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Purpose of the Manual
Purpose of this Manual

The purpose of this manual is to provide organizational direction, procedures, and tools for the University of Connecticut Storrs & Regional Campuses - Architectural and Engineering Services and the University of Connecticut’s Health Center Campus Planning Design and Construction Department – as they support, coordinate and comply with University Plant Accounting and Capital Projects and Contract Administration regarding the procurement, management, and control and reporting related to capital projects.

A key driving force of this document is the need to re-assert Architectural and Engineering Services’/Campus Planning Design and Construction’s role as “owner” on behalf of the University for the expansion and refurbishment of University building stock and other construction related projects as they occur. In support of the University’s mission, it is important that these groups reinforce their leadership position, within the University for all development, design and construction tasks that the University may perform. In addition, Architectural and Engineering Services (AES)/Campus Planning Design and Construction (CPDC) can minimize the potential delay and cost of recent oversight mechanisms that have been put in place by implementing procedures that encourage the transparency of its operations, and incorporate accountability and auditability of its practices into the normal course of business. This manual, as it evolves, will provide the basis for institutionalizing these principles and for putting them into practice.

While it is intended that this manual be a robust collection of evolving process and procedure documents, tools, and guidelines, it should be understood that it must be implemented by a team of experienced, well-trained personnel whose expertise and judgment are critical to its successful interpretation and application. In addition, the roles of AES and CPDC within the University require regular, sometimes daily, interface with other University departments in a team environment. The procedures provided herein should be all inclusive with respect to providing complementary procedures for other University departments. Where such formal procedures are not documented, these Departments procedures are based upon current practice.

This manual may be used for several other purposes. It should be used as part of a training and employee development effort for current AES/CPDC personnel, for the orientation and training of new personnel, for the purpose of organizational evolution and development, and as the basis of creating a Quality Management culture of continuous improvement. As such, the manual is not envisioned as a static document, but as an evolving one that grows and changes as the Capital Program, the needs and sophistication of its users, and the University grow and change.

In order for this manual to work in the best interests of the University AES/CPDC management must have the opportunity to use judgment, in concert with other stakeholders, while operating within the intent of these procedures, where unique project requirements dictate. In the interest of accountability and auditability, such actions and the reason for same must be well documented.
The Mission and Purposes of the University of Connecticut - Architectural and Engineering Services

The mission and purposes of Architectural and Engineering Services are to support the mission and purposes of the University of Connecticut. The University’s mission and purposes are repeated here for reference.

University – Mission, Values and Goals

The mission of the University, as articulated by the Board of Trustees on June 20, 2006, is as follows:

“The University of Connecticut is dedicated to excellence demonstrated through national and international recognition. As Connecticut’s public research University, through freedom of academic inquiry and expression, we create and disseminate knowledge by means of scholarly and creative achievements, graduate and professional education, and outreach. Through our focus on teaching and learning, the University helps every student grow intellectually and become a contributing member of the state, national and world communities. Through research, teaching, service and outreach, we embrace diversity and cultivate leadership, integrity, and engaged citizenship in our students, faculty, staff and alumni. As our state’s flagship public University, and as a land and sea grant institution, we promote the health and well-being of Connecticut’s citizens through enhancing the social, economic, cultural and natural environments of the state and beyond.”

An excerpt of the vision articulated in the same document follows:

“The University of Connecticut will be perceived and acknowledged as the outstanding public University in the nation – a world class University.”

The University of Connecticut values, articulated in the same document, are as follows:

• We believe that there are certain central elements to our existence as a University.
• We are all members of the community.
• We must provide a challenging academic environment.
• We must foster intellectual and artistic curiosity and creativity.
• Education must be a lifelong pursuit.
• We apply the standards of excellence, quality and relevance to all we do.
• Enhancement of happiness and fulfillment of each member are important.
• We value academic freedom and debate.
• Teaching, research and service are our primary missions and are interrelated.
• We must have all members of the community participate.

An excerpt from the Goals of the University articulated in the same document follows:

• Serving as a center for learning
• An organization focused on outcomes and a shared vision
  - Focus administrative functions on serving the educational mission in the largest sense, establishing procedures that help rather than hinder achieving that mission
  - Assert its authority to establish and achieve objectives and will be accountable for outcomes
  - Achieve financial responsibility for its own destiny
• A commitment to Connecticut and to the world
Mission Statement - Architectural and Engineering Services

Architectural and Engineering Services will provide proactive, professionally managed leadership to plan and implement quality, cost-effective, long and short term facility solutions that enhance the mission of the University, embrace our partnership with our community, and ensure proper treatment of University land, natural resources and the environment in the process.

Our Values

- Act ethically and legally in compliance with all policies, regulations and laws
- Act with pride, integrity and professionalism
- Follow Architectural and Engineering Services’ policies and procedures and those of the University
- Be responsible and accountable for project performance goals and outcomes
- Insist on safe working conditions for students, staff, contractors and visitors
- Function as an efficient and supportive team leader and ensure collaboration
- Approach project challenges with creativity, respecting the ideas of others
- Balance the diverse needs and wants of the University against available resources
- Make the process satisfying and enjoyable

Success Definition and Measurement

Project performance goals and outcomes will be set and measured as follows:

- **Cost** – Deliver projects of value within justifiable budgets
- **Schedule** – Deliver projects in a timely manner
- **Program Performance** – Deliver projects that meet the expectations of the end user and other stakeholders
- **Documentation** – Manage projects so that all actions, decisions, and outcomes are readily trackable and traceable
The Mission and Purposes of the University of Connecticut Health Center

The mission and purposes of Campus Planning Design and Construction is to support the mission and purposes of the University of Connecticut Health Center. The Health Center’s mission and purposes are repeated here for reference. The University of Connecticut Health Center is dedicated to helping people achieve and maintain healthy lives and restoring wellness/health to maximum attainable levels.

“In this quest, we will continuously enable students, professionals and agencies in promoting the health of Connecticut’s citizens. We will consistently pursue excellence and innovation in the education of health professionals; the discovery, dissemination and utilization of new knowledge; the provision of patient care; and the promotion of wellness.”

The Vision of the University of Connecticut Health Center is to be nationally recognized for improving the health of the citizens of Connecticut through innovative integration of research, education and clinical care.

“We will be admired nationally for the quality of health professionals we train. We will be viewed as a model for the integration of the latest knowledge into the provision of healthcare and disease prevention and for transferring what we have learned into the community. Our research will be relevant, contributory and transforming. Our Signature Programs will have a national reputation based upon translational clinical research, such that patients from a broad geographic area will seek out UConn Health Center for prevention, diagnosis and treatment. Regionally, we will have a strong reputation for utilizing the most effective care practices as well as maintaining the highest levels of patient safety and satisfaction, leading patients to consistently choose the UConn Health Center medical and dental clinical services over other providers. The best students will want to attend our schools and the most skilled faculty and staff will want to join our organization. We will be an indispensable partner to the State in healthcare policy development. We will make significant contributions to the improvement of the health of Connecticut citizens, particularly in underserved communities. We will be financially strong.”

The University of Connecticut’s Health Center’s Values are as follows:

- Recognize and support excellence
- Realize the maximal potential of our students, faculty and staff
- Promote professionalism, compassion, diversity and social responsibility
- Promote innovation in discovery, education and health care delivery and health promotion

A few of the Health Center’s Goals are as follows:

- Be nationally recognized as the school that best prepares healthcare professionals for their respective roles, now and in the future.
- Be regionally recognized for having the highest levels of patient safety and for consistently integrating best practices and assimilating the most current medical and dental knowledge into the care we provide.
- By 2020, be nationally recognized in selected areas of biomedical and translational research, particularly within our Signature Programs.
- Develop models of health care, disease prevention and health promotion and outreach programs that meaningfully improve the health of underserved populations.
- Be a leader in the provision of competency-enhancing continuing education to Connecticut’s medical, dental and public health professionals, advancing best practices of care and knowledge of healthy behaviors.
• Make a unique and valuable contribution to the understanding of disease and the promotion of wellness through research in fundamental biomedical, clinical and public health sciences.

