17.1 Introduction
17.2 Owner Requirements Covered Elsewhere
17.3 Project-Specific Design Goals
17.4 Occupancy & Use
17.5 Sustainability and Energy Efficiency
17.6 Building Site
17.7 Transportation & Parking
17.8 Building Envelope
17.9 Indoor Environmental Quality
17.10 Emergency or Backup Power
17.11 Telecommunications and A/V Systems
17.12 Security
17.13 Hazardous Materials
17.14 Furnishings & Equipment
17.15 Commissioning, Inspection, and Q.A.
17.16 Construction Completion & Turnover
17.17 Operation & Maintenance
17.18 Owner Training
17.19 Post-Occupancy and Warranty

17.1 INTRODUCTION
Along with the other sections of this Facilities Program, this Owner’s Project Requirements (OPR) document outlines functional requirements of the project and expectations of how the facility and its systems will be used and operated.

This OPR document is considered a “living” document throughout the design/construction phase of the project, as such is subject to change (with approval by UF PM) as the design/construction progresses. By establishing the goals of the new Chemistry building in this Program, the OPR becomes a record by which UF and other parties involved in the project, can judge the degree of success in meeting the Owner’s defined objective and criteria.

The OPR is required for LEED certification of the project, but also serves three primary and vital purposes:

1. 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 commissioning (Cx) team with tangible benchmarks to measure success & quality and confirm that the building and systems constructed align with the University’s expectations 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.
Owner’s Project Requirements (OPR)

The Owner will develop and update the OPR through program verification and schematic design, or until the Cx consultant is selected. The Cx consultant will then assume responsibility for refining and augmenting 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.

For this project, the Owner is the University of Florida, Board of Trustees (UF). Primary Users and stakeholders include the Department of Chemistry, its faculty & staff, students, and visitors. The entity responsible for project management and delivery is UF Facilities Planning and Construction (FPC). The organization responsible for operation and maintenance of the facility is the University’s Physical Plant Division (PPD).

Basis of Design

The BOD records the concepts, calculations, decisions, and products selection used to meet the owner’s project requirements and to satisfy applicable regulations, standards, and guidelines. This document shall include both the narrative descriptions and specific assumptions made by the designers during the design development.

The BOD documents the assumptions the designers make as well as the reasoning behind these assumptions. This includes studies that the designers conducted to determine which building components best suit the new facility, such as type of glazing characteristics, HVAC system, etc. The studies then become part of the BOD which is compared with the OPR. For any criterion exceeding the requirements or those criteria could not be achieved, documentation detailing what was performed, its impact on the OPR, and how the OPR was modified and yet still meets the project and OPR intents shall be included. The BOD shall also address the USGBC document for its applicability to LEED certification of this project.

3D Building Information Modeling (BIM)

This project shall be designed and documented using REVIT. It is expected that the Professional build the project in virtual 3D to ensure that the builder’s real world construction process goes smoothly. The BIM shall be available to the builder and their subcontractors to assist in better understanding of the design and details for the bidding process and for construction.

17.2 OWNER REQUIREMENTS COVERED ELSEWHERE

Many components of , or related to, the OPR are covered elsewhere in the Facilities Program, including:
- Detailed project history, background, and justification – Section IV
- General planning and design objectives – Section IV
- Relationship to Campus Master Plan – Section VII
- Existing site conditions & constraints – Section VIII
- Project space types, sizes, and adjacencies – Section IX
- Finishes, M/E/P, telecomm and A/V, and acoustic requirements by space or space type – Section IX
Owner’s Project Requirements (OPR)

- Distributed and site underground utilities – Section X
- Applicable codes – Section XII
- Project schedule and budget – Sections XIII and XV

Additional requirements, expectations, and standards for UF projects are detailed in the following:
- UF Design & Construction Standards – www.facilities.ufl.edu
- UF Telecommunications Standards – http://net-services.ufl.edu/infrastructure/
- Design Services Guide – www.facilities.ufl.edu
- UF Environmental Health & Safety – www.ehs.ufl.edu

17.3 PROJECT-SPECIFIC DESIGN GOALS (from Program IV)

1. Flexibility and Future Expansion

- The facility will be designed with provisions to accommodate future staff, faculty and students over the next 10-15 years. Interior space will be designed to facilitate reconfiguration of office and laboratory spaces to meet the changing needs of the Department of Chemistry with minor renovation work. Interior areas must have the required mechanical and electrical infrastructure to support future expansion. Future expansion will be discussed during the initial phases of program verification and design phases.
- The design must also consider present and future utility requirements for the building. The professional must perform the required investigation and calculations to determine the necessary building requirement for utilities such as chilled water, steam, water, sanitary sewer, gas, electric, telecommunication, etc. If any of the required utilities is currently not sufficient, planning must take place to provide these utilities from the nearest practicable location on campus. Electrical and mechanical infrastructure shall accommodate future reconfiguration with minimal additional work.

