door/window schedules, refined mechanical/electrical/plumbing and fire protection equipment schedules, scaled layouts of major equipment in mechanical, electrical, plumbing, fire protection, and telecommunication rooms.

If the 60% CDs deliverable is to be the basis for bidding or a Guaranteed Maximum Price proposal, certain key systems or trades should be further developed to minimize the risk of changes and additional construction costs.

F. 100% CONSTRUCTION DOCUMENTS (CDs)

This submittal is typically the basis for bids and/or a Guaranteed Maximum Price proposal. As such, plans and specifications must be finalized, fully detailed, and coordinated with each other. This deliverable must usually be signed and sealed for review by the State Fire Marshal.

The Design Professional shall recommend and specify additive alternates as needed to ensure a complete and usable facility within the budget. Alternates will be awarded as funds allow, but the base bid must be structured so that the facility will function as intended if the alternates cannot be funded and awarded.

NOTE: Engineering documents for the following systems shall include, where applicable, all data, information, drawings, details, specifications, descriptions, requirements, and other items outlined in the responsibility rules for professional engineers in F.A.C. 61G15, Chapters 30-34:

- structures
- fire protection
- fire alarm and detection
- electrical (including lighting, lightning protection, communications, grounding systems)
- mechanical (*including instrumentation and control systems*)
- plumbing

#### G. EARLY RELEASE PACKAGES

For certain Construction Management or Design/Build projects, certain scopes of work may be procured (bid) and executed in advance of the balance of work. Common examples include sitework, site utilities, demolition, and building foundations. In such cases, the Design Professional shall develop a stand-alone, biddable set of plans and specifications (including non-technical specifications) for the targeted "early release" scope of work. Depending on the scopes of work included, review by the State Fire Marshal and permitting by UF EH&S (or other Authority Having Jurisdiction) may or may not be required.

In any event, this should be contemplated and planned during negotiation of the Agreement so that Appendix 5-1 can be tailored to outline the project-specific requirements of this "extra" phase and deliverable.

#### H. CONFORMED BID DOCUMENTS

A final conformed set of Bid Documents shall be provided to incorporate 100% CDs review comments and other Owner-approved adjustments to the plans & specifications. Depending on whether this set, or the 100% CDs, will serve as the documents bidders will base their bids upon, the Conformed Bid Documents may need to be signed & sealed for Authorities Having Jurisdiction (such as UF EH&S).

#### 5.03. DRAWING REQUIREMENTS

#### A. GENERAL

The Design Professional shall ensure that the drawings are final and complete with all elements thoroughly checked and coordinated to ensure that there are no conflicts between design disciplines. The drawings should be prepared to minimize Change Orders due to errors, omissions, lack of coordination, or conflict between plans and specifications. When applicable or required by law or code, design data shall be shown on the drawings.

#### B. STANDARDS FOR ALL PROJECTS (AutoCAD or BIM)

- 1. <u>Size</u>: Preferred format size for Construction Drawings is 24" X 36" (architectural "D" size). Other sizes may be used if required.
- 2. <u>Building Name and Number</u>: Buildings shall be identified on the Construction Drawings by both the University-assigned name and number.
- 3. <u>Room Numbering</u>: Drawings shall show all rooms numbered according to the University's room numbering conventions. Consult with the UF Project Manager concerning the assignment of room numbers.

#### C. STANDARDS FOR AutoCAD PROJECTS

NOTE: See Chapter 6 for BIM projects.

- 1. <u>Graphic Symbols</u>: Graphic symbols shall be in accordance with the AIA Architectural Graphic Standards, latest edition.
- 2. <u>File Format</u>: The required format for providing electronic files is AutoCAD (latest version) or other software producing documents in a compatible ".dwg" format.
- 3. <u>File Organization</u>: Electronic drawing files shall match the paper, or Mylar, copies of the Construction Drawings in naming and content, with one electronic file submitted for each corresponding Construction Drawing. Electronic drawing files shall not contain "x-referenced" elements ("x-reference" is an AutoCAD term, refer to the AutoCAD Reference Manual for complete definition); any x-references used during production of the drawings should be bound before files are submitted to the University. Any exceptions to this requirement must be approved in advance by the University facilities department that will archive the drawing files.
- 4. <u>File Naming</u>: Drawing file names should be descriptive of drawing content and the building discipline represented (i.e., A-1, P-1, and M-1 would be typical designations for architectural, plumbing, and mechanical drawings, respectively).
- 5. <u>2D/3D</u>: Drawings required in electronic format shall be drawn in two dimensions (not 3D) with all entities having Z-coordinates set to zero. Submission of three-dimensional (3D) drawings and/or object-based drawing information is encouraged, but due to the lack of industry-wide standards for these elements, such information shall be supplemental to the required two-dimensional drawings and shall be contained in separate files.
- 6. <u>Text Styles</u>: Text styles for all drawings required in AutoCAD format shall conform to the following:
  - (a) Drawing Notes & Dimensions: City Blueprint, County Blueprint, Roman Simplex, ArchTxt, Archiquik, or MonoArch.
  - (b) Scale Identifications: Sansserif, Roman Duplex, HM-LD, HL-LD, ArchTitl, or MonoTitl.
  - (c) Section, View, Elevation, and Detail Titles: Sansserif, Roman Duplex, HM-LD, HL-LD, ArchTitl, or MonoTitl.

- (d) Drawing Name, Sheet/Drawing Number, and Project Identification: Sansserif, Roman Duplex, Romand Complex, Romand Triplex, HM-LD, HL-LD, Archtitl, Arstencil, or MonoTitl.
- (e) Lettering and Numbering shall be a minimum of 1/8" high and mechanical lettering should be a minimum of 0.10" in printed/plotted form.
- 7. <u>Polylines</u>: Floor plan drawings shall contain a designated polyline layer consisting of contiguous polylines to be used for space calculations. Polylining to be completed as follows:
  - (a) There shall be a contiguous polyline surrounding the exterior face of the building on each floor to calculate Constructed Gross Square Footage.
  - (b) There shall be one contiguous polyline surrounding the inside wall of the building on each floor to determine Gross Floor Area.
  - (c) There shall be a series of contiguous polylines surrounding the interior walls of each room on each floor to calculate Room Square Footage. This includes all assignable and non-assignable space within the building.
- 8. <u>File Layering</u>: Drawing elements shall be arranged in layers in accordance with the AIA's CAD Layer, Guidelines: Recommended Designations for Architecture, Engineering, and Facility Management Computer Aided Design, current edition.
- 9. <u>Auditing & Purging</u>: Prior to submittal, all AutoCAD-format drawing files shall be audited and purged (using the AutoCAD "audit" and "purge" commands) to remove all unused blocks, layers, line types, and text styles. Similar processes shall be used on any compatible ".dwg" files submitted.
- 10. Layer Name, Color, Line Type:

LAYER NAME	LAYER DESCRIPTION	COLOR	LINE TYPE
FLR	Floor Plan	White	Continuous
A-Area-Iden	Room Number Text	Yellow	Continuous
A-Area	Poly-line bordering for each space	Magenta	Continuous
A-Area-Extr	Gross Poly-line	Red	Continuous

#### 5.04. SPECIFICATION REQUIREMENTS

- A. Specifications shall generally adhere to the format of the Construction Specifications Institute's (CSI) "Master List of Specification Titles."
- B. Provide electronic copies of all specifications in searchable PDF format.
- C. Use standard materials, methods of construction, and specifications to the maximum extent possible, provided that such do not conflict with the Florida Building Code, UF Design & Construction Standards, and other governing codes and standards. Each specification must be examined and tailored to ensure suitability for the given project. When a small quantity of material is needed and a standard commercial product would be suitable, reference to a standard specification should not be made.
- D. Specifications for classifications of work and material issued by an approved association, such ASTM or ASME, or Federal and military specifications, may be used.
- E. <u>"Sole source" or proprietary specifications geared toward a single product or manufacturer</u> may not be used without specific, written approval from the University.

- F. When specifying by product, model number, etc., at least three acceptable manufacturers' products shall be specified when possible. If this is not possible, allow for "architect-approved equivalent" or "engineer-approved equivalent" products or manufacturers. The Design Professional shall ensure that each manufacturer listed does, in fact, make equivalent products.
- G. <u>Do not reference other specifications or the UF Design & Construction Standards</u>. Instead, incorporate the relevant provisions of such specs or standards as needed to make the requirements clear.
- H. The specifications shall include both the UF General Terms and Conditions (or UF Design/Build General Terms and Conditions) and the UF-provided "front end" documents, which includes an index and several Division Zero (00xxx) and Division One (01xxx) non-technical specifications. The index and the Division One specifications shall be edited and tailored as needed for the given project, but the General Terms and Conditions may not be edited. Project-specific alterations to the General Terms and Conditions, if any, shall be covered in applicable exhibit(s) to the Agreement Between Owner and Builder or Design/Builder.
- I. The Design Professional shall augment the UF-furnished non-technical specifications with other Division One specifications as needed to fully describe the project and its administrative requirements. This includes, but is not limited to, specifications covering Alternates and Unit Pricing, Submittals and Shop Drawings, and Threshold Inspection (if applicable).
- J. When the project is to be commissioned, the Commissioning (Cx) Professional shall tailor the UF template Cx specification to the project and its particular demands. The Design Professional shall, in turn, tailor and coordinate <u>its</u> non-technical and technical specifications to/with the Cx specifications and the project-specific Cx Plan.
- K. The Design Professional shall clearly set forth in the technical specifications all tests to be carried out during construction, including the frequency, quantity, and applicable standards for pass/fail. Unless directed otherwise by the UF PM, the specifications shall direct the Builder to include the costs for all such tests in his price/bid for the Work.
- L. The technical specifications shall address all requirements for closeout deliverables as noted in the following section. Technical specifications shall further require the submission of (draft) operations & maintenance documents for review prior to Owner training as stipulated by the UF-provided Division One (01xxx) non-technical specifications.
- M. Particular emphasis shall be given to coordination of the specifications with each other <u>and</u> the drawings.