• Be nationally recognized for the quality of care we provide particularly in our Signature Programs.

• Develop an efficient and effective organization that achieves levels of profitability that will sustain and enhance the institution and enable it to attract capital to invest in the advancement of its priorities.

• Be the employer of “first choice” in our region for people who want to be part of a caring, committed, talented and diverse workforce dedicated to advancing health and wellness for the people of Connecticut.
Guiding Principles for Policies and Procedures

Regardless of project size, The Procedures Manual must assure the following:
• **Compliance** with legislation; University-wide policies; national, state, and local codes and regulations; and other University departmental policies and procedures.
• **Clear accountability** in a transparent environment, welcoming oversight to achieve improvement, and as an expression of pride in our work.
• **Auditability** of all commitments, decisions, actions, authorizations, and transactions, and process checkpoints
• **Efficiency** with both time and resources.
• **Quality buildings and infrastructure** that support the mission of the University and the departments within; buildings that are safe, maintainable, and are designed, constructed, and commissioned for their intended life cycle.

In general, procedures, within an organization like AES and CPDC, or even within the University at large, fall into several categories that are not mutually exclusive:
• Well documented, well accepted
• Not documented, well accepted
• Conflicting procedures among departments
• Work-around procedures by individuals – methods not documented nor broadly accepted
• Procedures that represent standard/industry practice or best practices brought by individuals
• Standard practices that represent “good” practice within the industry or user community
• Best practices that represent the results of documented research into what the best organizations do with results measured in an objective manner

For this manual, the short-term goal of the University is to have its procedures well documented, well understood, and with a minimum standard of “good” or “industry standard” for documented practices. In the longer term, in accordance with the University’s vision to be a world class University, it is expected that all procedures will represent the implementation of world class, best practices.
Life Cycle Orientation

The scope of this manual is limited to the project delivery process. However, the project delivery process is just a portion of the total cycle of a facility’s life for the purpose of asset management with respect to the total cost of ownership. This is important because stewardship of the University’s facility assets is only partially controlled by Architectural and Engineering Services and Campus Planning Design and Construction. Therefore, coordination between other departments and entities, such as plant operations and the Building and Grounds Committee or the Health Center’s Space Management Committee, is critical on a University-wide basis. This cycle is generally represented below:

![Asset Lifecycle Diagram](image)

Total Cost of Ownership Management
Project Request

The purpose of this section is to establish the procedure that defines the entry point into Architectural and Engineering Services (AES) and Campus Planning Design and Construction (CPDC) for new project requests or technical issue resolution, regardless of scope, size or funding source. AES and CPDC provide a full range of services that includes planning, design, implementation planning (estimating & scheduling) and construction implementation. Some end users seek one or more of the services, e.g. design only, or want the full suite of development services that take a project from planning through turnover to the end user. UCONN 2000 projects require specific procedural compliance and are subject to specific oversight by the University Construction Assurance Office. Full service implementation by AES and CPDC on these projects assures compliance with the Policies and Procedures of the University and all relevant statutory regulations.

When contact is made with AES or CPDC by an end user, the end user need is documented on a Project Initiation Form, and then discussed to determine if all the ingredients are present for a feasible and successful assignment/project. If a project is deemed ready to pursue, it proceeds to the Project Initiation phase (Procedure 110). If the project requires significant revision in concept or support, or should be rejected or delayed for some other reason, the AVP of AES or designee or the AVP of CPDC or designee, informs the end user of the concerns and may propose an alternate approach.

Tasks

- Review project goals
- Review and discuss general project consistency with the University’s Academic Strategic Plan, Master Plan, and relevant documents that address the University’s overall academic objectives and goals
- Identify potential concerns and issues regarding project scope, budget, schedule, and feasibility
- Review Request with End User
- Request Project Number from Plant Accounting
- Enter Project into FAMIS

Deliverables

- Signed Capital Project Initiation Form

Notice/Review/Approval/Informed

Storrs – Regional Campuses

- A – AVP AES or designee
- A – AES Director

UCHC

- A – AVP CPDC or designee
- R – CPDC Director or Asst. Director

Resources

- Strategic Plan for the University of Connecticut
- Storrs Campus Master Plan
- Regional Campus Master Plans
- East Campus Plan of Conservation and Development
- East Campus Plan of Conservation and Development
- Campus Sustainable Design Guidelines
- Campus Wayfinding
- University of Connecticut Planning and Design Standards
- Health Center Campus Master Plan
Project Initiation

The purpose of this phase is to develop a conceptual project plan, including scope and budget, that is tested for feasibility against University plans, resources and constraints, and is sufficient for submission to the B&G and the BOT for “Planning Budget” approval (as University Approval Policies dictate). Management of this phase is the responsibility of the AES AVP or designee and the AVP CPDC or designee. The procedure requires the Director to determine whether or not the project plan can be completed using AES/CPDC professional resources or whether it requires the assistance of outside professional resources. Within this procedure, the method for acquisition of outside professional help is defined.

The procedure then requires a review of the project with the initiator before continuing to the next steps of University Approval, if required, and the performance of design and/or construction, depending on the scope of the project. This phase concludes with an approved planning budget if the project is expected to exceed $500,000.

Tasks
• Assemble project team, select PM.
• Determine if internal AES/CPDC resources are sufficient to prepare Project Plan. If not, procure outside professional services required for the task
• AES/CPDC leads the preparation of a Project Plan that includes:
  − Conceptual Scope
  − Project Implementation Plan
  − Total Project Budget
  − Funding Source Identification
  − Preliminary Schedule
  − Preliminary Cost Risk Assessment
• The Project is tested against the University Master Plan, Academic Plan, Space Plan, and Capital Plan including all UConn 2000 plans and criteria, and availability of funding sources
• AVP AES or designee/CPDC AVP or designee reviews the Project Plan with the Initiator for agreement to proceed.
• Prepare “Planning Budget” for BOD/BOT approval for projects above $500,000.

Deliverables
• Project Plan
• BOD/BOT resolution for “Planning Budget” approval

Notice/Review/Approval/Informed
Storrs – Regional Campuses
• R – AVP AES

Resources
• University of Connecticut Capital Project Delivery Process
• Storrs Campus Master Plan Update
• Regional Campus Master Plans
• East Campus Plan of Conservation and Development
• Campus Sustainable Design Guidelines
• Campus Way finding
• UCHC Campus Master Plan
Planning & Programming

The purpose of the Planning and Programming Phase is to further the development of project scope and the approach to project execution in the interest of increasing confidence in the project plan (budget/cost, schedule, program, compliance, logistics and moves) as the first step of the design process. This is accomplished by refining the project plan, defining team members and preparing a detailed project program, formal budgets and schedules, and identifying risks.

At the end of this phase, the Program and the Revised Project Plan are formally reviewed by AES/CPCD with the Initiator/End User to ensure that project expectations will be met with regard to program, cost schedule, construction logistics and anticipated occupant/equipment moves.

Tasks
- Develop Project Team
- Procure outside Professional Services; Notify in house resources of their need & conditions of participation
- Develop the Project Program; Develop conceptual building or implementation solutions
- Confirm Budget and Schedule
- Review Construction Logistics and Occupant Moves
- Identify Cost and implementation Risks
- AES/CPCD meets with Initiator/end user to confirm project parameters
- Refine Project Plan as required
- BOT for revised budget approval, if required
- Identify Regulatory Compliance issues
- Identify Green Building requirements
- Interaction with Facilities Operations

Deliverables
- Information as required by CPCA for Procurement
- Procurement and Contract documents and records as noted in the relevant Procurement Procedures
- Project Program
- Project Plan (revised if required)
- Revised Budget documents for formal approval, if required
- List of Regulatory Compliance requirements
- Consultant contract changes to CPCA for processing

Notice/Review/Approval/Informed
Storrs & Regional Campuses
- R – AVP AES
- A – AES Directors

- A – End User
- A – BOT Revised “Planning Budget” if required due to exceeding previously approved budget by 5%

UCHC
- R – AVP CPDC
- R – CPDC Director/Asst. Director
- A – End User
- I – Space Management Committee
- A – If the project to be advanced exceeds 5% of the previously approved BOT budget, BOD/BOT approval are required.