2. Quality and Context

The site is at northern “front door” of University, and it is imperative that the Chemistry/Chemical Biology building fits as part of a seamless visual composition, while still establishing its own identity.

Owner objective is to develop a high quality Chemistry/Chemical Biology Building by applying sustainable development principles in a practical, well planned and cost effective manner that will meet:

- The occupant’s need to fulfill the mission of education and graduate research program.
- Operation and maintenance needs, featuring an easily maintainable and securable facility which has the lowest possible utility and maintenance costs
- An excellent indoor environmental quality requirement that facilitates occupants’ productivity by providing a comfortable environment while avoiding the design attributes related to poor HVAC system performance, poor space utilization, poor acoustical qualities, inconsistent interior style, and low durability finishes.
Owner’s Project Requirements (OPR)

• Owner desires to minimize environmental impacts and maximize energy savings to achieve a minimum of 6 LEED EA points and achieve LEED NC 2.2 (or equivalent number of EA points based on the new version of LEED NC at the time of application) Gold Certification. The overall facility shall be a minimum of 28% more energy efficient than required by ASHRAE 90.1-2004.

Owner wishes to make a statement with the design and construction of this building by fully complying with the provisions of the UF Design and Construction Standards as well as new design innovations that will make this building truly sustainable. Features such as water efficient plumbing, harvesting AHU condensate water for flushing use, energy efficient HVAC and lighting systems, as well as on site-energy production. Additionally, there should be movement towards becoming a “net zero building” for systems such as office & lab lighting, hot water & reheat system, and at some future point perhaps, other components of the building.

This project involves designing and building an approximately 100,000 GSF multistory chemistry building adjacent to existing buildings in the historic part of campus. The facility will feature administrative offices, classrooms, an approximate 100 seat lecture auditorium, main atrium, laboratories and supporting spaces for undergraduate and graduate programs, a computer room, common rooms, mechanical, electrical, plumbing, and fire command rooms, telecommunication, security, a loading dock, and support spaces for operation and maintenance of the building. Resultantly, the facility must facilitate functions that accommodate multiple operations which require spaces including private offices, shared spaces, storage and copier areas, meeting rooms, break rooms, etc. The number of offices, teaching labs, conference rooms, and support spaces in this building might vary during design. A preliminary space need is listed in section IX of this program.

The overall facility shall be served by infrastructure (wireless telephone and data, electricity, chilled water, etc.) that must be capable of meeting current and future requirements of all areas in the building. For example, conference rooms used for A/V presentation shall include the ability to dim/turn off lighting around the projector screen or other areas with a lighting mode to satisfy general occupancy requirement. The mechanical, electrical, controls and piping system shall be flexible and functional enough to accommodate future expansion, e.g., if we install 6 fume hoods in a lab, but might eventually expand to 10 fume hoods, the accommodations shall be available to easily perform the work after the project is completed, without having to add to tear down the existing system. Design of the HVAC system shall include efficient systems such as energy recovery devices, with the least amount of acceptable air changes in the lab areas and integration of the most enhanced control system for monitoring and adjusting purposes. All fume hoods shall be variable flow, integrated into the VAV system, and be monitored through the BAS system. Strategies such as providing direct, partially conditioned airflows to fume hoods should also be considered. The integration of the BAS system shall allow remote monitoring from a central tracking station at campus Physical Plant Division (PPD) to monitor key building systems, energy usage, preventive maintenance,
Owner’s Project Requirements (OPR)

scheduling, and distribution of required information to maintenance staff and outside service providers.

3. Storm Shelter

Due to the configuration of the interior space and its use, this building will not be used as a storm shelter.

17.4 OCCUPANCY & USE

The facility will be normally occupied from 7:30 AM (first period) to 9:10 PM (Final Period) on Mondays thru Fridays, except for Holidays. Occupancy will be primarily student, faculty and staff. The HVAC system shall be designed to allow for occupied and unoccupied periods for evenings and weekends or holidays. The design shall focus on maximizing energy savings while maintaining adequate environmental and comfort standards.