#### 5.05. CLOSEOUT / TURNOVER DOCUMENTS

A. INSTALLATION, CARE, AND OPERATION & MAINTENANCE DOCUMENTS

The Design Professional shall tailor the technical specifications to require the Builder and its subcontractors to provide instructions and other information necessary for the Owner's long-term care, maintenance, repair, and operation of installed products, materials, equipment, and systems.

 Referring to the "Closeout Deliverables Matrix" found on the "Forms & Standards" page of the Facilities Planning & Construction website (<u>www.facilities.ufl.edu</u>),the Design Professional shall incorporate all applicable requirements, tailoring as needed to the project and facility.

- 2. Submit a draft version of the matrix, tailored to the project at hand, as a deliverable for review at the Design Development stage. Revise and resubmit the matrix at the 60% and 100% Construction Documents stage in updated, then final, form.
- 3. Also comply with applicable requirements of the Florida Building Code and, for engineered systems, require per F.A.C. 61G15-30 all information needed for the safe and efficient operation of same as determined by the engineer(s) of record
- 4. Definitions.
  - a. Installation Manuals shall include, but not be limited to, safety precautions, receiving instructions, installation requirements, design or selection variables/factors, wiring requirements, alignment requirements, connection requirements, connected equipment supporting requirements, and start-up requirements.
  - b. Operation Manuals shall include, but not be limited to, equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
  - c. Maintenance Manuals shall include, but not be limited to, source information, product information, maintenance procedures, repair materials and sources, and warranty information. The manuals shall be organized into separate sections for each product, material, and finish.
  - d. Installation, Operation, and Maintenance (IO&M) Manuals may consist of a single document or up to three separate documents an Installation Manual, an Operation Manual, and a Maintenance Manual.
  - e. Care Instructions shall include, but not be limited to, procedures, techniques, products, and recommended frequencies for maintaining the performance and appearance of installed products, materials, or systems. For certain interior or exterior finishes, it may be appropriate to require Owner training on same.
- 5. Require final versions of all such documents to be provided in searchable electronic (PDF) form.

## B. OWNER TRAINING, ATTIC STOCK, SPARE PARTS, AND OTHER CLOSEOUT DOCUMENTS

The Design Professional shall tailor the specifications to stipulate requirements for Owner training, attic stock, and lists of recommended spare parts for certain installed products, equipment, and systems.

 Referring to the "Closeout Deliverables Matrix" found on the "Forms & Standards" page of the Facilities Planning & Construction website (<u>www.facilities.ufl.edu</u>), incorporate all applicable requirements, tailoring as needed to the project and facility.

#### 5.06. ADDENDA AND FIELD DIRECTIVES

The following are standards for Addenda, Field Orders, or Architect's Supplemental Instructions (ASIs) that modify the Construction / Bid Documents during construction.

 Drawings: All revisions and additions to the drawings shall be indicated on an updated reissue of the applicable original Construction Drawing, "clouded" to highlight the changes, deletions, or additions. The sheet number shall relate to the original sheet number but be clearly notated with the Addendum number, Field Order number, or ASI number and date of issue. Changes limited in scope and area may be issued on an 8½" x 11" drawing that represents only that portion of the original drawing that was modified.

- 2. Specifications: All revisions and additions to the specifications shall be indicated on an updated re-issue of the applicable page(s) of the original specifications with "strike-through" of wording that is modified or deleted and "italicizing" or "bolding" of new and replacement wording. The intent is to clearly highlight the changes to the specifications. The revised page(s) shall relate to the original division, section and page numbering scheme, but be clearly annotated with the Addendum number, Field Order number, or ASI number and date of issue.
- 3. Electronic (searchable PDF) copies are normally preferred, but entirely re-issued sheets, certain 8½" X 11" drawings, and certain re-issued specifications must be signed & sealed and submitted to Authorities Having Jurisdiction (UF EH&S and the State Fire Marshal) for review and approval.
- 4. The transmittal sheet for all such documents shall include the following disclaimer: "If these additional plans or specifications result in a modification of the scope of the basic contract in either time or money, the Design Professional shall be notified immediately."

#### 5.07. RECORD DOCUMENTS

- During construction-phase site visits, the Design Professional shall review the Builder's construction documents for timely and accurate maintenance of all changes to the plans and specifications. Addenda, field directives, and responses to Requests for Information (RFIs) shall be issued by the Professional using the base design software (AutoCAD or Revit) to facilitate the timely production of record documents after construction.
- Immediately prior to Substantial Completion the Design Professional shall provide electronic copies of the current floor plans (in PDF and DWG or RVT format) for the University's temporary use prior to receipt of the complete record documents.
- 3. Following Substantial Completion and completion of all additional construction and changes, the Design Professional shall produce "as-built" record documents that illustrate all modifications, additions, and deletions made to the Work, including field changes delineated on the Builder's "red-line" field copy of the construction documents. Such record documents shall include drawings (in PDF and DWG or RVT format) and specifications (in searchable PDF format). Relevent shop drawings, such as those for "delegated designs," may be physically included or at least referenced in the record drawings as separate attachments.

END OF SECTION

### APPENDIX 5-1 Deliverable Requirements

The following tables itemize the minimum requirements for each significant design deliverable. This list shall be reviewed during negotiation of the Agreement and adjusted as needed for the needs and demands of each project. This includes "early release packages," the requirements for which should be itemized in an additional table within this document.

#### Basis of Design (BOD)

NOTE: Since the BOD is a "living document" that is to be updated at each phase of design, and throughout construction as needed, the items delineated in the BOD should evolve from <u>suggested</u>, <u>proposed</u>, or <u>estimated</u> components to <u>actual</u> components. See 5.01 for more information.

Adm	inistrative/General	
	General project descript	ion, including functions and users to be housed in the facility
	Relevant user and occu	pancy data - # of occupants, # of users, hours of operation, special needs,
	etc.	
	Acknowledgement of re	levant Campus Master Plan elements & policies and site/building design
	strategies for complianc	e therewith
	A listing of environmenta	al permits that will be required (e.g., DEP or Water Management District)
	Itemization of applicable	codes & standards
	Summary of the means	and strategies for maximizing energy conservation, efficiency, and cost
	savings; implementing s	ustainable design measures; and obtaining LEED certification including
	ideas considered, but no	at pursued or implemented
	NOTE: Projects less the	an 5,000 gross SF shall comply with the requirements of the Florida Energy
	Conservation Manual.	
	NOTE: Major projects s	hall use DOE energy modeling twice during design, possibly accompanied
	by one or more life-cycle	e cost analyses, as the basis and rationale for design decisions.
	Special needs or condition	ons related to the facility's use, function, or performance and the means of
	meeting those needs or	dealing with those conditions
	Future expansion or cor	struction to be accommodated, if any
	Other narratives, data,	or other documentation as needed to convey design strategies that will
	satisfy the goals & requi	rements outlined in the Facilities Program and OPR
	Listing of all building el	ements or systems proposed to be design-delegated or partially design-
	delegated to the Builder	
Sitev	vork and Distributed Uti	lities
	Qualitative and quantitat	ive description of existing site conditions and constraints
	Design strategies for si	ework, traffic & circulation, parking, site utilities, landscaping, hardscape,
	exterior lighting	
	Utilities demand schedu	le that indicates the design (maximum) demand, estimated peak demand,
	and estimated daily usage	ge (as applicable) for the following utilities, using the units indicated:
	<ul> <li>Electricity</li> </ul>	KVA and estimated monthly consumption
	<ul> <li>Steam</li> </ul>	lbs/hr
	<ul> <li>Chilled Water</li> </ul>	gpm and tons
	<ul> <li>Natural Gas</li> </ul>	CFH
	<ul> <li>Fire Flow (interior)</li> </ul>	gpm
	<ul> <li>Fire Flow (exterior)</li> </ul>	gpm
	<ul> <li>Irrigation</li> </ul>	gpd
	<ul> <li>Sanitary</li> </ul>	gpm (peak flow and average daily flow)
	<ul> <li>Domestic Water</li> </ul>	gpm (peak flow and average daily flow)
	<ul> <li>Storm</li> </ul>	SF or Acres of net new impervious area

<ul> <li>Also provide:</li> <li>a comparison of these demand quantities with those estimated in the facilities program or prodesign submittals</li> <li>confirmation of sufficient source and distribution capacity &amp; pressure to serve the facility beindesigned</li> <li>supporting documentation, such assumptions, calculations, and load analysis table(s)</li> <li>General design approach for serving the building with chilled water, steam and/or heating hwater, potable and fire water, sanitary sewer, telecommunications (copper and/or fiber), and cab TV, as needed</li> <li>General design approach for stormwater management, including Low-Impact Development (LII principles &amp; techniques)</li> </ul>	or ng ot le D)
Architectural and Building Envelope	
Description of the style and character of the exterior architecture	
Description of building envelope system types & materials – including walls, roots, and floors-a grade – with associated R-values for each	at-
Narrative overview of the interior architectural character, including a description of major interior architectural materials, assemblies, and finishes	or
<ul> <li>General description of building circulation, egress, and means of horizontal &amp; vertical conveyance</li> <li>Complete listing of – and strategies for compliance with – applicable building, life safety, ar accessibility codes, standards, and restrictions</li> </ul>	ıd
Structural	
Outline of existing conditions, design loads, and other relevant assumptions, information, or speci conditions or requirements	ai
Description of major structural systems – foundations, slabs, framing, roof, etc. – and the respective materials and components	eir
Analysis of geotechnical survey results and design strategies for adhering to the survey's finding and recommendations (see Chapter 4 for subsurface/ geotechnical survey requirements)	js
Systems – M/E/P. Fire Protection. BAS	
<ul> <li>Descriptions of – and design parameters for – heating, air conditioning, ventilation/exhaust, pipin plumbing, waste, fire sprinkler, power (primary and emergent), fire alarm, lighting (interior ar exterior), grounding, and lightning protection systems. For <u>example</u>:         <ul> <li>indoor and wet/dry bulb design temperatures (summer and winter)</li> <li>relative humidity requirements</li> <li>outdoor air requirements</li> <li>ventilation, filtration, and dehumidification requirements</li> <li>watts per SF for lighting</li> <li>BTU per SF for overall energy consumption</li> <li>electric load and characteristics for building equipment, lighting, convenience outlets, specitools &amp; equipment</li> <li>essential or emergency power loads, requirements</li> </ul> </li> </ul>	g, 1d
<ul> <li>uses and demand for hot water</li> <li>water supply and demand figures for fire sprinkler system</li> <li>"U" / "R" factor for building envelope components</li> </ul>	
<ul> <li>General design approach for each system. For <u>example</u>:</li> <li>medium and means for building heating (steam, hot water, forced warm air, unit heaters, etc and cooling (chilled water, direct expansion, etc.)</li> <li>description of proposed air conditioning system(s), such as custom air handling units variab</li> </ul>	:.) le
<ul> <li>air volume (VAV), fan coil units, etc.</li> <li>HVAC zoning requirements</li> <li>means of complying with the requirements of ASHRAE 62.1 and ASHRAE 55 for ventilation</li> </ul>	on