Resources
- University of Connecticut Capital Project Delivery Process
- Storrs Campus Master Plan Update
- Regional Campus Master Plans
- East Campus Plan of Conservation and Development
- Campus Sustainable Design Guidelines
- UCHC Campus Master Plan
Professional Services Procurement

The purpose of this Procedure is to establish the means by which the Planners, Designers and other Consultants for an assignment can be selected and a contractual relationship established that is in full compliance with statutory requirements and policies of the University. The University’s Capital Projects and Contract Administration (CPCA) or the UCHC Purchasing Department (UCHC PD) will work with the AES/CPDC Directors and/or Project Managers to select the most appropriate procurement method, cost solicitation format, contract form, prequalification method, and selection procedures. While CPCA/UCHC PD will lead these activities in the interest of compliance, it remains the responsibility of the AES/CPDC representative to assure that the outcomes of the process are in the best interest of the project and the University. To achieve this end, the AES/CPDC representative must provide as detailed a description as possible of the project and of the services to be provided by the outside professional in areas such as project scope, services scope, implementation expectations, and implementation risks. At this time in the process, a detailed consultation between AES/CPDC and CPCA/UCHC PD should be held to ensure that the project procurement and contracting activities for the particular project are current, applicable and compliant.

Tasks

• Provide advance notice of schedule to CPCA/UCHC PD
• Develop the necessary members of the Project Team
• Establish Comprehensive Scope of Services
• Establish the scope of the project
• Confirm Budget and schedule for the Professional’s tasks and the project in its entirety
• Establish cost format for bid submittal
• Establish action plan with CPCA/UCHC PD outlining responsibilities during the process

Deliverables

• Information as required by CPCA/UCHC PD for Procurement
• Procurement and Contract documents and records as noted in the relevant Procurement Procedures
• List of Regulatory Compliance Requirements

Notice/Review/Approval/Informed Storrs & Regional Campuses

• A - AES Directors
• A - COO
• A - AES Associate Vice President
• For Action & Approval: CPCA Director

Resources

• CPCA Procedure Manual
• UCHC Purchasing Department Procedures

UCHC

• A/R – CPDC Associate Vice President
• For Action & Approval: CPCA/UCHC PD Director
• I/A – Space Management Committee
Construction Manager “at Risk” Services Procurement

The purpose of this Procedure is to establish the means by which a Construction Manager can be selected, should this project delivery method be chosen in the Planning & Programming phase (Procedure 120), and a contractual relationship established that is in full compliance with statutory requirements and policies of the University. The University's Capital Projects and Contract Administration (CPCA) Department will work with the AES/CPDC Directors and/or Project Managers to select the most appropriate procurement method, cost solicitation format, contract form, prequalification method, and selection procedures based upon the Project Plan. While CPCA will lead these activities in the interest of compliance, it remains the responsibility of the AES/CPDC representative to assure that the outcomes of the process are in the best interest of the project and the University. To achieve this end, the AES/CPDC representative must provide as detailed a description as possible of the project and of the services to be provided by the CM in areas such as project scope, services scope, implementation expectations, and implementation risks for preconstruction and construction activities. At this time in the process, a detailed consultation between AES/CPDC and CPCA should be held to ensure that the project procurement and contracting activities for the particular project are current, applicable and compliant.

Tasks
- Provide advance notice of schedule to CPCA
- Establish Comprehensive Scope of Services
- Establish the scope of the project
- Confirm Budget and schedule for the CM’s tasks and the project in its entirety
- Establish cost format for bid submittal
- Establish action plan with CPCA on AES/CPDC responsibilities during the process

Deliverables
- Information as required by CPCA for Procurement
- Procurement and Contract documents and records as noted in the relevant Procurement Procedures

Resources
- CPCA Procedure Manual

Notice/Review/Approval/Informed
Storrs & Regional Campuses
- RA- AES Directors
- A - COO
- A - AES Associate Vice President
- For Action & Approval: CPCA Director
- R – Plant Accounting
- N – Director of Construction Assurance

UCHC
- R – CPDC Project Manager
- R – CPDC Director/Asst. Director
- A – CPDC Associate Vice President
- For Action & Approval: FCLD
- R – End User
Schematic Design

After the completion of broad planning and programming of space needs, the Schematic Design Phase begins the process of designing the facility or the project. The primary objective of this phase is to reach an alignment that combines clearly defined scope, budget, and schedule with a comprehensive design concept. The Schematic Design Phase typically represents a 20 percent completion level architectural effort. During this phase, most of the project profile from the programming effort is gathered and understood and the design team is providing gap analysis. The user and technical groups continue to provide enhanced details of requirements to the design professionals.

At this stage in the schematic design, the design professional group has enough information to complete the schematic development of (a) site, (b) initial drawings and specifications, (c) footprint/massing, (d) other design criteria, (e) basic system selection, (f) rough construction schedule and (g) rough project budget. University project management continues to monitor and refine the project goals and performance criteria for the next phase, Design Development that further refines the capital project.

Tasks

- Design professionals responsible for review and incorporate programming requirements
- Determine all site, utilities, and infrastructure criteria
- Determine the overall building design and materials
- Review and incorporate all University of Connecticut design standards
- Conduct constructability and maintainability reviews with appropriate departments
- Initiate commissioning strategy & tasks
- Refine estimate and cost control elements and formulate buy out strategy
- Develop schedule control elements
- Develop program adherence
- Address required notices, reviews, and approvals necessary to proceed
- Establish any town gown and local community issues
- Align with University sustainability requirements, Initiate LEED activities as relevant
- Host schematic design presentations to both user and technical groups
- Initial code review; identify design issues, if required
- Design Professionals develop room numbering according to university policies

Deliverables

- Schematic design drawings/specifications
- Presentation boards, massing model if relevant
- Review Process for University Stakeholders
- Review Process for Code or Insurance Underwriter as necessary

Notice/Review/Approval/Informed

Storrs – Regional Campuses

- A – AES Director issues written notice to proceed to DD’s
- R – AES Associate Vice President
- R - User/Customer
- I – B & G
- N – Director of Construction Assurance

UCHC

- A – CPDC Associate Vice President – issues written notice to proceed to DD’s
- R - User/Customer
- R – CPDC Project Manager
- R – CPDC Director/Asst. Director
- I – Space Management

Note: If the project to be advanced exceeds 5% of the previously approved BOT budget, BOD/BOT approval is required.

Resources

- Facilities Operation Maintainability Guidelines (under development), Facilities Operations
- Construction Specification Institute Manual
- University of Connecticut LEED Guidelines
- University of Connecticut Planning and Design Standards
Design Development

The Design Development Phase refines the scope of work previously approved in the schematic design phase. The project is developed to a level of detail (~ 40 percent of design completion) that presents a clear, coordinated representation of all project aspects. Major system components are translated into design, including mechanical, electrical, plumbing, fire protection, roof and structural, and telecommunications systems, and initially coordinated with scale drawings that illustrate major spaces, facades, elevations, and floor plans. Draft specifications are provided. A professional estimate is provided. A preliminary submission to the code authority is encouraged.

The Design Development Phase is the last opportunity for design input from the user group. This is the last time in the process that reasonable changes to the project scope or program impact budget, cost and schedule in a “lowest cost” manner. During design development, all program requirements will be viewed as part of a single design. This allows the preparation of a comprehensive project Design Development estimate, as well as a realistic implementation schedule. If either the schedule or estimate is not consistent with the approved plan, some reconsideration is necessary.