The HVAC system will bring the occupied space to within the occupied set point temperature range from 7:00 AM to 9:30 PM initially on Mondays thru Thursdays and 7:00 AM to 6PM Fridays during non-holiday periods for a total of 69 hours per week. Occupancy of the building typically consists of 70 employees and approximately 670 students (maximum during any class period minus ~15%. Requirement for department programs can be found in the owner’s directive section of this OPR.

17.5 SUSTAINABILITY and ENERGY EFFICIENCY

As part of an overall commitment to sustainability and the goal of achieving “carbon neutrality” by the year 2025, the University of Florida constructs its buildings to last and promotes environmental quality and resource conservation through sustainable design and construction. See www.sustainable.ufl.edu.

As part of that commitment, University projects must be certified by the U.S. Green Building Council (USGBC) through its Leadership in Energy and Environmental Design (LEED) process. See www.usgbc.org and www.facilities.ufl.edu/sustain.

The new Chemistry/Chemical Biology Building shall achieve LEED-NC (latest Edition) GOLD level certification to demonstrate the facility is designed, constructed and will be operated in an energy efficient and environmentally sustainable manner that will provide both valuable information to various technical personnel as well as being example for other UF buildings to follow. Specific, high-priority goals for this project include, but not limited to:

- Maximization of the HVAC credits under the Energy and Atmosphere section of the LEED rating system as a first priority. The facility shall operate at a minimum of 28% higher efficiency than ASHRAE Standard 90.1-2004.
- Provide Indoor Environmental Quality (IEQ) monitoring to include air temperature, humidity, CO2 concentration, air pollutants concentration, air flow rates, ambient noise levels, and daylighting maximization.
- Utilization of the Building Automation System and other controls to efficiently maintain and track performance of key building systems, particularly HVAC and lighting.
Owner’s Project Requirements (OPR)

- Use of low-VOC, regionally-available, and high recycled content materials.
- Adoption of “daylight harvesting” to minimize electric lighting usage where functionally practical.
- Incorporation of solar energy techniques, strategies and products while maintaining the roof and building envelope’s watertight integrity.
- Provide infrastructure for future renewable energy to meet at least 10% of annual electrical energy of the building such as lighting, water heating, reheat system, etc. as described above.
- High efficiency lighting, T5s (calculations and variance from UF Standards are required) and T8s shall be used in an appropriate manner to reduce lighting power densities by 25% to 35% as compared by ASHRAE 90.1. Utilize daylighting strategies wherever applicable for the new building labs, offices, etc.
- Wall occupancy sensors shall be installed in office areas. Ceiling occupancy sensors with light switch shall be installed for conference rooms, laboratories, support areas and other public areas to efficiently control lighting usage in accordance with the demand. Override light switches will be placed in a location not accessible to the general public.
- Utilization of FSC-Certified wood.
- Other sustainable initiatives and design innovations as applicable for this building.

The Basis of Design (BOD) shall establish specific plans and strategies for achieving these goals, and the construction documents shall include requirements for LEED submittals and sustainable construction practices and techniques, including:
- Segregated collection and recycling of construction waste
- Proper erosion and sedimentation control techniques
- Procurement and use of low-VOC, regionally-available, and high recycled content materials

During initial phase of program verification, the project team and the FPC LEED Coordinator will establish a LEED Matrix with estimate of probability of securing each credit – Low, medium, or high. During the conceptual schematic design, the project team will review and update the initial LEED spreadsheet in order to firmly establish sustainability goals for the project. The matrix will be continuously maintained by the University and the design / builder group throughout design and construction as a guideline for achieving the goals.

**Progress Energy** – the University’s primary electric and steam provider – has established a rebate program for certain components of new construction that meet energy efficiency requirements, including:

---

UF-323 CCB  
XVII-6
Owner’s Project Requirements (OPR)

- lighting
- motors
- energy recovery ventilation
- solar, green, or cool roofs
- demand control ventilation
- compressed air system
- high efficient chillers
- occupancy sensors
- thermal energy storage

To verify compliance and confirm which rebates apply to this project, Progress Energy will review the 100% Construction Documents and final energy model and will inspect the building at completion. Specific portions of the final MEP drawings/schedules, energy model, and other information will be used by Progress Energy to perform calculations necessary to determine the rebate for each project. The University expects all components of this project/building to be the most efficient and highest quality systems in order to qualify for these rebates.