	and thermal comfort
	<ul> <li>means of supplying hot water (steam conversion, HHW, solar, etc.)</li> </ul>
	<ul> <li>fire detection and alarm system(s)</li> </ul>
	Assumptions and strategies for usage, demand, diversification, energy efficiency, and acoustic
	control
	Strategies for efficiently cooling elevator equipment rooms, telecomm/server rooms, and other
	spaces with unusual cooling or beating demands
	Narrative summary of the requirements and strategies for metering and Building Automation
	System controls including reporting measurement & verification sequence(s) of operations and
	ostimated # of points
	estimated # 01 points
	Narrative description of sprinkler system type (wet or dry), plus volume & pressure chiena and
	Identification of special systems (carbon dioxide, foam, etc.)
	Special needs – grease traps, e.g.
Syste	ems – Telecommunications, Audio/Visual, Security
	Narrative summary of needs for voice and data outlets for both occupants & users and building
	systems; wireless access goals & requirements; confirmation of VOIP versus non-VOIP
	Narrative description of the structured cabling system; general strategies and requirements for
	entrance and "satellite" telecomm rooms: delineation of contractor-furnished and Owner-furnished
	equipment
	Outline of CATV needs and available/proposed source(s)
	Nerrotive description of audio/viewal requirements, equipment, and controls by appear type, along
	with confirmation of acuioment 8 systems to be provided and installed as part of construction
	with commation of equipment & systems to be provided and instance as part of construction
	Narrative description of security needs, including access control, CCTV, and special requirements
Labo	ratory / Research Specialties
	Narrative explanation of each research space type (general lab, process-specific lab, cleanroom,
	vivarium, etc.), with a summary of the science and research each is intended to support
	List(s) of the tools and equipment to be used in each research space type, along with explanations
	of their utilities or process systems demands and delineation of each as Owner Furnished Owner
	Installed, Owner Furnished Contractor Installed, or Contractor Furnished Contractor Installed
	Description of the sensitivity of the research to be performed and/or the tools & equipment
	supporting such research to "contaminants" (e.g. vibration noise electromagnetic or radio
	frequency interference) and the proposed means & measures for mitigating or eliminating same
	Identification and quantification (civing) of house utilities and other piped gases to be provided in
	Identification and quantification (sizing) of house utilities and other piped gases to be provided in
	identification of lab exhaust systems (including chemical tume hoods), characterized as general,
	solvent, or hazardous
	General descriptions of the lab casework to be provided (a) as part of construction and (b) by the
	Owner
	Hazardous materials inventory (complete listing of all hazardous chemicals, gases, and other
	materials to be used)
	Special needs or considerations such as acid waste neutralization
	Special needs of considerations such as acid waste neutralization

## Conceptual Schematic Design (CSD)

Admi	nistrative/General (see "Requirements Common to All Design Phases," Chapter 5)
	Basis of Design (initial or updated from Program Verification phase)
	Space Summary and Area Calculation
	Quality Control statement
	A listing of codes with which the project design will comply
	Data, reports, drawings, and other documents related to environmental permitting requirements
	Updated Campus Master Plan checklist
	Geotechnical survey
	If Section 267.061(2) F.S. is applicable to the project, a statement that the Department of State
	(Division of Historical Resources) has been contacted and that any conflicts between the project
	and conservation or historical interests of the Department have been or are being resolved
	diagrams, bonchmarking data (if any), current design schedule, project team rester, and other
	relevant information or documents from the CSD phase
Cam	us Master Plan (CMP) / Site / Ittilities
Jan	Topographic survey of the site which shall meet the standards of EAC 61G17-6. Survey shall
	illustrate and identify.
	<ul> <li>existing benchmarks and horizontal control on site referenced to UF horizontal and vertical</li> </ul>
	datum. Horizontal and vertical control to be established in areas that are not likely to be
	disturbed by proposed construction.
	<ul> <li>existing grades/contours and key spot elevations. Contour interval 1 foot. Spot elevations on</li> </ul>
	high/low points. Paved/hard surface elevations displayed to 0.01', unpaved/soft surface
	elevations displayed to 0.1'. Sufficient shots to allow for adequate project design based on
	project data request from UF.
	<ul> <li>elevation of bodies of water with date of observation listed</li> </ul>
	<ul> <li>the 100-year flood plain on the project site based on flood study mapping provided by UF</li> </ul>
	Physical Plant Division
	<ul> <li>aujacent buildings (with building humber, FFE, and entries holed), sileets (by hame), circulation paths curb &amp; gutter bardscape light fixtures site furnishings signage and other.</li> </ul>
	above-ground structures and features within survey project limits or that are anticipated to
	effect design of the project site
	<ul> <li>location, size, type, UF designation (e.g. structure name), and invert elevations (as</li> </ul>
	appropriate) of all piping, mains, sewers, poles, wires, hydrants, and manholes upon, over, or
	beneath the site (or adjacent to the site if within the limits of the survey) as identified by UF
	prior to starting survey; utilize as-built drawings, and line locates though UF Physical Plant
	Division
	• existing trees 3" or more in diameter, with size (DBH in inches), species by common and
	botanical name, and relative health/condition as supplied by UF Arborist and illustrate full
	canopy to "drip line." (a single canopy line is sufficient for tree groupings with a continuous
	canopy around the perimeter of the grouping)
	<ul> <li>areas of significant landscaping</li> <li>aviating conservation areas of archeological significance and other environmental.</li> </ul>
	• existing conservation areas, areas or archeological significance, and other environmental constraints based on existing information as supplied by LIE or as called for in the survey.
	nronosal
	Conceptual site plan, including:
	<ul> <li>(for each preliminary concept) building footprint and orientation. or alternatives for same that</li> </ul>
	illustrate optimization of accessibility, shading, and other building performance measures
	<ul> <li>general concepts for site demolition and tree impact, site use, and site development</li> </ul>
	<ul> <li>conceptual provisions for accessibility, circulation of pedestrians and bicycles, service &amp;</li> </ul>
	emergency access, parking (if any), and waste management & recycling facilities
	<ul> <li>projected paths for utilities infrastructure and stormwater management structures</li> </ul>
	<ul> <li>relevant information from the survey, including existing trees and utilities</li> </ul>
	NOTE: Illustrate existing features with different tonal qualities or line types from new

A map or drawing to illustrate the Future Land Use and Future Building Sites identified	I in the	
Building / Architecture		
For each preliminary concept, floor plans – or floor plan options – for each level NOTE: For renovations, illustrate existing to remain and existing to be removed or renovated	d	
For each preliminary concept, identification of all stairs, elevators, and equipment/support sp	aces	
For each preliminary concept, at least two sections, perpendicular to each other at same s plan/block diagrams, to establish vertical control	cale as	
Exterior elevations and/or renderings to illustrate massing, scale, and context		
For additions or renovations, measured drawings showing existing and proposed facilities relative arrangement and relationship	in their	
Structural		
{CSD requirements covered by BOD}		
Systems – M/E/P, Fire Protection, BAS		
{CSD requirements covered by BOD and "CMP / Site / Utilities"}		
Systems –Telecommunications, Audio/Visual, Security		
{CSD requirements covered by BOD and "CMP / Site / Utilities"}		
Structural		
{CSD requirements covered by BOD}		
Laboratory / Research Specialties		
{CSD requirements covered by BOD}		
Furnishings		
<ul> <li>Tabular or narrative description of the types of furnishings &amp; equipment to be:</li> <li>furnished &amp; installed by the builder OR Owner-furnished, builder-installed</li> <li>Owner-furnished and Owner-installed</li> </ul>		

## Advanced Schematic Design (ASD)

Admi	inistrative/General (see "Requirements Common to All Design Phases," Chapter 5)
	Basis of Design (updated from CSD phase)
	Space Summary and Area Calculation
	ASHRAE 90.1-compliant energy models for baseline and proposed facility, including executive
	summary and all output & input data
	Quality Control statement
	Data, reports, drawings, and other documents related to environmental permitting requirements
	Updated Campus Master Plan checklist
	Appendix – Owner directives, meeting minutes and correspondence, graphical data, functional
	diagrams, current design schedule, project team roster, and other relevant information or
	documents from the ASD phase
Spec	ifications
	Table of Contents identifying all contemplated technical and non-technical specs in CSI format
	NOTE: UF prefers telecommunications, security, and audio/visual systems to be specified in
	Division 17
	Draft technical specifications for materials, systems, and equipment known to be settled for
	example, elevators
CMP	/ Site / Utilities
	Topographic and geotechnical surveys if not included with CSD submittal – see above
	Updated site plan, including:
	<ul> <li>building footprint &amp; orientation</li> </ul>
	<ul> <li>existing and proposed grades/contours</li> </ul>
	<ul> <li>provisions for accessibility, circulation, and parking (if any)</li> </ul>
	site development work related to service & loading; traffic, circulation, and parking of
	emergency, service, and other vehicles; pedestrian & bicycle facilities; ADA accessibility; and
	waste management
	<ul> <li>relevant information from the survey, including existing trees and utilities</li> </ul>
	NOTE: Illustrate existing features with different tonal qualities or line types from new
	Schematic site demolition and tree impact plans, if applicable, that illustrate all removals of natural
	or manmade features; include a tree removal table that itemizes the quantity, species, size, and
	nealth of all trees proposed to be removed
	Schematic site utilities plan(s) to illustrate the routing, size, and types of utility distribution and
	Stormwater collection structures
	Schematic landscaping/planting plan
Duile	Updated map or drawing to illustrate CMP Future Land Use and Future Building Sites – see above
Build	ling / Architecture
	upuated hour plans for each level indicating all net assignable and net non-assignable spaces,
	including nonzonial and vehical circulation, M/E/P/FP/T support spaces, janitorial and
├	Preliminary roof plan(s) to generally illustrate clones, materials, drainage, etc.
├	Preliminary tool plan(s) to generally invitate stopes, Indiendis, Utalinaye, etc.
	remaining me safety plans (no singlet than 1/10 scale) indicating class of construction,
	doors and other openings, smoke control systems, rated assembly details, and a listing of adda
	with which the design will comply
	At least two sections, transverse and longitudinal at same scale as floor plans, to establish vortical
	control and illustrate interior spaces and volumetric proportions
	Preliminary definition of interior partition types and materials
├	Exterior elevations of all building sides to establish vertical control and illustrate materials
	fanestrations and openings
	Undated exterior renderings and/or perspectives to illustrate massing scale context materials
	and general appearance