Tasks

- Document life safety and building code analyses & requirements and confer with code officials as necessary
- Refine site, building and systems design
- Full Design Development University technical group review
- Structural peer review, as required
- Refine schedule
- Confirm user group requirements for fit out, (e.g. fixtures, furniture, and equipment)
- Outline permitting and inspection strategy
- Constructability and Maintainability Reviews
- Develop Design Development estimate
- Identify risk exposures and opportunities (reconcile budget with scope/program)
- Complete internal departmental reviews
- Prequalify contractors in accordance with CPCA procedures, if necessary
- Commissioning Agent review

Deliverables

- Design Development drawings & specifications
- Presentation boards, massing model update, if relevant
- Updated Budgets and Schedules

Notice/Review/Approval/Informed

Storrs – Regional Campuses

- A – AES Directors – issues written notice to proceed to CD’s
- R – AES Associate Vice President
- R - University of Connecticut Project Manager
- R - User/Customer
- I – B & G
- N – Director of Construction Assurance
- R - DPES

UCHC

- A – CPDC Project Manager
- A – CPDC Associate Vice President – issues written notice to proceed to CD’s
- R – User/Customer
- R – CPDC Director/Asst. Director
- I – Space Management
- R - DPES

Note: For projects without a DD Phase review, approval will occur at the next phase

Resources

- Facilities Operation Maintainability Guidelines (under development), Facilities Operations
- University of Connecticut Planning and Design Standards
Construction Documents

The Construction Document Phase is the final stage of the design process. The design professionals, whether internal or external, complete the plans and specifications to ensure completeness, design coordination, and a well-defined scope of construction work. Construction documents are also submitted to the Code Authorities for review and action. These documents are also used to generate a definitive schedule and an estimate which will go to the Board of Trustees as the “Design Budget” (as University Approval Policies dictate). These documents are used by CPCA/UCHC PD for lump sum bidding or may be used for the solicitation of a guaranteed maximum price from a CM.

It is the AES/CPDC Project Manager’s responsibility to utilize all available AES/CPDC technical service personnel to review the design documents, the estimates and schedules, and to challenge all third party professionals on quality, assumptions and product. If a CM has been previously engaged, the CM will do a final review for constructability, subcontractor packaging, schedule and professional to correct issues of completeness and quality.

The AES/CPDC representative will ask for a pre-final (95% complete) set of documents for this review and will direct the design professional to correct issues of completeness and quality. Upon completion of the construction document phase, construction bidding documents are issued by the design professional and submitted to the University for the purpose of bidding and awarding the work for constructability.

Tasks
- Finalize design and all design coordination issues
- Conclude selections of finishes and materials
- Finalize details, specifications and site plan
- Complete constructability and maintainability review
- Complete structural review
- Detail sustainability components
- Finalize commissioning and/or LEED plan
- Detailed Construction estimate
- Prepare “Design Budget” for BOT/BOD approval for projects above $500,000
- Revise project schedule
- CPCA/UCHC PD final review and preparation of bid invitations
- Initiate Environmental Permitting Activities
- Submit plans to DPES for building permit. Revise plans if necessary following review

Deliverables
- Complete set of design and other contract documents
- Prepare BOD/BOT resolution for “Design Budget” approval
- Construction Management Plan
- Final design review with users and other stakeholders
- Building Permit, if required

Notice/Review/Approval/Informed

Storrs – Regional Campuses
- R – All AES Directors
- R – AES Associate Vice President

UCHC
- R – CPDC Associate Vice President
- For Action: CPCA/UCHC Purchasing
- R – CPDC PM
- R – CFO/AVP Budget (Design Budget)
- R – CPDC Director/Asst. Director

All Campuses
- A - User/Customer
- A – BOD/BOT – “Design Budget”
- N – Director of Construction Assurance
- A – DPES/DPS

Resources
- Planning and Design Standards
- Guidelines for Sustainable Buildings, USGBC
- Connecticut Compliance Manual for High Performance Building s
- University of Connecticut Environmental Policy – Sustainability Design Guidelines
Construction Procurement – Construction Manager GMP

The purpose of this Procedure is to establish the means by which subcontractors can be selected for the establishment of a GMP for a CM at Risk project, and by which a contractual relationship can be established that is in full compliance with statutory requirements and policies of the University. The University’s Capital Projects and Contract Administration (CPCA) will work with the AES/CPDC Directors and/or Project Managers to select the most appropriate delivery method and its associated procurement method, cost solicitation format, contract form, prequalification method, and selection procedures. While CPCA will lead these activities in the interest of compliance, it remains the responsibility of the AES/CPDC representative to assure that the outcomes of the process are in the best interest of the project and the University. To achieve this end, the AES/CPDC representative must provide advanced notice of the project scope, schedule and risks. A detailed consultation between AES/CPDC and CPCA should be held to ensure that the project procurement and contracting activities for the particular project are current, applicable and compliant. When the procurement process results in a recommendation for award, AES/CPDC must submit a “Final Budget” to the Board of Trustees for approval, prior to the execution of the construction contract and the start of the work.

Tasks

• Provide advance notice of schedule to CPCA
• Select the appropriate delivery method for the project
• Ensure complete design documentation
• Prequalify contractors in accordance with CPCA instruction
• Establish action plan with CPCA on AES/CPDC responsibilities during the process
• Support CPCA in leveling bids, reviewing exceptions, etc.
• Prepare “Final Budget” for BOT approval

Deliverables

• Information as required by CPCA for Procurement
• Procurement and Contract documents and records as noted in the relevant Procurement Procedures
• “Final Budget” to submit to the BOT for approval

Notice/Review/Approval/Informed

Storrs & Regional Campuses

• A – All AES Directors
• A - AES Associate Vice President – Final Budget
• For Action & Approval: CPCA Director
• R – Plant Accounting
• A – VP CFO/VPCOO
• R – PM
• A – BOT “Final Budget”
• N – Director of Construction Assurance

UCHC

• R – CFO/Budget
• R/A – CPDC AVP – Final Budget
• For Action & Approval: CPCA Director or UCHC PD
• A – Plant Accounting or UCHC Budget
• A – BOD/BOT “Final Budget”
• R – End User
• I – Space Management
• N – Director of Construction Assurance

Resources

• CPCA Procedure Manual
Construction Procurement – Lump Sum Bid & Award

The purpose of this Procedure is to establish the means by which General Contractors can be selected for a project and a contractual relationship established that is in full compliance with statutory requirements and policies of the University. The University’s Capital Projects and Contract Administration (CPCA) Department or the Health Center’s Purchasing Department (UCHC PD) will work with the AES/CPDC Directors and/or Project Managers to select the most appropriate delivery method and its associated procurement method, cost solicitation format, contract form, prequalification method, and selection procedures. While CPCA/UCHC PD will lead these activities in the interest of compliance, it remains the responsibility of the AES/CPDC representative to assure that the outcomes of the process are in the best interest of the project and the University. To achieve this end, the AES/CPDC representative must provide advanced notice of the project scope, schedule and risks. Delivery methods of this variety include GC procurement and the Trade Contractor on call Program. A detailed consultation between AES/CPDC and CPCA/UCHC PD should be held to ensure that the project procurement and contracting activities for the particular project are current, applicable and compliant. When the procurement process results in a recommendation for award, AES/CPDC must submit a “Final Budget” to the Board of Trustees for approval, prior to the execution of the construction contract and the start of the work.