17.6 BUILDING SITE
See “Other University Planning and Design Objectives” in Section IV of this Program.

17.7 TRANSPORTATION & PARKING
As part of this project, approximately 100 parking spaces will be eliminated from the current parking location and must be mitigated. Many of the parking spaces would have to be temporarily relocated during construction until a permanent resolution is implemented. The students, faculty and staff currently have the opportunity to utilize the RTS bus transportation and will be further encouraged to use this alternative form of transportation when construction of this facility commences. Additionally, this project will design and install the required bicycle racks to accommodate for the building’s use by the public and at minimum in compliance with LEED NC SS c4.2 or latest version at the time of application to USGBC. This project will provide the required ADA, visitor and service vehicle parking spaces near the building. Also see additional information in the Exhibit “A” of this Program, under Transportation and Parking Advisory Committee regarding the recommendation of the committee for this project.

17.8 BUILDING ENVELOPE
The exterior shall be designed to last for at least 75 years. Selection of materials and detailing of envelope systems shall be consistent with the Florida Building Code and UF Design & Construction Standards; adhering to these standards should allow the building to withstand weather conditions typical of North Central Florida and present aesthetics consistent with the area of campus where the facility will be constructed.

Prevention of moisture intrusion is a high-priority goal applicable to all project team disciplines.

Solar transmission shall be controlled and designed in accordance with ASHRAE Standard 90.1-2004 through high-performance, lowest-e glazing, overhangs and external shading, and other techniques to minimize solar heat gain and maximize light transmittance for daylighting where functionally practical.
Owner’s Project Requirements (OPR)

Spaces in this building where daylighting is not functionally practical include walk in coolers, dark rooms (if any), etc.

Roofs – anticipated to be pitched clay tile roof and if necessary, partially flat for the mechanical penthouse area - shall have a minimum reflectivity as set forth in LEED NC SS c7.2. No mechanical equipment shall be visible on the roof system.

17.9 INDOOR ENVIRONMENTAL QUALITY

1. Indoor Lighting and Lighting Controls

Wall occupancy sensors shall be installed in office area. Ceiling occupancy sensors with light switches shall be installed in conference rooms, laboratories, support areas and other public areas to efficiently control lighting usage in accordance with the demand.

All other spaces with no occupancy sensors shall have “time-of-day” lighting controls with temporary overrides located at the thermostat which places the HVAC and lighting system into occupied mode.

2. Thermal Comfort

Mechanical system shall deliver the performance required to maintain comfort within specifications set forth by University of Florida Standards. The HVAC system will be capable of providing outside air volume which meets the ASHRAE Standards as outlined above and maintaining the necessary level of building pressurization. Humidity level in the space must be maintained such that it never allows condensation to form on HVAC equipment or any other building components or elements such as piping, interior glazing, etc.

Building HVAC shall be designed to contribute to overall building energy efficiency goals as defined in this document. The HVAC system shall have a low life-cycle cost and shall be capable of providing an excellent indoor environmental quality to facilitate occupant’s productivity, while minimizing maintenance requirements. The HVAC system shall support future reconfiguration of offices and labs to meet changes of the organization with minimum HVAC modification needed to maintain comfort associated with indoor environmental quality.

- The HVAC system shall be designed to provide required cooling and heating to meet varying load requirements while maximizing energy efficiency.
- HVAC system shall be zoned to maximize comfort while minimizing cost of operation.
- Effectively maintain building pressurization and humidity control 24/7.
- Provide at minimum MERV 13 air filtration and locate fresh air intakes out of the path of common local contaminate. As an option for considerations by PPD, provide information on ionization product filters with benefits in energy reduction and maintenance requirement.
- Building occupancy schedule for HVAC system will be easily modified by zones. System must be designed so PPD, not the users, make these modifications.
Owner’s Project Requirements (OPR)

- Provide energy use, demand and environmental data for PPD via BAS.
- All MEP systems and components must be accessible for maintenance.
- Separate HVAC systems for office areas and teaching lab areas.
- Consider use of solar power for building heating / re-heating requirements. Provide cost and savings.