Schematic demolition plans for renovation/rehabilitation projects
Structural
Structural framing plans at the same scale as floor plans that indicate primary vertical and horizontal structure, including schematic foundation plan
Identification of any special conditions or provisions, such as deep (pile) foundations or moment connections
Systems – M/E/P, Fire Protection, BAS
Mechanical plans at the same scale as the floor plans showing the size, material, and routing of HVAC and piping systems, plus the schematic layout of primary equipment and mechanical rooms
Preliminary/outline sequence(s) of operations for BAS/EMCS controls
Electrical (power) plans at the same scale as floor plans showing primary and secondary power distribution, locations and schematic arrangement of primary equipment (transformers, switchgear, etc.), and location and layout of electrical rooms and panelboards
Schematic electrical plans for fire alarm and lighting systems
Plumbing plans at same scale as floor plans showing horizontal and vertical collection and distribution systems (including roof drains), primary equipment, and chases
Fire protection plans at same scale as floor plans showing pipe entry to building and major equipment, such as fire pump and backflow preventers
NOTE: Design Professional shall determine source, availability, and adequacy of fire protection water supply by obtaining test data from UF PPD (or applicable off-campus entity) on flow and proseure of existing or proposed water supply systems.
Sprinkler system design criteria
Systems – Telecommunications Audio/Visual Security
Telecommunications floor plans showing primary (entrance) and secondary telecomm rooms
vertical and horizontal distribution, and work area outlets
Preliminary audio/visual plans and equipment schedules/details
Preliminary security plans and equipment schedules/details
Laboratory / Research Specialties
Schematic lab floor plans and lab casework schedules
Schematic illustrations of lab exhaust strategies, house gas/utility storage and distribution, and a
draft hazardous materials inventory where such will be used
Furnishings
Preliminary furnishings plan(s)
Updated tabular or narrative descriptions of F&E to be contractor-installed and those to be Owner- installed

## Design Development (DD)

Adm	inistrative/General (see "Requirements Common to All Design Phases," Chapter 5)
	Basis of Design (updated from ASD phase)
	Space Summary and Area Calculation
	Life-Cycle Cost Analysis
	Quality Control statement
	Data, reports, drawings, and other documents related to environmental permitting requirements
	Updated Campus Master Plan checklist
	Draft Measurement & Verification Plan (if applicable)
	Appendix – Owner directives, meeting minutes and correspondence, graphical data, functional
	diagrams, current design schedule, project team roster, and other relevant information or
	documents from the DD phase
Spec	ifications
	Updated Table of Contents identifying all contemplated technical and non-technical specs
	Draft (outline) technical specifications in 3-part, CSI format
	Draft project-specific list of O&M documents, Owner training, attic stock, and other closeout
	requirements to be specified in the CDs using Owner's "Closeout Deliverables Matrix"
CMP	/ Site / Utilities
	Updated site plan, including:
	<ul> <li>building footprint &amp; orientation</li> </ul>
	• provisions for pedestrian & bicycle circulation and facilities; ADA accessibility; traffic,
	circulation, and parking of emergency, service, and other vehicles; building service & loading;
	and waste management
	<ul> <li>hardscaping (sidewalks, pavers, etc.), seatwalls, and other site amenities &amp; furnishings</li> </ul>
	<ul> <li>relevant information from the survey, including existing trees and utilities</li> </ul>
	NOTE: Illustrate existing features with different tonal qualities or line types from new
	Site demolition and tree impact plans, if applicable, that illustrate all removals of natural or
	manmade features; include an updated tree removal table that itemizes the quantity, species, size,
	and health of all trees proposed to be removed
	Site utilities plan(s) to illustrate the routing from point of connection, size, and types of utility
	distribution structures, including fire protection specialties (hydrants, post indicator valves, fire
	department connections, etc.)
	NOTE: Such utility plans may be separated by discipline (C, P, FP, M, E, T) or combined
	Preliminary site lighting plan
	Schematic paving, grading, and drainage plan
	Updated landscaping/planting plan
	Preliminary plans for erosion and sedimentation control and compliance
Desile	Updated map of drawing to illustrate the Future Land Use and Future Building Sites – see above
Build	ling / Architecture
	Dect plans for each proposed level with preliminary room numbers provided by UF FPC
	Rooi plans showing all slopes, drainage, materials, and rooi-mounted equipment (il any)
	Updated life safety plans – see above
	Updated exterior elevations of all building sides
	Updated exterior renderings, perspectives, and/or models
	Renderings of all significant public spaces, including exterior public plazas and primary entry
	Induces to accurately portray scale, context, finishes, and light sources
	I ransverse and lateral building sections indicating finished floor elevation of each level, floor-to-
	noor neights, vertical circulation, and interior space relationships
	Preliminary sections through stairs and elevator shafts
	Preliminary root details
	Preliminary wall sections and details as needed to identify building envelope materials,
	waterproofing and fireproofing, and construction
	Updated and refined details & definitions for interior partitions

Preliminary schedules and details for interior and exterior openings (windows, doors, louvers)
Preliminary reflected ceiling plans to illustrate ceiling heights and materials
Preliminary finish schedule to identify wall, ceiling, floor, and base materials by room
Preliminary color/finishes boards to illustrate the color and type of interior finishes
Updated demolition plans for renovation/rehabilitation projects
Structural
Structural "title sheet" with design criteria and loads, construction notes, etc.
Revised and further detailed foundation plan, including preliminary schedule(s) for footings, grade
beams, stem walls, piles, etc.
Revised and further detailed horizontal framing/slab plans that indicate type, size, length, and
spacing of principal members; size and elevation of slabs; size and framing details for slab
openings, etc.
Revised and further detailed vertical framing plans that indicate type, size, length, and spacing of
principal members and components
Preliminary roof framing plans, including draft truss schedule if applicable
Preliminary structural building sections, transverse and longitudinal
Schedules for columns, beams, shear walls
Typical/standard construction details for structural systems, components, connections
Further development of any special conditions such as moment connections
Systems – M/E/P, Fire Protection
Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and
mechanical rooms
Preliminary riser diagrams
Preliminary mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers,
louvers, etc.)
Refined sequence(s) of operations for BAS/EMCS controls
Revised and further detailed electrical (power) plans and riser diagrams to illustrate primary and
secondary power distribution, equipment, panelboards, and electrical rooms
Preliminary power plans to indicate convenience, equipment, floor boxes, and special-purpose
receptacles
Revised and further detailed electrical plans for fire alarm, lighting, and lighting control systems
Preliminary schedules for panelboards, lighting fixtures, other electrical equipment
Preliminary details for grounding, lightning protection, and emergency power systems
Revised and further detailed plumbing plans illustrating waste, domestic hot and cold water, (roof)
stormwater, equipment, and chases
Revised and further detailed fire sprinkler plans, including fire pump, backflow preventer(s), risers,
standpipes, hose cabinets
Revised sprinkler system design criteria and preliminary hydraulic calculations
Systems – Telecommunications, Audio/Visual, Security
Revised and further detailed telecommunications floor plans, including layout of telecomm rooms,
vertical and horizontal distribution, work area outlets, and floor boxes
NUTE: Identity work area outlets to be installed at or within fixed furnishings, or floor boxes for
tixed or moveable turnishings (classroom seating, modular office furniture, etc.)
Updated and further detailed audio/visual plans and equipment schedules/details
Updated and further detailed security plans and equipment schedules/details
Laboratory / Research Specialties
Revised and further detailed lab floor plans
Plans illustrating lab exhaust equipment, ductwork, and load/capacity parameters
Preliminary fume hood schedule with location, size, type of hood, etc.

	vacuum, etc.)
	Lab casework schedule(s)
	Revised and further detailed hazardous materials inventory correlated with life safety plans and
	occupancy classifications
Furn	ishings
Furn	ishings Updated furnishings plan(s), with distinctions made between fixed and moveable, and between those to be provided and installed (or Owner-furnished, builder-installed) as part of construction and those provided by the Owner after construction