Tasks
- Provide advance notice of schedule to CPCA/UCHC PD
- Select the appropriate delivery method for the project
- Ensure complete design documentation
- Prequalify contractors in accordance with CPCA/UCHC PD instructions
- Establish action plan with CPCA/UCHC PD - define responsibilities during the process
- Support CPCA/UCHC PD in leveling bids, reviewing exceptions, etc.
- Prepare BOT for “Final” Budget approval for projects above $500,000

Deliverables
- Information as required by CPCA/UCHC PD for Procurement
- Procurement and Contract documents and records as noted in the relevant Procurement Procedures
- BOD/BOT resolution for “Final Budget” approval

Notice/Review/Approval/Informed

Storrs & Regional Campuses
- A/R - AES Directors
- R/A- AES Associate Vice President- Final Budget
- A – VP CFO/VP COO
- R - PM
- For Action & Approval: CPCA Director

UCHC
- R – CFO/AVP Budget
- A – Plant Accounting/Budget
- R/A -CPDC Associate Vice President – Final Budget
- For Action & Approval CPCA/UCHC PD Director
- I – End User
- A – BOD/BOT – “Final Budget”
- N – Director of Construction Assurance

Resources
- CPCA Procedure Manual
- UCHC PD Policies and Procedures
Construction

The objective of the Construction Phase is to safely build the project as represented in the Contract Documents within the budget and schedule approved by the Board of Trustees, as agreed upon with the end user. The authorized representative of the University, usually the PM, in accordance with the contract will dictate the reporting and monitoring requirements to the Contractor (CM/GC or On-Call Trade Contractor). The AES/CPDC PM is the University’s representative responsible for monitoring that the performance of the Contractor is in accordance with the contract including compliance with laws and regulations. The University PM must be diligent in enforcing that required records are kept by the responsible parties.

Throughout the course of construction, the University, Architect, Contractor will meet to review construction; track schedule, submittal status, contract values, schedule, field conflicts and drawing discrepancies. It is the responsibility of the AES/CPDC PM to work with the contractor to maintain the schedule and budget should circumstance cause delays and additional costs.

Tasks

- Verify receipt of executed contract, where applicable
- Manage the pre-construction meeting and verify construction schedule
- Disseminate requirements for safety programs & ensure that clear accountabilities/responsibilities are understood
- Outline site notification procedures for emergency University contact list (Fire, Utilities, and Police)
- Review and initial site logistics plans for material staging and construction equipment, if applicable
- Conduct regular project meetings
- Review mock-ups, submittals, and shop drawings
- Ensure occurrence of required inspections (internal, regulatory, and special materials/systems)
- Regular financial & schedule reviews
- Prepare revised “Final Budget” if necessary
- Manage CCDs and change orders
- Obtain reports from UConn field personnel
- Diligently supervise outsourced PM & field personnel
- Monitor LEED & Commissioning Plan Implementation
- Interface with User/Customer
- Coordinate with all regulatory requirements
- Support CPCA/UCHC PD on all Contract Administration
- Review and authorize all project invoices

Deliverables

- Regular reports on cost & schedule, meeting minutes
- Logs for RFI’s, submittals, and Change Requests, etc.

- Construction Manager’s financial reports
- Project Manager’s Change Order Log
- Cost Requisition reports vs. schedule of values
- Punchlists
- Documents outlined in Acceptance & Turnover (170)
- Certificate of Substantial Completion
- Signed-off permits (periodic and final inspections)
- BOT Approval Documents, as needed
- CO/TCO (See Procedure 170)

Notice/Review/Approval/Informed

Storrs & Regional Campuses

- A/R - University of Connecticut Project Manager
- A/R – AES Directors of Plan/Design/Construction
- R/A - AES Associate Vice President
- I – User/Customer
- I – B & G

UCHC

- R/A – CPDC Associate Vice President
- A/R – CPDC Project Manager
- A/R - CPDC Directors/Asst Director
- R/A - DPES/DPS
- I - User/Customer
- I – Space Management

Note: If additional funds are required that exceed 5% of the previously approved BOT budget, BOD/BOT approval is required

Resources

- CPCA Procedure Manual
- UCHC PD Policies and Procedures
Construction – Field Reporting

The objective of this subsidiary procedure during the Construction Phase is to provide guidance for University Representatives, whether they are the AES/CPDC Project Manager, Construction Engineer or an outsourced Project Management Oversight person. Regardless of the duties and responsibilities of the CM, GC or other contractor, it is the responsibility of UConn personnel and/or their professional representatives to provide reasonable field observation and project management oversight in the interest of representing the University in its responsibility to monitor compliance with contract documents, University policies and any other relevant requirements. The duties may be satisfied through the filing of Regular Reports, the delegation of Safety Inspections to the University’s 3rd party contracted Safety Inspection firm, and general observations regarding progress obtained by walking the site and attending project meetings. All observations should be documented in AES/CPDC provided forms, in meeting minutes, or in memoranda.

Those in the field are on UConn’s front line in precluding disputes, staying within budget, staying on schedule, and achieving timely, satisfactory occupancy.

Tasks

- Perform reasonable field observation on a regular basis
- Manage the schedule for the performance of safety inspections
- Report activities that will affect the contract performance, schedule, budget or quality immediately to the responsible AES Director or Project Manager
- Assist in Project closeout
- Review and initial site logistics plans for material staging and construction equipment
- Attend project meetings, coordinating with other UConn stakeholders in achieving a coordinated project outcome
- Provide project risk information for the revision of the project financial forecast if appropriate
- Prepare reports
- Monitor occurrence of required inspections (internal, regulatory, and special materials/systems)
- Participate in financial & schedule reviews
- Monitor LEED Compliance, as required
- Support CPCA/UCHC PD on all Contract Administration

Deliverables

- Regular reports, meeting minutes and other field related correspondence
- Provide progress data for invoice processing, Change orders, etc
- Serve as conduit for contractor data where appropriate

- Punchlist preparation and closeout monitoring
- Certificate of Substantial Completion (See Procedure 160)
- Signed-off permits (periodic and final inspections)

Notice/Review/Approval/Informed Storrs & Regional Campuses

- A/R – University of Connecticut Project Manager
- R – AES Director of Project Management

UCHC

- A/R - Project Manager
- R - CPDC Director of Construction

Resources

- CPCA Procedures Manual
- UCHC Purchasing Policies and Procedures
Construction – Project Status Reporting

The objective of this subsidiary procedure during the Construction Phase is to provide guidance for University Representatives, whether they are the AES/CPDC Project Manager, Construction Engineer or an outsourced Project Management Oversight person with regard to Project Status Reporting. Regardless of the duties and responsibilities of the Contractor, it is the responsibility of UConn personnel and/or their professional representatives to provide project management oversight in the interest of representing the University in its responsibility to monitor compliance with contract documents, University policies and any other relevant requirements. The duties with regard to project status reporting may be satisfied through the filing of (frequency determined by AES Director of PM/CPDC Director of Construction) regular financial and descriptive reports on general observations that may affect budget performance, schedule adherence, program adherence and action plans for mitigation/remediation of any issues/risks affecting these items. The format of the report for a CM at Risk delivery system will be provided to the CM by AES/CPDC.

Tasks
- Monitor financial and schedule risks
- Work with Contractor to maintain project budget and schedule
- Report activities that will affect the contract performance, schedule, budget or quality immediately to the responsible AES/CPDC Director or Project Manager
- Review site logistics plans for material staging and construction equipment
- Attend project meetings, coordinating with other UConn stakeholders in achieving a coordinated project outcome
- Provide project risk information to the AES/CPDC AVP and other Directors for the revision of the project financial forecast if appropriate
- Monitor occurrence of required inspections (internal, regulatory, and special materials/systems)
- Participate in financial & schedule reviews
- Monitor LEED requirements
- Support CPCA/UCHC PD on all Contract Administration

Deliverables
- Project Status Reports including financial reporting, meeting minutes and other field related correspondence
- Forecast risks to the projects and include in financial reports
- Manage potential, proposed and actual Change Orders

- Action plans on financial & schedule & program issue avoidance and mitigation/remediation
- Provide quarterly reports for projects over $500,000 to University Senior Management and BG & E

Notice/Review/Approval/Informed
Storrs & Regional Campuses
UCHC
- Provide regular status updates to AVP/Directors of AES/CPDC – Plant Accounting

Resources
- CPCA Procedure Manual
- UCHC Purchasing Policies and Procedures
Construction – Submittals

The objective of this subsidiary procedure during the Construction Phase is to provide guidance for University Representatives on how and when to determine required submittals during the construction phase of the contract. Submittals are generally defined in the contract, the design specifications by the code and code enforcement officials, the other contract documents and by standard industry practice. Depending upon the scope and jurisdiction of the project, it is the PM’s responsibility to coordinate the requirements of the parties and documents noted. Subsequently, the Contractor, the Architect, or the PM shall keep a log of all required submittals and resulting status.