3. Ventilation and Filtration
   This section is covered under item 2 above.

4. Acoustics
   The design should utilize strategies to reduce road noise in building spaces facing University Avenue. Noise levels could be reduced by a variety of strategies, including the placement of exterior noise barriers and utilizing sound absorbing Low E glass for north exterior. The professional shall decide the best and most economical means for achieving the acoustical requirements of this building. Sound proofing and acoustical treatments should be incorporated in the design and construction of all private offices, small group sessions areas, conference rooms, and specific laboratories requiring acoustical treatments to prevent sound transmission to adjacent office, corridors, or other space in the building. Do not design bathrooms adjacent private offices, conference rooms or lecture rooms. The design should mandate steps to reduce the roof exhaust fan noise to an acceptable dB, especially in between the buildings on the south and east portion of the new Chemistry/Chemical Biology building and also from any level on outside grounds. The acoustic engineer shall discuss all acoustical criteria with the Owner users and project manager during design.

5. Accessibility Requirements
   The building shall be designed to meet all ADA requirements. A meeting shall be held with the UF ADA representative to go over all aspects of the design during each phase.
   Systems requiring routine maintenance, such as HVAC, shall be designed to provide adequate access and clearance for all the maintenance tasks (i.e., filter access, sufficient space to remove / replace system components such as coils, fans, motors, valves, controls, etc.) while minimizing interference with staff, faculty, students, and building operations. Systems must be designed with the consideration that maintenance activities will occur during normal business hours.

6. Health, Hygiene, and Indoor Environmental Requirements
   Creation of good indoor environmental quality requires that coordination of many design parameters and construction activities, including acoustic quality, ventilation rates, and materials used to construct the facility, installation sequence, and other parameter that may affect occupant comfort. Also see EH&S website for further information.
Owner’s Project Requirements (OPR)

The following are the known activities that generate pollutants in / near the facility that impact the health, hygiene, and indoor environments of occupants and the countermeasures which will be utilized during the construction process:

Specifically:

- Non-toxic caulk, paint, adhesives, sealants and cleaning products shall be used. Paint surfaces that have frequent contacts must be durable and may require other types of paint. Refer to UF Design and Construction Standards for paint material specification.
- Smoking or the use of smokeless tobacco will be prohibited within the building footprint during construction activities. Smoking will only be allowed a minimum of 50’ from the nearest campus building and outside the foot print of the new building.
- Procedures during construction shall be implemented by the construction manager and the contractors to minimize the construction related contaminants in the building. These procedures include activities such as control of moisture, dust, regular cleaning activities, and protection of delivered equipment and material before and after installation, start of HVAC systems.
- Building material should be stored in a weather tight, clean area prior to unpacking for installation.
- Accumulation of water during construction should be avoided and any porous construction materials such as insulation, drywall, etc. should be protected from moisture. Should these materials found to be wet, they shall be replaced at no cost to Owner.
- The location for this building is in a historic part of UF campus and is very visible from the main traffic road and adjacent buildings. Dust in construction area shall be suppressed with wetting agents or sweeping compounds. Also see EHS website for additional information regarding dust control.
- Any finish material that emit VOCs during curing shall be installed during non-business hours to minimize the chance of breathing by others working in the area and scheduled prior to installation of any absorbent material such as ceiling tiles, carpets, wall insulation, gypsum products, fabric covered furnishing, etc.
- The facility (non-lab and support lab areas) shall be pressurized as required.
- OA intakes shall not be accessible from grade.
- OA intakes shall be located at great enough distance so pollutants emitted from the labs, general and bathroom EFs or any other harmful emissions are not mixed with outside air entering the HVAC system.

7. Vibration Requirements

Prevent occupants adjacent to any HVAC equipment and corridors, chases, roof, etc. from sensing vibrations from structural deflection as a result of occupant traffic and equipment operation.
Owner’s Project Requirements (OPR)

Scheduling of any portion of the construction that would cause any type of vibration to adjacent buildings must be considered for off hour periods, especially during class and testing periods. It is expected that the construction manager will coordinate all activities and will provide a monthly schedule to be presented to appropriate occupants of adjacent buildings showing approximate level of vibration (and noise) for all conditions at all time during the construction. Each of the monthly schedules shall be updated on a weekly basis, showing the next four weeks of activity.

17.10 EMERGENCY or BACKUP POWER
The Chemistry/Chemical Biology building shall be equipped with the required emergency power generator system which will provide power for all necessary systems, equipment, instruments, and lighting in the building. Do not design an emergency power system on the roof.