## 60% Construction Documents (CDs)

Administrative/General (see "Requirements Common to All Design Phases," Chapter 5)
Basis of Design (updated from DD phase)
Space Summary and Area Calculation
Quality Control statement
Data, reports, drawings, and other documents related to environmental permitting requirements
Finalized Campus Master Plan checklist
Updated Measurement & Verification Plan (if applicable)
Finalized project-specific list of closeout deliverables, including O&M documents, Owner training,
and attic stock
Specifications
Table of Contents identifying all contemplated technical and non-technical specs
Project-specific technical and non-technical specs, including UF-provided non-technical
specifications and identification of proposed additive and deductive alternates
Updated project-specific list of O&M documents, Owner training, attic stock, and other closeout
requirements to be specified in the CDs using Owner's "Closeout Deliverables Matrix"
Draft special/threshold inspection plan for threshold buildings
CMP / Site / Utilities
Finalized site plan (see above)
NOTE: Site plan shall be drawn at a 1:1 scale and referenced to the State Plane Coordinate
System (1983 Adjustment). It shall be drawn in two dimensions (not 3D) with all entities having
the Z-coordinates set to zero. The building footprint and ground (or first) floor finished floor
elevation shall be referenced to at least one of the benchmarks established in the UF Vertical
Control System. Information regarding the UF Vertical Control System may be obtained from
the PPD A/E Department.
Site demolition and tree impact plans, if applicable, that illustrate all removals of natural or
manmade features; include an updated tree removal table that itemizes the quantity, species, size,
and health of all trees proposed to be removed
Updated site utilities plan(s) that indicate material/structure type, size, depth, and conflicts.
Complex areas with multiple utilities, stacked piping, and/or conflicts shall be illustrated using plan
& profile drawings.
NOTE: Such utility plans may be separated by discipline ('C', 'P', 'FP', 'M', 'E', 'T') or combined
Updated site lighting plan, coordinated with landscape plan
Updated paving, grading, and drainage plan, including schedule of stormwater structures (new and
existing)
Updated landscaping/planting plan, with hardscape materials and site features & fixtures indicated
Preliminary landscape irrigation plan, with connection(s) to water source(s) indicated
Updated plans for erosion and sedimentation control and compliance
Building / Architecture
Updated floor plans for each proposed level with room numbers provided by UF FPC
Dimensioned roof plans showing all slopes, drainage, materials, roof-mounted equipment (if any),
penetrations, hatches or ladders
Updated life safety plans – see above
Updated exterior elevations of all building sides
Updated exterior renderings, perspectives, and/or models
Renderings of all significant public spaces, including exterior public plazas and primary entry
lobbies to accurately portray scale, context, finishes, and light sources
Transverse and lateral building sections indicating finished floor elevation of each level, floor-to-
floor heights, vertical circulation, and interior space relationships
Updated sections through stairs and elevator shafts (both directions), plus floor-by-floor plans for
each stair
Updated roof details
Updated building envelope sections and details as needed to identify the composition, dimensions,

	and construction of all oxtorior walls
	Details for floahing, waterproofing, doman reading, and fireproofing
	Details for hashing, waterproofing, dampproofing, and ineproofing
	Details and enlarged elevations for cast stone of architectural precast, studdo, metal wall panels,
	and other exterior ministres
	Updated schedules and details for openings (windows, doors)
	Updated and refined details & definitions for interior partitions
	Updated reflected celling plans to illustrate celling neights, materials, and M/E/P/AV fixtures
	Updated finish schedule to identify wall, ceiling, floor, and base materials by room
	Dimensioned interior elevations and fixture/accessory schedules for all restrooms
	Casework and millwork details
	Updated color/finishes boards to illustrate the color and type of interior finishes
	Finalized demolition plans for renovation/rehabilitation projects
Struc	ctural
	Structural "title sheet" with design criteria and loads, construction notes, etc.
	Revised and further detailed foundation plan, including schedule(s) for footings, grade beams, stem
	walls, piles, etc.
	Revised and further detailed horizontal framing/slab plans that indicate type, size, length, and
	spacing of principal members; size and elevation of slabs; size and framing details for slab
	openings, etc.
	Revised and further detailed vertical framing plans that indicate type, size, length, and spacing of
	principal members and components
	Updated roof framing plans, including truss schedule if applicable
	Updated structural building sections, transverse and longitudinal
	Updated schedules for columns, beams, shear walls
	Refined construction details for structural systems, components, connections
	Further development of any special conditions such as moment connections
Syst	ems – M/E/P. Fire Protection
Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and
Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork
Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork
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Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork Updated mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers, louvers, etc.) Above-ceiling sections for typical and congested areas to illustrate ceiling, structure (including
Syste	<ul> <li>ems – M/E/P, Fire Protection</li> <li>Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork</li> <li>Updated mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers, louvers, etc.)</li> <li>Above-ceiling sections for typical and congested areas to illustrate ceiling, structure (including fireproofing) piping (including insulation) ductwork, and other utilities and systems.</li> </ul>
Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork Updated mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers, louvers, etc.) Above-ceiling sections for typical and congested areas to illustrate ceiling, structure (including fireproofing), piping (including insulation), ductwork, and other utilities and systems Refined sequence(s) of operations for BAS/EMCS controls
Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork Updated mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers, louvers, etc.) Above-ceiling sections for typical and congested areas to illustrate ceiling, structure (including fireproofing), piping (including insulation), ductwork, and other utilities and systems Refined sequence(s) of operations for BAS/EMCS controls Revised and further detailed electrical (nower) plans and riser diagrams to illustrate primary and
Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork Updated mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers, louvers, etc.) Above-ceiling sections for typical and congested areas to illustrate ceiling, structure (including fireproofing), piping (including insulation), ductwork, and other utilities and systems Refined sequence(s) of operations for BAS/EMCS controls Revised and further detailed electrical (power) plans and riser diagrams to illustrate primary and secondary power distribution, equipment, papelboards, and electrical rooms
Syste	ems – M/E/P, Fire Protection Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and mechanical rooms, including ductwork Updated mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers, louvers, etc.) Above-ceiling sections for typical and congested areas to illustrate ceiling, structure (including fireproofing), piping (including insulation), ductwork, and other utilities and systems Refined sequence(s) of operations for BAS/EMCS controls Revised and further detailed electrical (power) plans and riser diagrams to illustrate primary and secondary power distribution, equipment, panelboards, and electrical rooms Preliminary power plans to indicate convenience, equipment, and special-purpose recentacles
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Updated hydraulic calculations		
Systems – Telecommunications, Audio/Visual, Security		
Revised and further detailed telecommunications floor plans, including layout of telecomm rooms		
vertical and horizontal distribution, floor boxes, and work area outlets		
NOTE: Identify work area outlets to be installed at or within fixed furnishings, or floor boxes fo		
fixed or moveable furnishings (classroom seating, modular office furniture, etc.)		
Updated and further detailed audio/visual plans and equipment schedules/details		
Updated and further detailed security plans and equipment schedules/details		
Laboratory / Research Specialties		
Revised and further detailed lab floor plans		
Plans illustrating lab exhaust equipment, ductwork, and load/capacity parameters		
Updated fume hood schedule with location, size, type of hood, etc.		
Updated P&ID drawings for distributed gases and utilities (de-ionized water, clean dry air, vacuum		
etc.)		
Lab casework schedule(s)		
Revised and further detailed hazardous materials inventory correlated with life safety plans and		
occupancy classifications		
Furnishings		
Updated furnishings plan(s), with distinctions made between fixed and moveable, and betweer		
those to be provided and installed (or Owner-furnished, builder-installed) as part of construction		
and those provided by the Owner after construction		
For lab/research spaces, clear indication of research/lab tools and equipment		

## 100% Construction Documents (CDs)

Administrative/General (see "Requirements Common to All Design Phases," Chapter 5)
Basis of Design (updated from 60% CDs phase)
Space Summary and Area Calculation
Quality Control statement
Data, reports, drawings, and other documents related to environmental permitting requirements
Updated Measurement & Verification Plan (if applicable)
Draft Commissioning Plan
Owner-provided Facilities Classification for Energy Consumption form – completed and signed by
the (mechanical) engineer of record
AutoCAD (DWG) copies of the site plan and floor plans
Specifications
Table of Contents identifying all technical and non-technical specs
Revised and finalized technical and non-technical specs, including identification of closeout
deliverable requirements from "Closeout Deliverables Matrix"
Finalized project-specific list of O&M documents. Owner training, attic stock, and other closeout
requirements specified in the CDs using Owner's "Closeout Deliverables Matrix"
Finalized special/threshold inspection plan for threshold buildings
CMP / Site / Utilities
Finalized site plan (see above)
NOTE: Site plan shall be drawn at a 1:1 scale and referenced to the State Plane Coordinate
System (1983 Adjustment). It shall be drawn in two dimensions (not 3D) with all entities having
the Z-coordinates set to zero. The building footprint and ground (or first) floor finished floor
elevation shall be referenced to at least one of the benchmarks established in the UF Vertical
Control System. Information regarding the UF Vertical Control System may be obtained from
the PPD A/E Department.
Finalized site demolition and tree impact plans, if applicable (see above)
Finalized site utilities plan(s) – see above
Finalized site lighting plan, plus photometric analysis
Finalized paving, grading, and drainage plan (see above)
Finalized landscaping/planting plan, with hardscape materials and site features & fixtures indicated
Finalized and fully detailed landscape irrigation plan, coordinated with electrical for irrigation
controller power
Updated plans for erosion and sedimentation control and compliance
Building / Architecture
Finalized dimensioned floor plans (see above), including dimensions of any non-right angles.
spring points for arcs, radii, etc.
Finalized roof plans (see above)
Finalized life safety plans (see above), along with UL-listed fire rating details
Finalized exterior elevations
Finalized exterior renderings, perspectives, and/or models
Finalized renderings of all significant public spaces, including exterior public plazas and primary
entry lobbies to accurately portray scale, context, finishes, and light sources
Finalized building sections (see above)
Finalized sections through stairs and elevator shafts
Finalized floor-by-floor stair plans, dimensioned
Finalized roof details
Final exterior wall sections and details fully dimensioned
Finalized details and enlarged elevations for all exterior finishes such as cast stope, architectural
precast stucco and metal wall panels
Finalized details for flashings waterproofing dampproofing and fireproofing
Finalized schedules and details for openings (windows, doors)
Finalized details & definitions for interior partitions
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	Finalized reflected ceiling plans (see above)
	Finalized finish schedule to identify wall, ceiling, floor, and base materials by room
	Dimensioned interior elevations and fixture/accessory schedules for all restrooms
	Casework and millwork details
	Updated color/finishes boards to illustrate the color and type of interior finishes
	Finalized demolition plans for renovation/rehabilitation projects
	Signage and graphics plans including room identification and numbering, directional, way-finding,
	HAZMAT, and ADA or other signage required by code
Struc	ctural
	Structural "title sheet" with design criteria and loads, construction notes, etc.
	Finalized foundation plan, including complete schedule(s) for footings, grade beams, stem walls,
	piles, etc.
	Finalized horizontal framing/slab plans that indicate type, size, length, and spacing of principal
	members; size and elevation of slabs; size and framing details for slab openings, etc.
	Final detailed vertical framing plans that indicate type, size, length, and spacing of principal
	members and components
	Finalized roof framing plans, including draft truss schedule if applicable
	Finalized schedules for columns, beams, shear walls
	Finalized structural building sections, transverse and longitudinal
	Finalized construction details for structural systems, components, connections
	Complete development and detailing of any special conditions such as moment connections
	Illustration of control joints
	Identification and detailing of sleeves through structure, if any
Syste	ems – M/E/P, Fire Protection
	Revised and further detailed mechanical plans for HVAC and piping systems, equipment, and
	mechanical rooms, including ductwork
	Updated mechanical schedules for equipment (AHUs, FCUs, fans, etc.) and fixtures (diffusers,
	louvers, etc.)
	Finalized above-ceiling sections for typical and congested areas (see above)
	Refined sequence(s) of operations for BAS/EMCS controls
	Revised and further detailed electrical (power) plans and riser diagrams to illustrate primary and
	secondary power distribution, equipment, panelboards, and electrical rooms
	Finalized power plans to indicate convenience, equipment, and special-purpose receptacles
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	moveable furnisnings (classroom seating, modular office furniture, etc.)
	Details, enlarged plans, and schedules as needed to illustrate circuitry, pathways, wiring system(s),
	Conductors, receptacies, switches, and exit signs
	Finalized and further detailed electrical plans for fire alarm, lighting, and lighting control systems
	Finalized schedules for panelboards, lighting lixtures, other electrical equipment
	Finalized details for grounding, lightning protection, and emergency power systems
	Finalized plumbing (see above)
	Complete and finalized fire enrickler plane, plue finalized budreulie calculations
Such	ame - Telecommunications, Audio/Vieual, Socurity
Syste	Eins - relecommunications, Audio/Visual, Security
	Finalized telecommunications noor plans, including layout of telecomm rooms, ventical and borizontal distribution and work area outlets
	NOTE: Location of wireless access points shall be determined by UE OIT or HealthNet
	NOTE: Identify work area outlets to be installed at or within fixed furnishings, or floor boxes for
	fixed or moveable furnishings (classroom seating modular office furniture etc.)
	Finalized audio/visual plans and equipment schedules/details