Tasks

- Review the list of submittal requirements in the contract documents
- Provide special attention to the review, inspection and timing requirements of the officials having jurisdiction
- Ensure that a log is kept by the assigned party on the project team
- Monitor the log and report activities that will affect the contract performance, schedule, budget or quality immediately to the responsible AES/CPDC Director or Project Manager

Deliverables

- Agreed upon Submittal list and schedule for submission
- Continuous log
- Develop strategies to mitigate delayed submittals

Notice/Review/Approval/Informed

Resources
Acceptance and Turnover

In conjunction with Procedure 171, the goal of this phase is to facilitate the on-schedule occupancy and turnover of the finished and fully commissioned project to the User Group and the respective Maintenance Department, e.g. Facilities Operations or Residential Life. Under the management of the Project Manager, punch lists must be completed, Certificates of Compliance from the Architect, Engineer and the Contractor need to be obtained, other compliance, maintenance, and warranty documents received. When this takes place, University maintenance responsibilities begin. Upon final approval from the appropriate jurisdictional authority (Office of The State Building Inspector, Division of Public and Environmental Safety), the facility is given formal notice in the form of a Certificate of Occupancy (CO) allowing occupancy. Plant Accounting/Controller is notified so that their procedures at this stage may be implemented, e.g. depreciation.

As users move in, the Project Manager and Team continue to ensure completion of all jurisdictional, legal, and contractual obligations; reconcile the project accounting, evaluate, and report the outcomes of the project; transfer all project records to appropriate departments; and officially close the project. The process of Acceptance and Turnover is seamlessly followed by Closeout, Report and Final Analysis (Procedure 171).

**Tasks**

- Project manager prepares closeout checklist customized to the project’s requirements using checklist format
- Compile and complete punch list items
- Complete training programs and operational issues with users and facilities operations
- Complete commissioning
- Assist with user move-in
- Obtain Certificates of Compliance from A/E & contractor
- Continue/Complete Formal LEED Certification
- Obtain Certificate of Occupancy from DPES or OSBI

**Deliverables**

- Certificate of Occupancy or Temporary Certificate of Occupancy from DPES or OSBI
- Completed punch list
- Operations and Maintenance manuals and attic stock
- Architectural and/or space plan drawings delivered to AES Space management Group/CPDC Space Group
- Contractor and equipment warranties
- Contractor’s affidavit and lien waivers
- Test and balancing reports
- LEED Certification
- As-Built documentation
- Completion of Turnover Check-list
- Certificate of Substantial Completion (See 160)

**Notice/Review/Approval/Informed**

**Storrs & Regional Campuses**

- A - All AES Directors
- A – AES AVP
- I – B & G
- UCHC
  - I - CPDC PM Completion of T/A Checklist
  - R – Director of Construction Services
  - I – Space Management
  
**ALL CAMPUSES**

- N – Plant Accounting/Controller
- A – DPES/UCHC Public Safety or OSBI/OSFM
- N – Office of Environmental Policy
- Turnover – End User and Occupants
- N – Office of Environmental Policy
- A – AES/CPDC PM
- Memo Notification – Construction Assurance Office, for UConn 2000 Named Projects

**Resources**

- University Planning and Design Standards
- CPCA Procedure Manual
- US Green Building Council for LEED Certification and associated procedures
- UCHC Purchasing Policies and Procedures
- Connecticut Compliance Manual for High Performance Buildings
Closeout, Report and Final Analysis

As a continuation of Acceptance and Turnover (Procedure 190), the goal of this phase is to assure the completion, coordination, reconciliation and documentation of all legal, contractual, financial management, funding, regulatory, construction and end-user issues necessary to close out a project in a timely manner. All projects will be closed out in a reasonable period of time.

As a best practice, it may include a final self evaluation of the entire development process, stakeholder performance, and project results which will generate “lessons learned” for the University, AES/CPDC and the individual team participants.

The Project Manager initiates this phase and collaborates with the key team members who always include CPCA and Plant Accounting/UCHC Purchasing and Plant Accounting, and occasionally includes others depending upon the size and scope of the project, e.g. Office of Environmental Policy for environmental closeout and reporting issues. In addition it is the Project Manager’s responsibility to ensure that all project information and documentation is appropriately recorded and filed. At the conclusion of all tasks, through the AES AVP or the UCHC AVP, the Project Manager notifies University Administration of the project’s closure.

Tasks
- See Closeout Checklist in Volume III
- PM holds “lessons learned” stakeholders meeting and documents relevant findings, if relevant

Deliverables
- See Closeout Checklist in Volume III

Notice/Review/Approval/Informed
Storrs & Regional Campuses
- A - University of Connecticut Project Manager
- R – AES AVP
- R – All AES Directors
- A – Plant Accounting – Final Payment
- R – End User
- N – CPCA – Close Contract
- I – Lessons Learned distributed to the Project Team, AES Directors and others, if relevant

UCHC
- R – University of Connecticut Project Manager
- I – CPDC AVP
- R – Director/Asst Director
- N – CPCA/UCHC Purchasing Department – Close Contract
- R – Plant Accounting/Budget – Final Payment
- I – Space Management

• I – Lessons Learned distributed to the Project Team, CPDC Directors and others, if relevant

Resources
- Plant Accounting Procedures
- US Green Building Council for LEED Certification and associated procedures
- Connecticut Compliance Manual for High Performance Buildings
Budget and Cost Control Overview

Project controls are critical to the success of any project. As such, cost controls such as initial and ongoing budget development, change management, cost tracking and risk tracking ensure the discipline necessary for the efficient completion and financial success of any project by providing current, accurate, and detailed cost information to the appropriate project participants, which allows informed decisions to be made in a timely manner.

Budget development and tracking are key tasks performed by the Director/PM. Beginning with the inception of a project; the Director/PM develops an initial benchmark budget (“Planning Budget”) and continues its development until a final bid “Final” budget has been established. All budgets shall anticipate and incorporate all elements of the project, known and unknown but anticipated, including construction costs, soft costs, furniture, fixtures, and equipment, and if applicable, allowances, contingencies, and other cost premiums that may be encountered throughout the various phases of a project, such as LEED site and utility work. Budget presentations to the BOT and other University management shall be done to the highest standard of accuracy available. The term “Budget” when used within the University will always mean “Total Project Budget” except when specifically used with a modifier, such as “A/E Budget” or “Final Budget”. The University BOT & financial group lexicon utilizes terms for budget submissions including Planning Budget, Design Budget, and Final Budget. These terms do not relate to the activities themselves but relate to the point in time where the full project budget is submitted for approval.

Change management is also a key task that must be performed by the project management team. Effective change management will allow the project team to accurately track the current and projected costs of a program/project by identifying all possible financial liabilities and their effect on the overall budget and schedule. The change management process must track all changes from inception through estimating, validation, and negotiation, if applicable.