Note: Campus Chilled Water loop system will be utilized for this building for cooling requirement. This system is not equipped with emergency power.

17.11 TELECOMMUNICATIONS and AUDIO/VISUAL SYSTEMS
Wireless access shall be provided throughout the building and at any defined outdoor gathering spaces. Also see section XI of this facilities program. University of Florida Academic Technology (UFAT) will provide the A/V design, A/V equipment and material purchases, and labor for installation of all A/V wiring, equipment, testing, and warranty for the building A/V system. The design professional will coordinate with UFAT during the design process to ensure that proper rough-ins, raceways and back boards are included as part of the building design which will be installed by the builder prior to any A/V work by UFAT

17.12 SECURITY
Security system (“Lenel” is the approved University security system) shall allow individual user unique access profiles. Security and surveillance provisions at all building entrance and exits will allow approved visitors, employees, and students access to building 24/7. CCTV monitoring system will be provided at main entrance(s) into the interior and around the buildings’ exterior between the buildings on the east and south sides. The security system shall be maintain an access log which records profile of the people entering the building during after hour period with the time of entrance and exit.

The building security system shall be seamless with occupants requiring only a single access card to enter all secured doors (the areas to which the card is assigned) for which they have permission to enter.

Refer to UF Access Control System Standards for further information prior to start of the access control design.
Owner’s Project Requirements (OPR)

17.13 HAZARDOUS MATERIALS

Refer to www.ehs.ufl.edu, Environmental Health & Safety website for information regarding Hazardous Materials.

Material, chemicals or procedures to be utilized in the new facility will be discussed during the early phase of the design with the Users. For the existing building, all available and known information will be provided during the design and a in meeting with EH&S. As an example, the abandoned steam line which will be removed would probably contain ACM which must properly be disposed of during the site work.

17.4 FURNISHINGS & EQUIPMENT

All casework and fixed equipment will be shown with solid lines on drawings and will be furnished and installed by the Builder as Contractor Furnished and Contractor Installed (CFCI). If wood is used for any portion of the casework, millwork, storage cabinets, etc., certified wood is preferred for this work.

All building movable furniture (e.g., office furniture) and movable laboratory equipment or instruments will be shown as dashed lines on the drawings and will be purchased and installed by the Owner as owner Furnished and Owner Installed (OFOI). The Professional shall accommodate all necessary utilities, space, etc. for all user OFOI equipment. The installation of the OFOI items will be during the period between the substantial and final completion of the project. The delivery and installation will be coordinated with the Builder. As part of the project, Owner may request all power, data etc. for modular furniture or gas piping and hard electrical connections for certain OFOI equipment (example: gas tank connection to CFCI manifold system, or Biosafety Cabinets (if any) connections and so on) to be completed by the Builder as additional cost.

17.15 COMMISSIONING, INSPECTION, and QUALITY ASSURANCE

The Commissioning (Cx) consultant will be selected prior to completion of the Conceptual/Advanced Schematics phase and will be responsible for:

- Maintenance of this OPR
- peer review of the design and construction documents
- development of the project-specific Cx specification using the University’s template “non-technical” spec
- development of the project-specific Cx Plan
- construction and acceptance phase commissioning and documentation
- development of the facility’s Systems Manual
- Post-occupancy commissioning, testing, and documentation.
  - Comply with LEED NC, EA c3.

Refer to Cx Contract for additional information.

It is anticipated that the following building systems will be commissioned:

- Mechanical and HVAC systems
- Electrical (including generator) and lighting systems
- Domestic hot water systems

UF-323 CCBB

XVII-12
Owner’s Project Requirements (OPR)

- Building envelope systems
- Building Automation System
- Others as required by the design
- The distributed utilities system employed on the main UF campus may necessitate partial commissioning of the energy plant(s) serving the new facility and/or collection of energy efficiency data from PPD. See the USGBC document entitled “Required Treatment of District Thermal Energy in LEED-NC version 2.2,” dated 5/22/08.

Onsite inspection of life safety, code compliance, and ADA-related items will be conducted by the University’s Division of Environmental Health & Safety (EH&S) and the State Fire Marshal. See www.ehs.ufl.edu for more information.

Onsite inspection of systems and components governed by the UF Design & Construction Standards and the UF Telecommunications Standards will be conducted, respectively, by the University’s Physical Plant Division (PPD) and Office of Information Technology (OIT). The detailed scope of Cx services shall complement these inspections to eliminate gaps or “double coverage” in field oversight.