Finalized security plans and equipment schedules/details		
Laboratory / Research Specialties		
Finalized lab floor plans		
Plans illustrating lab exhaust equipment, ductwork, and load/capacity parameters		
Finalized fume hood schedule with location, size, type of hood, etc.		
Finalized P&ID drawings for distributed gases and utilities (de-ionized water, clean dry air, vacuum,		
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Finalized lab casework schedule(s)		
Finalized hazardous materials inventory correlated with life safety plans and occupancy		
classifications		
Furnishings		
Finalized furnishings plan(s), with distinctions made between fixed and moveable, and between		
those to be provided and installed (or Owner-furnished, builder-installed) as part of construction		
and those provided by the Owner after construction		
For lab/research spaces, clear indication of research/lab tools and equipment		

### 6.00 BUILDING INFORMATION MODELING (BIM)



#### 7.00 BIDDING, PERMITTING, and CONSTRUCTION ADMINISTRATION

#### 7.01 BID PHASE

- A. For CM and D/B projects, the Design Professional shall review the terms and requirements for bidding of trade contracts as outlined in the Owner's Agreement with Builder and University policy documents.
- B. For design-bid-build ("hard bid") projects, the Design Professional shall review the requirements for bidding as outlined in the UF-furnished "Division 0" Instructions To Bidders and associated forms.
- C. The Design Professional may be asked to attend and participate in pre-bid meetings for the purpose of clarifying technical aspects of the work.
- D. The Design Professional may be asked to make reproducible copies of the construction documents available at one or more local print shops during the bidding phase. The cost of such copies will be borne by the bidders or the project.
- E. During the bidding period, the Design Professional shall respond to Requests For Information and issue addenda as necessary to clarify or modify the Construction Documents.
- F. For design-bid-build ("hard bid") projects, a formal bid opening will be conducted by the University and attend by the Design Professional following an advertisement period. The Design Professional shall assist the University in analyzing the bids and making an award determination. Similarly, for Construction Management and Design/Build projects, in which the trade subcontracts are bid and awarded by the CM or D/B, the Design Professional may be asked to assist with the analysis of certain subcontractor bids.
- G. The Design Professional shall make the Building Information Model (BIM) or models available as needed to prospective bidders.

#### 7.02 PERMITTING AND CODE ENFORCEMENT

A. BUILDING CODE ENFORCEMENT PROGRAM

A building code enforcement program has been established at the University of Florida to protect the public's life, health and welfare in the built environment. This protection is provided through the State's adoption of the Florida Building Code and the application of the performance based standards contained within it. The program will be administered by the University Environmental Health & Safety Division (EH&S) through review of plans and specifications and on-site construction inspections as required to insure compliance with adopted codes and standards. For this purpose, EH&S has appointed a qualified Building Code Administrator to manage the building code inspection department. The Building Code Administrator has to be certified by the Council of American Building Officials and licensed by the Department of Professional Regulation as a Building Official. The Building Code Administrator will employ qualified inspectors to administer the building code enforcement program.

#### B. PROCEDURES

1. The UF Project Manager (UF PM) or Design Professional shall submit the project drawings and specifications (proposed construction documents at the various phase) for review by EH&S for compliance with adopted codes and standards. After reviewing the

documents, comments will be returned with appropriate references. A "Letter of Code Compliance" will be issued by EH&S upon resolution of all outstanding comments.

- 2. Following bid award, the Builder shall apply to EH&S for a Building Permit, with two copies of the final bid/construction documents (signed and sealed by the project Design Professional) accompanying the application. Upon approval, one set of signed & sealed documents will be stamped by EH&S "Reviewed for Code Compliance" and returned to the Builder, who shall retain this set of documents and the building permit on site throughout construction.
- 3. The Builder shall be responsible for scheduling all required inspections by Authorities Having Jurisdiction (AHJs) and request a Certificate of Occupancy when the project is complete. The Design Professional shall attend significant/milestone inspections by the State Fire Marshal and shall engage with and respond to AHJs as needed.
- 4. Fees related to document reviews and AHJ inspections shall be borne by the project.
- C. OFF-CAMPUS PERMITTING

The Design Professional, UF PM and EH&S shall determine which authorities have jurisdiction, and ensure that the development of the project is fully coordinated with these agencies. Their requirements shall be accommodated in the documents so that all permits and approvals can be readily obtained. This coordination begins with the schematic design phase and must be completed prior to the bidding phase so that delays in the start of construction do not occur. Fees for related permits and approvals shall be borne by the project.

#### 7.03 NOTICE TO PROCEED

Once the Contract and Bonds have been executed by all appropriate entities, the University will issue a formal "Notice To Proceed," accompanied in the case of CM or D/B delivery by a separate Authorization For Construction. Depending on the project, a building permit may or may not be required for mobilization and initial work.

#### 7.04 STANDARD OF CARE

The Design Professional and its consultants are expected to act and serve in the best interest of the University throughout the Construction Administration and Warranty phases, regardless of project delivery method. In the case of Design/Build delivery, no additional professionals will be retained to provide oversight, so the Design Professional is expected to provide thorough and unbiased representation and service without regard to any conflict(s) of interest associated with the Design/Build contractual arrangement.

#### 7.05 CONSTRUCTION MEETINGS

A. Immediately prior to starting construction, a pre-construction conference shall be arranged by the UF PM and attended by the Design Professional, the Builder, User Group representatives, relevant University agencies, and other interested parties. The purpose of this pre-construction meeting is to discuss the requirements and responsibilities of the various parties as outlined in this Guide, the General Terms and Conditions, and the construction documents. The UF PM will chair this meeting and the Design Professional shall review pertinent technical aspects of the project and keep, then distribute, detailed minutes. Technical questions, if any, shall be converted by the Builder to formal Requests For Information (RFIs). Items to be discussed include, but are not limited the following:

- 1. Roles & Responsibilities
- 2. Meetings, Meeting Minutes, and Modes of Communication
- 3. Construction Schedule & Progress
- 4. Submittals and Shop Drawings
- 5. Requests For Information
- 6. Addenda/ASIs/Field Orders
- 7. Builder Applications for Payment
- 8. Change Orders and Change Order Proposals
- 9. Commissioning Requirements
- 10. Inspection of the Work
- 11. Tests
- 12. Mockups
- 13. LEED documentation
- 14. Maintenance of Record Documents
- 15. Substantial Completion and Closeout Requirements
- B. Throughout construction, regular meetings shall be held onsite as outlined in the Agreement. Participants shall include the Design Professional and/or its consultants, the UF PM, the Builder, User Group representatives, and other University entities as needed. Topics shall include those listed above, plus others as necessary, and either the Design Professional or the Builder shall keep and distribute detailed minutes.

#### 7.06 INSPECTION OF THE WORK

As per the Agreement between Owner and Professional or Design/Builder, the Design Professional(s) shall periodically inspect the construction to observe the progress and quality of the work and to otherwise verify that the project is being built in accordance with the plans and specifications. Each time the Design Professional or its Consultants makes a visit to the site, a written field report shall be issued describing the status & progress of the Work and itemizing any discrepancies or problems. Provide electronic copies of all such field reports to the UF PM and Builder, and include photographs as needed to illustrate the narrative report.

The Professional shall reject Work that does not conform to the construction documents and may require additional inspection or testing in accordance with the provisions of the Contract for Construction.