Tasks
- Develop and update project budgets in the format provided in Volume 3
- Coordinate design process and budget
- Coordinate issues that may affect the budget
- Present budgets to appropriate parties for review of assumptions
- Establish & Manage project contingencies appropriately
- Develop an effective change management and tracking strategy
- Utilize professional estimating resources where required
- Reconcile actual costs recorded by Plant Accounting with cost reports on project status.
- Prepare financial cost projections which include actual costs to date plus percentage to complete to arrive at total projected costs
- When they become apparent, communicate significant projected cost overages and mitigation recommendations to the AES Directors/CPDC Directors & the AVP of AES/CPDC to ensure a team solution

Deliverables
- Regular Cost & Budget detail Reports
- Storrs - B&G for projects under $500,000, and BOD/BOT “Planning, Design, and Final” budgets with notice of interim revisions as required for projects over $500,000
- Action and mitigation plans to preclude anticipated cost overruns

Notice/Review/Approval/Informed Storrs & Regional Campuses
- A – B & G approval, as necessary
- A - Chief Financial Officer/Plant Accounting
- A- BOT “Planning, Design and Final” budgets as required

UCHC
- A – BOD/BOT “Planning, Design and Final” budgets as required
- A-Chief Financial Officer/Plant Accounting, as required

Resources
- Historical information from other projects
Budget and Cost Control - Estimating Standards

The most important element of an estimate, whether it is produced utilizing comprehensive summary metrics such as $/sq ft, $/ton of refrigeration, or produced with a detailed line item labor and materials takeoff, is the inclusion of key assumptions regarding scope, applicability of the metrics, and the items not included. The UConn standard will be that summary metrics may be used for planning activities through and including Schematic design. From Design Development through Project close out, detailed line item estimates in CSI format will be required. Where possible, estimates performed by in house personnel will be verified by an outside professional resource. Projects designed by non UConn design professionals may require that the design team include a 3rd party specialty firm on the team to do all project estimates required for submission to the University. The top level form and format of budgets and estimates may be provided to all contractors and CMs to assure that there submissions match University standards.

Tasks
- Develop and update project planning budgets through schematic design budgets utilizing summary metrics, reviewed by professional estimators where possible
- Detailed assumptions on scope, work not included and other limitations will be provided in outline or narrative form
- Estimates for work designed by outside design professionals may be prepared by dedicated professional estimating firms.
- Estimates for projects in the Design Development stage through closeout will be prepared in CSI format

Deliverables
- Professionally prepared or reviewed estimates based upon summary metrics or line item takeoffs in CSI format as appropriate

Notice/Review/Approval/Informed
Storrs & Regional Campuses
- R – University Project Manager
- R – All AES Directors
- R – AES AVP

UCHC
- R – University Project Manager
- R – Director of Construction
- R – CPDC AVP

Resources
- Planning and design standards
- Historical information from other projects

- Standard Industry Cost Estimating Benchmarks such as R.S. Means
Budget and Cost Control – Change Management

Changes (increase or decrease) in a project or a contract affecting scope, cost and schedule are likely regardless of the effort to minimize them. Such changes are minimized by good planning and anticipation but when they occur, the change affects the contract, the financial accounting and the work. Therefore, change management requires collaboration between AES/CPDC, Plant Accounting and CPCA/UCHC PD. The tool to ensure that a documentation trail of approval and collaboration exists is called a “Green Sheet’ or more formally “APPROVAL OF CHANGE TO ORIGINAL CONTRACT, WORK PLAN OR PURCHASE ORDER REQUEST”. This form is used for new contractual relationships as well as for initiating changes to contracts. The procedure is detailed in the CPCA and Plant Accounting Procedures manual. Note: The “Green Sheet” is only required on projects for which Storrs Plant Accounting is responsible for funding verification. For UCHC DM/ADA/Lump Sum renovation projects and all other UCHC funded projects, the approval from CPDC, Budget and Finance occur via an electronic approval in FRS.

Tasks
- Monitor potential change orders closely and forecast in accordance with procedure 162. Seek to mitigate issues before change orders become necessary
- PM creates backup documentation covered by a “green sheet” which is processed through Plant Accounting and CPCA.
- AIA Change Order Form reviewed/signed by A/E of Record
- Plant accounting or PM revises budget line item distribution and contingency data subject to the approval of the change
- CPCA/UCHC PD processes the change order as part of their contract administration function

Deliverables
- PM creates backup documentation covered by a “green sheet” which is processed through Plant Accounting and CPCA.
- CCD Process – in development
- Plant accounting revises budget line item distribution and contingency data subject to the approval of the change
- CPCA process the change order and issues PO amendment

Notice/Review/Approval/Informed
Storrs & Regional Campuses
- Initiator – PM/Architect
- N/A - Plant Accounting for budget/funding availability
- A – AES Director of Project Management
- A – AES AVP
- N - Plant Accounting modifies budget line items
- N –CPCA for contract change order initiation and contract file update

UCHC
- Initiator – PM/Architect
- N/A - Plant Accounting for budget/funding availability
- R – CPDC Director of Construction
- A – CPDC AVP
- R - Plant Accounting or UCHC Budget/Finance approves if additional funding is required
- N –CPCA/UCHC PD for contract change order initiation and contract file update
Schedule Development and Management

The foundation of any well-managed project is the integrated master project schedule. The schedule becomes a tool that organizes project tasks into a sequence of events that then form the project management plan. The master project schedule integrates tasks from all stakeholders involved in a project, including the University of Connecticut, architect/designer, user, construction manager, subcontractors, and material suppliers into a universal schedule that is accepted and embraced by all stakeholders.

The benefits of a well-constructed master schedule are numerous. It becomes the framework to organize the project team to achieve a common goal, provides the Project Manager the tool to manage to a desired outcome, and provides a means to measure performance of individual project stakeholders or the project team as a whole.

As with any other tool, systematic, timely, and accurate updating of the schedule will identify potential problem areas and/or issues for allowing project participants to take corrective action and resolve issues in a timely manner and eliminate or minimize potential claims that may result from delays on responses and/or lack of coordination. The PM will complete a high level schedule with key milestones for the University in order to express and monitor the University’s expectations for major events and occupancy. This schedule can be provided in tabular form or can be done in a format agreed upon by the University. The contractor or CM will maintain and provide a more detailed schedule for review and monitoring as well on every project under construction.

**Tasks**

- Every project has a schedule with key milestones
- Develop an accurate high level integrated project schedule with project team/stakeholders
- Regularly update the project schedule
- Continuously review project schedule for accuracy
- Inform project participants of status of schedule milestones
- Require that the CM or Contractor submit, review and report progress with mitigation plans for missed events based upon an more detailed construction schedule to ensure timely completion

**Deliverables**

- AES /CPDC high level schedule on every project
- Contractor provides detailed construction schedule with a monthly report (minimum), and Recovery schedules, if necessary

**Notice/Review/Approval/Informed**

**Storrs & Regional Campuses**

- R – University Project Manager
- R – AES AVP
- I– End User
- I – Other University Departments requiring coordinated activities

**UCHC**

- R – University Project Manager
- R – Director of Construction Services
- R – CPDC AVP
- I– End User
- I – Other University Departments requiring coordinated activities

**Resources**

- Planning and design standards
- Historical information from other projects
- Long lead delivery information from suppliers
- Contractor or CM schedules
Document (Archive and Retrieve) Control

The Filing System for Project Documents is a manual hard copy filing system that is in transition as of the above revision date.

New projects initiated as of this revision date will be filed in accordance with the filing system established by the Department. Email files will be saved in dedicated and labeled Microsoft Outlook folders and will be copied by the PM, with the help of IT personnel, on to an auxiliary electronic medium and physically placed with the hard copy files at the project’s close or more frequently, if desired. Photos and large files such as drawings may be saved electronically as well if desired. All documents will be filed and saved.

AES and CPDC will be responsible for the storage, processing, archiving and retrieval of space management drawings in the FAMIS database. All final drawings on any new project will be provided to them in electronic form by the Project Manager.

All operationally relevant documents will be duplicated, with the duplicates transmitted to the Facility Operations department to ensure the completeness and integrity of the project files.