Threshold Requirements

The facility is anticipated to be a “threshold” building as defined by the FL Building Code. The University will hire a qualified “Special Inspector” to perform the onsite inspection and oversight services required for this “threshold” facility.

17.16 CONSTRUCTION COMPLETION and TURNOVER

Inspection, testing, and commissioning culminate in a declaration of Substantial Completion by UF. This date establishes both the beginning of the warranty period and commencement of operation and maintenance by UF. Details on the closeout of major projects can be found on the FPC website.

Move-in of occupants and their personal belongings will not take place until all Substantial Completion “punchlist” items are completed.

Prior to the Substantial Completion Inspection request, the items detailed at the FP&C website, http://www.facilities.ufl.edu/docs/SCProcess/CloseoutDeliverables.xls, must be turned over to Owner

Once these items are provided, the Owner will review each document and will sign off the Certificate of Substantial Completion in orders listed below:
- UF Project Manager
- UF Building Committee Chair / User Representative
- UF Environmental Health & Safety Director
- UF Physical Plant Division AVP
- UF Facilities Planning & Construction AVP

Starting from the date of Substantial Completion for this Project, the Builder has specific number of days per schedule (See Section XIII) to complete all punchlist provided by all inspectors. Additional punchlist
Owner’s Project Requirements (OPR)

might be added to the list during this period as they are identified. The movable equipment & furniture will be installed in offices, labs, conference rooms and other appropriate locations during this period.

Prior to requesting the Final Completion inspection, the items detailed at the FP&C website, http://www.facilities.ufl.edu/docs/SCProcess/CloseoutDeliverables.xls, must be turned over to Owner.

Move-in of occupants and their personal belongings will not take place until final completion of the building.
During the punch list work period, the IEQ testing shall be performed in the building by Environmental Health & Safety.

17.17 OPERATION & MAINTENANCE
The entity responsible for maintenance and operation of the Chemistry/Chemical Biology building and its systems, is Physical Plant Division (PPD) for Education and General (E&G) Buildings.

Operation and Maintenance Criteria will be established by the project team based on the requirements of the installed equipment. PPD will monitor, maintain, and perform preventive maintenance on the building systems and building envelope. To ensure that maintenance can be easily performed without compromising class and lab schedules as a result of maintenance-related activities, the following maintenance issues must be considered during the design:

- Designers are to ensure sufficient access and clearances are provided by the design to perform the routing maintenance tasks. These access areas shall be outside of student, faculty and staff work stations.
- Builders shall use 3D coordination drawings for the installation of building material and components so as to not to limit the space available for subsequent maintenance and service. No deconstruction should be required to provide adequate service space.
- Systems manuals shall include any changes made to components and systems after substantial completion and shall include the final set points established through the Cx process. Updated as-built drawings which detail these subsequent changes must be provided to PPD as the changes are made.

In addition to the Cx Plan, field reports, and test reports, the Cx consultant’s primary deliverable is a Systems Manual as required for LEED E/A Credit 3 (Enhanced Commissioning). This manual provides the University with a single source of information and instructions for proper operation and maintenance of primary building systems. As opposed to equipment-oriented “O&M manuals,” the Systems Manual is to be systems-oriented to provide operators with easy access to both narrative and technically detailed reference material, descriptions, diagrams, schedules, and other information on stand-alone and, particularly, integrated systems.

Like the OPR and BOD, the Systems Manual will be a living document. Unlike the OPR and BOD, though, the Systems Manual should evolve throughout the life of the building—complied by the Cx from documentation developed by the owner, design team, contractors, and the Cx process itself, then
Owner’s Project Requirements (OPR)

turned over for perpetual use and upkeep by building operators and future consultants and contractors throughout the building's life.

Maintenance and replacement costs must be considered over the life of the facility and sections of materials will be based on minimizing life cycle costs. Design of mechanical, electrical, and plumbing systems shall allow required maintenance and replacement of key system components to be performed without deconstruction. All systems and their components shall be easily accessible for adjustments to the respective system components. Access to building exterior, specifically on the south and east sides of this new building shall be provided in such a way to allow easy maintenance, repair, replacement of building exterior including windows, sealants, etc.