#### 7.07 BUILDER APPLICATIONS FOR PAYMENT

- A. The Design Professional shall review the terms and requirements for construction pay applications as outlined in the Owner's Agreement with Builder, the General Terms & Conditions, the Owner's Agreement with Professional (or Design/Builder), and University policy documents.
- B. Prior to the Builder's first application for payment, the Builder shall provide the Design Professional and University with a draft Schedule of Values using the UF template/form. The Design Professional and its consultants shall review and comment on the draft Schedule of Values as it relates to the Design Professional's ability to review such applications against the status and progress of the Work. The Schedule of Value shall be sufficiently detailed and accurate to give a true indication of the distribution of costs, and balanced so as to neither "front end load" or "back end load" such distribution.

- C. Based upon onsite observations and inspections of the Work, plus an evaluation of the Builder's application for payment, the Design Professional shall review and certify the amounts due, calling attention, as needed, to discrepancies, errors, or unwarranted amounts due.
- D. Such review shall include observations of change order Work and materials being stored onsite or offsite when such are billed partially or in full. Also, the Design Professional shall review the Builder's onsite "as-built" plans & specifications and verify that these record documents are current, updated, and reflective of all Professional-directed changes, approved change orders, and field modifications.
- E. To facilitate the process, the Builder will be encouraged to provide electronic copies of each application to the Design Professional and UF in advance of an onsite pay application meeting, which is normally held monthly throughout construction.
- F. Following such review, with changes and corrections either incorporated by the Builder in a revised application or annotated by the Design Professional, the Design Professional shall sign one hard copy of the application and forward to the UF PM for further review and processing.

#### 7.08 CHANGE ORDERS

A. GENERAL

The Design Professional shall review the terms and requirements for change orders as outlined in the Owner's Agreement with Builder, the General Terms & Conditions, and University policy documents.

Changes to the Work shall be minimized and consistent with the original project scope and budget. The Design Professional shall not permit "swapping" of extras and credits except through a written Change Order using the University's template form. All changes in the Work resulting in a cost change, regardless of the amount, must be documented by Change Order. Where a change is made at no cost, or where added and deleted work balance in cost, a Change Order shall be initiated to record and justify the fact that such changes were made.

Work added or deleted by Change Order may not be included in the Schedule of Values until the Change Order is fully executed.

#### B. CHANGE ORDER PROPOSALS

To maintain schedule while also documenting changes, a Change Order Proposal (COP) shall be drafted by the Builder using the University's template form and executed by the Builder, Design Professional, and Owner for each discreet change prior to such changes being implemented. Then, monthly or more often as needed, these executed COPs shall be bundled together by the Builder and formally captured in one or more Change Orders.

While COPs are drafted by the Builder, the Design Professional is responsible for completing the "necessity and justification" section of each COP to explain the purpose and rationale for the change and to otherwise confirm the proposal's validity.

COPs and their associated backup (detailed breakdown of costs, subcontractor estimates, vendor quotes, etc.) shall be transmitted and dealt with electronically, only printed for execution once all parties are in agreement on the costs, backup information, and descriptions.

- C. REVIEW AND RESPONSIBILITY
  - Design Professional shall carefully and thoroughly review each Change Order Proposal to determine if the proposed costs are fair, reasonable, properly substantiated, and warranted. Comments shall be reviewed with both the Builder and UF PM in a timely manner, particularly for work impacting the schedule's critical path and overall project duration.
  - 2. The University shall pay a fair "first cost" value for the end result to be achieved under the contract. Where materials, equipment, or work have been inadvertently omitted from the construction documents, the Owner shall pay such "first cost" for the omitted items since same couldn't have possibly been included in the bid(s). If, however, additional ("second") costs and/or time are incurred because of corrections to, modifications of, or removal of the Work resulting from errors or omissions by the Design Professional or its consultants, then the Design Professional shall bear such costs, including Builder and/or subcontractor overhead & profit, general conditions, and other such "soft costs" if applicable.

#### D. TIME EXTENSIONS

Any requests for time extensions or claims regarding delays shall be documented, substantiated, and proposed by the Builder. Time extensions, if approved by the Design Professional and Owner, shall be formalized via change order. See General Terms & Conditions.

#### 7.09 SUBMITTALS and SHOP DRAWINGS

#### A. GENERAL

The Design Professional shall review, approve, reject, comment on, or take other appropriate action on technical submittals, product data, shop drawings, samples, and operation & maintenance documents. Such review shall include verification that the submittal complies with both the plans & specifications and these governing documents and standards:

- Owner's Project Requirements and Basis of Design
- UF Design and Construction Standards
- Applicable codes

#### B. TIMELINESS

The Design Professional shall review submittals in a timely manner so that the Work can be performed without delay and products & materials may be ordered or fabricated with sufficient time to meet the schedule. In any case, such review should take place within ten (10) work days after receipt of the submittal from the Builder.

#### C. PROCEDURES

- 1. Having reviewed the process and procedures for submittals at the pre-construction conference, the Builder and Design Professional shall provide each other and the UF PM with a copy of its submittal log or other means of tracking submittals.
- 2. The UF PM shall annotate one or both logs to indicate which submittals shall also be provided for concurrent review to others, such as the Commissioning Professional, the operation & maintenance entity, the user group, or Authorities Having Jurisdiction.

3. Submittals shall be developed by the Builder and transmitted by all parties in electronic (searchable PDF) form to facilitate efficiency. Review comments by the Design Professional shall be added to the submittal electronically and shall include the concurrent review comments of others unless those comments conflict with the Design Professional's comments.

#### 7.10 SUBSTANTIAL COMPLETION and FINAL COMPLETION

The Design Professional shall review the definition of, and terms and requirements for, Substantial Completion and Final Completion as outlined in the Owner's Agreement with Builder, the General Terms & Conditions, the UF non-technical specifications, and University policy and procedure documents on same.

#### A. SUBSTANTIAL COMPLETION

1. Inspection

Upon notification by the Builder that the Work is – or certain portions of the Work are – ready for inspection, the Design Professional and its consultants shall schedule one or more inspections to verify Substantial Completion.

The Design Professional's inspection(s) shall be detailed and complete, with the Builder's self-inspection "punchlist" serving as a basis. The Design Professional shall then prepare a master punchlist – or augment the Builder's – to include its comments and those of other attendees, if any.

If, in the Design Professional's judgment, the Work is <u>not</u> Substantially Complete, it shall inform both the Builder and the UF PM and require the Builder to reschedule the inspection when the Work is complete. If the Work <u>is</u> Substantially Complete in the Design Professional's judgment, this opinion will be considered along with the input of the UF PM, other UF entities, Authorities Having Jurisdiction, and the Commissioning Professional in making a determination of Substantial Completion.

Once it is agreed that the Work is Substantially Complete, a Certificate of Substantial Completion will be executed to formalize this milestone, set the official date, and transmit the final and complete punchlist of discrepancies.

2. Deliverables

Along with punchlists from the Builder, Design Professional, and others, additional documents, deliverables, and services must be provided by the Builder and others in order for the Work to be considered Substantially Complete. Fully detailed in a document entitled "Closeout Deliverables" on the UF FP&C website, this list includes:

- Draft Test & Balance (TAB) report
- Draft Commissioning report and/or issues log
- Telecomm cabling test report
- Draft operation & maintenance manuals and documents
- Owner training
- TV video of underground utilities
- Delivery and inventory of attic stock materials

As with construction phase submittals and shop drawings, the Design Professional and its consultants shall review, comment on, and approve or reject each of these submittals.

3. Occupancy

The University discourages the occupancy of any new or renovated facility prior to completion of all punchlist items by the Builder, which would normally occur between Substantial Completion and Final Completion. If a User Group must occupy all or a portion of the facility prior to completion of all punchlist work, the following items shall be provided prior to occupancy:

- a. Written agreement from the Builder that no contract provisions or warranties are being violated.
- b. Written approval from the resident agent of the Builder's insurer that Builder's Risk insurance coverage provisions will not be violated.
- c. Arrangements in writing between the University and the Builder pertaining to the payment of utility costs and maintenance & repairs during the period of joint occupancy.
- d. A written statement from the Design Professional indicating any punch list items outstanding in the area proposed for joint occupancy by the University and the Builder.
- e. Other items deemed necessary by the UF PM.

#### B. FINAL COMPLETION

1. Inspection

Upon notification by the Builder that all punchlist discrepancies have been completed or otherwise resolved, the Design Professional and its consultants shall schedule one or more inspections to verify Final Completion of the Work.

Following the inspection(s), the Design Professional shall prepare a new list of items, if any, requiring correction and shall make another inspection, if necessary, to ensure that all the work has been completed. All punchlist items found at the time of Substantial Completion shall have been completed by the time stated in the Contract for Construction.

Once it is agreed that the Work is Finally Complete, a Certificate of Final Completion will be executed to formalize this milestone. The total amount of the contract shown on the certificate shall include approved Change Orders.

2. Deliverables

Along with a final copy of the completed master punchlist from the Builder, other documents, deliverables, and services must be provided by the Builder and others in order for Final Completion of the project to be declared. Fully detailed in a document entitled "Closeout Deliverables" on the UF FP&C website, this list includes:

- Releases of subcontractor/vendor liens
- Consent of surety
- Final Test & Balance (TAB) report
- Indoor Air Quality tests report
- Finalized operation & maintenance manuals and documents
- Final record documents by Design Professional
- 3. Record Documents

Upon completion of the Work, the Design Professional shall produce a final set of record documents (plans and specifications) that capture the "as-built" conditions. Along with answers to Requests For Information, Professional-issued addenda and supplemental instructions, submittal and shops drawing reviews, and other records, the Design

Professional shall use and rely on the Builder's field set of "redlined" plans and specifications in producing the final record documents.

In accordance with the requirements of this Guide and the Agreement between Owner and Professional or Design/Builder, the record specifications shall be provided in searchable PDF format and the record drawings shall be provided in both PDF format and AutoCAD (DWG) or BIM (RVT) format.

#### 7.11 WARRANTY PHASE

While the University will contact the Builder or his subcontractor about deficiencies occurring during the warranty period, the Design Professional shall assist the University in obtaining satisfactory correction when requested.

Prior to the expiration of the one-year warranty and guarantee, the Design Professional shall schedule an inspection of the facility. A time would be selected when the Builder, UF PM, and other interested parties can attend. This inspection shall completely cover the constructed facility, and the Design Professional shall generate a list of all items requiring corrective action for the Builder.

END OF SECTION

#### 8.00 COMMISSIONING SERVICES

#### 8.01 GENERAL

The Commissioning (Cx) Professional's primary duty is to ensure that particular building systems are planned, designed, installed, tested, optimized, and capable of being operated and maintained to perform in accordance with the Owner's goals and requirements.

Other specific Commissioning goals include:

- Improved building performance
- Reduced energy and operational costs
- Thoughtful consideration of building turnover and life-cycle operation & maintenance
- Identification and resolution of building system operation, control, and maintenance problems
- Increased occupant/user satisfaction and comfort

The commissioning process is not a singular event at the end of construction, but an ongoing, "continuous improvement" activity that takes place throughout the life of a facility.

Building systems that are normally commissioned on UF projects include HVAC, electrical, and building envelope, but others may be required and included in the project-specific Agreement Between Owner and Commissioning Agent.

#### 8.02 OWNER'S PROJECT REQUIREMENTS (OPR)

#### A. PURPOSE & RESPONSIBILITY

The Owner's Project Requirements (OPR) document outlines functional requirements of the facility to be constructed or renovated and expectations of the building's use and operation as they relate to the systems to be commissioned. The OPR is required for LEED certification of the project, but also serves three broader vital purposes:

- Provides the design team with information necessary to develop the Basis of Design (BOD) during program verification and/or schematic design, which serves as a "road map" for development of the design and construction documents.
- 2. Provides the Cx Professional with tangible benchmarks to measure success & quality against and confirm that the building and systems align with the University's expectations, goals, and requirements.
- 3. Serves, along with the BOD and contractor deliverables such as "as-built" documents, as the foundation for the Systems Manual outlined below.

#### B. DEVELOPMENT & MAINTENANCE

- The OPR document will normally be drafted by the University as part of the Facilities Program and maintained/updated by the University through program verification and schematic design, or until the Cx consultant is selected. For certain projects, the Cx Professional may be contracted to develop the original OPR using the University's template.
- 2. In either case, the Cx consultant assumes responsibility for adjusting and refining the OPR throughout design, construction, and the post-occupancy period of one year following Substantial Completion of construction. As decisions are made during the life of the project, this document shall be updated to reflect the current requirements of the University.

#### 8.03 DESIGN PHASE SERVICES

Standard design-phase commissioning services are as follows, with project-specific requirements addressed in the Agreement Between Owner and Commissioning Agent:

- A. Review and commentary on all pre-design and design submittals produced prior to and following selection of the Cx Consultant, including the OPR and other programming documents, the Design Professional's Basis of Design (BOD), and schematic design deliverables.
- B. Development and/or continuous maintenance of the OPR throughout the design process. At the conclusion of each design phase, upon review of the design submittal(s), the Cx consultant shall submit an updated OPR to the Owner and Design Professional for review.
- C. At each phase of design, review and comment on all narratives, reports, plans, specifications, and other deliverables related to the systems being commissioned for compliance with the BOD, OPR, UF Design and Construction Standards, industry standards for the facility type, coordination & constructability, and LEED certification criteria.
- D. Review of other Design Professional work products related to the systems being commissioned, including the Measurement & Verification Plan, Energy Models, and Life Cycle Cost Analyses.
- E. "Value Engineering" suggestions for improved functionality, coordination & constructability, efficiency, energy conservation, and cost savings (and review of such suggestions proposed by others).
- F. Participation in reconciliation conferences with the Owner and Design Professional(s) as needed to clarify and resolve review comments.
- G. Production of the non-technical Commissioning Specification, using the Owner's template, for inclusion in 60% and 100% Construction Documents, tailored as needed to the project, the BOD and OPR, and other applicable standards for the systems being commissioned.
- H. Recommendations on Owner training, attic stock, operation & maintenance, and other closeout/turnover items and procedures to be incorporated into the construction documents.
- I. Along with the Design Professional, development and coordination of Building Automation System trend parameters to be incorporated into the construction documents.
- J. Coordination and integration of commissioning activities into the project construction schedule with the assistance of the Builder (when applicable).
- K. Participation in the pre-bid and bidding process to clarify and explain commissioning requirements.

#### 8.04 CONSTRUCTION & ACCEPTANCE PHASE SERVICES

Standard construction-phase and acceptance-phase commissioning services are as follows, with project-specific requirements addressed in the Agreement Between Owner and Commissioning Agent:

- A. Maintenance of the OPR throughout the construction & acceptance phase.
- B. Review of Requests For Information, submittals, shop drawings, and coordination drawings related to the systems being commissioned and coordination/reconciliation of such comments with the Design Professional(s) and Owner prior to dissemination to the Builder.
- C. Development of project-specific Commissioning Plans (one for M/E/P systems; one for building envelope), Pre-Functional Checklists, and Functional Performance Test procedures.
- D. Production of a spreadsheet itemization of all products and equipment that comprise the systems being commissioned, including governing specification section and location by room number or column lines.

- E. Participation in regular jobsite meetings, Cx "kickoff" meetings, and subcontractor coordination meetings to discuss Cx and LEED certification issues and to clarify Cx procedures, including such meetings prior to roofing, envelope systems, and HVAC startup.
- F. Coordination of efforts with other quality control measures such as Indoor Environmental Quality (IEQ) tests, HVAC Test-And-Balance, and materials testing.
- G. For building envelope systems field visits, inspections, and oversight of work on waterproofing, wall systems (including masonry and glazing), and roofing systems.
- H. For M/E/P and security systems field visits, inspections, and oversight of tests to measure discrete operations (Pre-Functional and Functional Testing) and the interoperability of systems and components (Performance Testing) to confirm compliance with the OPR, Basis of Design, plans & specifications, Measurement & Verification Plan, and the project-specific Commissioning Plan.

NOTE: The extent of testing shall be addressed in the project-specific Agreement Between Owner and Commissioning Agent. Typically, air handling units, energy recovery units, and research laboratory exhaust systems would be 100% tested, while standard terminal units such as VAV boxes would be 50% sampled.

- I. Documentation of deficiencies and action items stemming from field inspection observations and Functional Performance Tests, along with recommendations of acceptance or rejection based on those observations and findings.
- J. Amendment and editing of the OPR and the project-specific Commissioning Plan to incorporate supplemental Design Professional instructions, Requests for Information, submittal review comments, and other Owner-approved changes.
- K. Troubleshooting and diagnostic assistance to the builder and its subcontractors.
- L. Confirmation that air-side and water-side systems within variable-controlled HVAC schemes have been optimized.
- M. Review and confirmation that metering and controls systems perform in accordance with the project-specific Measurement & Verification plan, if any.
- N. Review of final Owner training plans, Operation & Maintenance manuals, Test-And-Balance reports, indoor air quality tests, LEED certification documents, as-built drawings, the products & equipment spreadsheet (finalized by the builder), and other "closeout" documents related to the systems being commissioned.
- O. Production and distribution of a Draft Commissioning Report at Substantial Completion.
- P. Consolidation and turnover of Cx documents, including final versions of the BOD and OPR, narrative report(s), itemization products & equipment spreadsheet, checklists and field observation reports, FPT results, deficiency log(s), and training-related documents.
- Q. Development and leadership of a half-day Owner training and orientation session prior to Substantial Completion to review with the Owner the OPR, BOD, all "as built" commissioned building systems, general operation & maintenance, troubleshooting guidelines, emergency procedures, energy efficiency measures, the Measurement & Verification plan, and lessons learned during the Construction & Acceptance phases of commissioning.

#### 8.05 SYSTEMS MANUAL

As a discreet construction/acceptance phase service, the Cx Professional shall assemble and develop a Systems Manual comprised of the following elements as outlined in the UF template non-technical "General Commissioning Requirements" specification:

- A. Introduction and overview of project
- B. Final Basis of Design document
- C. Brief description of each system commissioned

- D. Recommended re-commissioning interval including set-points assessment, operational schedule assessments testing schedules
- E. Recommended continuous commissioning of specific sequence of operation based on current use and Measurement & Verification plan
- F. Other relevant information and documentation from the Builder and its subcontractors, including:
  - Equipment start-up, shutdown, and restarting instructions
  - As-built single-line diagrams for all commissioned systems
  - Record documents of Building Automation System, including Sequences of Operation, a list of as-built set points, descriptions of set point purpose(s), recommended adjustable ranges, and reset schedules
  - Building automation logic flow diagram or code flow diagram
  - Trending checklist with a list of all points trended including sample rates
  - Recommended re-commissioning interval, including set-points assessment, operational schedule assessments, and testing schedules
  - Equipment manufacturer's recommended schedule and instructions for recalibration of sensors, transmitters, and actuators
  - List of diagnostic tools for systems commissioned to maintain efficient operation of the equipment and system(s)

#### 8.06 POST-OCCUPANCY PHASE SERVICES

Standard post-occupancy commissioning services are as follows, with project-specific requirements addressed in the Agreement Between Owner and Commissioning Agent:

- A. Upload LEED-required Commissioning documents to the U.S. Green Building Council website no later than 30 days after Substantial Completion.
- B. Inspections and/or testing of commissioned building systems during one or more years following Substantial Completion, including "off-season" performance tests of the HVAC system.
- C. Analysis of building performance parameters such as HVAC trending data compared to the BOD and OPR, end of construction state, the Measurement & Verification plan, and energy model baseline and projections.
- D. Interviews with Owner's operation and maintenance staff, plus reviews of occupant surveys, to confirm operation & maintenance and discover or fully understand concerns or difficulties with commissioned building systems.
- E. Tracking of issues, discrepancies, and other problems with commissioned building systems through resolution.
- F. Finalization of the OPR to account for post-construction adjustments and modifications, if any.
- G. Production and distribution of a Final Commissioning Report to document the results of Commissioning.

END OF SECTION