17.18 OWNER TRAINING

PPD will provide the preventive maintenance after building acceptance in addition to required repairs after the warranty period. PPD personnel must receive detailed training of all systems so these systems can be properly maintained. The training provided will educate the PPD staff on systems and assemblies which will be installed in the facility. Training will include the education of multiple members of the PPD staff in the proper use of monitoring system

Training shall include a description and overview of system components and locations, safety provisions and concerns, as well as normal operating and energy conservation procedures. Training shall also include a review of the written O&M instructions, discussion of relevant health and safety issues or concerns, discussion of warranties and guarantees, discussion of common troubleshooting problems and solutions. Hands-on training shall include start-up, operation in all possible modes (including manual, shut-down process and any emergency procedures) and preventive maintenance for all pieces of equipment. Training is a progressive on-going process which will occur during construction and after substantial completion inspection, but prior to final completion inspection. A final training exercise will be conducted for special systems on site before Owner occupancy. This is typical of training exercise for all components of the building.

The intent of training is to clearly and completely instruct the Owner’s PPD Staff and Users on all capabilities of the mechanical, electrical, plumbing, controls, fire protection, elevators, and all other equipment requiring maintenance. Training will also be conducted on user-specific equipment (autoclave, walk-in coolers, etc.). It is not expected that the attendees will memorize everything from the training sessions, but that they know where the information is, can find it and understand sufficiently how to walk through the key steps to troubleshoot the problem and resolve it. For this project, FP&C requires that all sessions be video taped and converted to DVD format for Owner’s use as part of the deliverables prior to project final completion. Relevant training will be witnessed and documented by Commissioning authority; the contractor will develop and execute the training program. All person performing tasks related to building operations and maintenance shall receive the required
Owner’s Project Requirements (OPR)

number of hours training related to building systems to comply with the latest LEED requirement at the
time the training is conducted.

Building systems that PPD shall be trained on includes, but is not limited to:
- HVAC / Mechanical Systems
- BAS/controls
- Electrical systems including Emergency Power system
- Lighting controls
- Audio/Visual System
- Security System
- Fume hoods and Biosafety Cabinets
- Elevators or Wheel Chair Lifts
- Other systems as appropriate

Building systems that the occupants/users shall be trained on include but not limited to:
- Lighting controls
- Audio/Visual System
- Security System
- Walk In Coolers
- Autoclaves
- Fume Hoods and Biosafety Cabinets
- Other systems as appropriate

Warranty Requirements
Generally, the warranty period provided by the Construction Manager, equipment suppliers, and all trade contractors for building materials and systems are for a period of one year after substantial completion acceptance. However, some specific systems have longer warranty periods through either of the trade contractor or the manufacturer.

As-Built Requirements
As-built drawings will provide accurate information in an understandable drawing technique which allows future contractors to perform construction tasks. For this project, maintain and submit as-built in accordance with the procedure detailed at the FP&C website, http://www.facilities.ufl.edu/docs/SCProcess/CloseoutDeliverables.xls. If modifications are made, mark the contract drawings to show the actual installation when installation varies from that shown on the conformed set of contract drawings. Include a cross reference on contract drawings to identify that a modification has occurred. Identify and date each record drawing. Record and check mark ups before enclosing concealed installation. It is important to understand that the construction manager is responsible to maintain a continuously record of the redlined as-built on site to be reviewed by the CA and CxA during construction in a monthly basis and the Professional is responsible to provide the final hard copies and electronic CD of the as-built to the Owner.
17.17.1 POST-OCCUPANCY

The Professional shall ensure that final completion construction deliverables are documented, coordinated, assembled and delivered to the Owner in accordance with the FP&C Closeout Deliverables matrix.

During the warranty period, the Professional and Builder shall respond to Owner’s request to review design and construction issues. The Professional and Builder will also coordinate and participate in the end of warranty period inspection in accordance with the University of Florida Design Services Guide for Professional and General Terms & Conditions of the Contract for the Builder. The Professional and Builder will produce a summary report documenting deficiencies, problems or other outstanding items. All deficiencies discovered will be corrected at no additional cost to the Owner.

The Cx consultant, CM/GC, and all subcontractors whose systems were commissioned shall meet with the Owner’s O&M staff quarterly during the first year after Substantial completion to offseason test, optimize, and otherwise troubleshoot all commissioned systems.

The Cx agent shall also provide a list of warranty issues at the 10 month milestone and provide a copy to the Owner, Professional and Builder to review and immediately perform corrective action as required. A final commissioning report shall be produced and distributed at conclusion of the warranty period to document the final result of Commissioning.

END OF OPR