Tasks

- All project documents are filed and saved.
- Electronic files such as emails, photos and drawings will be saved on an auxiliary electronic medium and will be stored with the paper.
- Files will be saved in a central area which will be determined on a per project basis regardless of the originator.
- Project file setup starts with the initiation of Procedure 110, Scoping and Feasibility.
- Space Management Files will be maintained in FAMIS by the Space Management Group who will be responsible for all loading, processing, and retrieval.
- Final Architectural and Space Drawings will be provided electronically to the Space Management Group as part of Project Closeout or earlier, if feasible.
- Relevant File Information generated during the course of the project or during project closeout will be duplicated for transmission to Facility Operations.
- Add third-party vendor operations.
- Develop AutoCAD into system.

Deliverables

- Final Architectural & Space related Drawings provided to the Space Management Group.
- Files related to Operations, as built conditions, warranties, test results and Code/Fire Approvals duplicated for transfer to Facility Operations.

Notice/Review/Approval/Informed

- Does not apply

Resources

- File Setup Document, under development.
Commissioning

It is intended that projects at the University that include significant Mechanical, Electrical, Plumbing or Fire Protection work, whether it is new or a retrofit, will be commissioned. The parties involved, the process and the extent of the Commissioning activities will be defined in the planning stage on a project by project basis. For projects where the “Connecticut Compliance Manual for High Performance Buildings” mandates commissioning, a commissioning agent shall be retained.

The optimum benefit of a commissioning effort will be derived if the process is started at the planning phase since it permits the commissioning agent to integrate the Project Requirements into the design team, as well as any testing and turnover requirements that maybe necessary to ensure the appropriate record documentation, verification, and operator training elements are incorporated into the project. Project Budgets should account for the cost of Commissioning. Contract specifications should include contractor participation in their scope.

As defined by the American Society of Heating, Refrigeration and Air Conditioning Engineers, the “Commissioning process is a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria...the fundamental objectives of the commissioning process are to:

a. Clearly document the Owner’s project requirements,
b. Provide documentation and tools to improve the quality of deliverables;
c. Verify and document that systems and assemblies perform according to the Owner’s project requirements;
d. Verify that operation, maintenance personnel, and occupants are properly trained;
e. Provide an uniform and effective process for delivery of construction projects;
f. Deliver buildings and construction projects that meet the Owner’s needs at the time of completion;
g. Implement statistical quality-verification practices, with the use of statistical quality control and assumed probabilistic distribution of measured values, into the delivery of constructed projects, similar to the use of probabilistic, statistical and assumed random distribution tools in manufacturing and business, including international quality standards, and;
h. Verify proper coordination among systems and assemblies, and between all contractors, subcontractors, vendors, and manufacturers of furnished equipment and assemblies.”

Tasks
- Identify the need for commissioning
- Develop effective commissioning plan
- Procure a Commissioning Agent if necessary
- Perform per plan
- Commissioning Agent signs off in final report

Deliverables
- Commissioning Plan
- Specific Test Procedures & their performance
- Final Commissioning Report

Notice/Review/Approval/Informed

Storrs & Regional Campuses
- R - AVP AES
- N/R – Plant Operations
- N – OEP for LEED accredited projects
- R – Project Manager (initiator)

UCHC
- R – AVP CPDC
- N/R – Facilities Operations
- R – Project Manager
- R – Director of Construction Services

Resources
- ASHRAE Commissioning Guideline
- USGBC LEED accreditation standards

- N –CPCA for procurement of Commissioning Services

Connecticut Compliance Manual for High Performance Buildings
Value Engineering

Value engineering can be defined as an organized effort directed at analyzing designed building features, systems, equipment, and materials selections for the purpose of achieving essential functions at the lowest life cycle cost consistent with required performance, quality, reliability, and safety.

In the design phase of University of Connecticut building development, properly applied value engineering considers alternative design solutions to optimize the expected cost/worth ratio of projects at completion. Value engineering elicits ideas on ways of maintaining or enhancing results while reducing life cycle costs. It should be used to optimize a project’s design and not just as a means to reduce scope to reach a budget. The Construction Manager, Architect/Engineer, University of Connecticut Project Manager, and End User should meet in the Design Development Phase to identify and quantify all value engineering options and choose the best ones that meet the projects objectives. The PM should be the initiator and a professional estimator should be part of the team.

Tasks
• Review the program
• Perform functional analysis
• Define value
• Define objectives for the project
• Validate the program
• Review options
• Offer alternative design solutions
• Design value engineering estimates
• Provide construction value engineering estimates
• Life cycle analysis
• Maintenance cost analysis
• Total budget analysis
• Define schedule impact

Deliverables
• Value engineering Alternatives
• Value/ROI analyses
• Schedule enhancement Analyses
• Budget Revisions
• Increased functional value Analyses
• Customer satisfaction Analyses

Notice/Review/Approval/Informed
Storrs & Regional Campuses
• R – AES AVP
• A – Project Manager/Planner
• N - User
• R - Director of Engineering, Architecture & Tech Svc
• N/A – BOT & its committees if budget changes dictate notice or approval requirement

UCHC
• R - CPDC AVP
• A – Project Manager
• N - User
• R - Director of Construction Services
• N/A – BOT & its committees if budget changes dictate notice or approval requirement

Resources
• Value Engineering; Practical Applications for Design, Construction, Maintenance, and Operations, R.S. Means Company, Inc., 1999
Risk Management

There are many risks inherent in the implementation of a Capital Construction Program. This procedure will address project cost risk and the risks generally covered by insurance and contract terms whether the engagement is with a contractor or design professional/consultant.

With respect to insurance and other contractual risks, there are standard University requirements in addition to variable requirements as dictated by project needs. They are reflected in both contractual insurance and bonding requirements, in addition to contract terms and language. Based upon input from and in concert with the University’s CFO, its legal counsel (the Attorney General and outside Counsel), and AES/CPDC management, CPCA will coordinate and implement the contractual documentation to cover these items.

Project cost risk is managed by following good practice and procedure as defined throughout this manual. However, there are budgeting tools to cover costs that cannot be anticipated, or may not be fully quantifiable. The budget should include allowances for known but not fully quantifiable items, which are sometimes called the “known unknowns”. These include well identified line item allowances for items like FF&E, special geotech issues, environmental impact costs, an undersigned plant connection, etc. These allowances may only be in the project budget or may actually pass through to the contractor in the construction contract. They may also be covered in the construction contract through the use of unit prices. Then there are the risks posed by the “unknown unknowns” which are the unanticipated changes that occur during construction due to UConn action/inaction, unanticipated technical issues, last minute user changes, weather/acts of god, etc. These risks are covered in a lump sum line item called “contingency”. There may be a budgeted UConn contingency and a separate CM contingency, both of which must be closely managed by UConn. University Policy requires that a project budget have at least 10% contingency in the planning stage, 8% after design, and 5% at the start of construction.

Tasks

- CPCA leads effort on contract terms and language; AES/CPDC provides support
- Project budgets should have appropriate allowances and contingency line items for “known unknowns” and the “unknown unknowns” in accordance with University policy

Deliverables

- Budgets that match the project profile
- Contract documents with appropriate language and terms to address University Risk

Notice/Review/Approval/Informed

- N/A – CPCA/UCHC PD
- R – AES/CPDC Directors
- A – AES/CPDC AVP
- R/A - VP CFO & Plant Accounting
- R - Attorney General & Outside Legal Counsel
- A/N - BOT & its committees, Budget Approval when required

Resources

- CPCA Procedure Manual
Jobsite Safety

This subsidiary procedure to the Risk Management procedure is meant to emphasize the University’s concerns regarding risks associated with jobsite safety. The University has issued the “President’s Policy on Harassment” which details a zero tolerance policy regarding good practices related to this issue. By contract, contractors are responsible to follow all University policies, rules and regulations, in addition to all Federal and State requirements in working at a University job site. Environmental Health & Safety (EH&S) maintains a safety manual for all contractors’ use which is distributed at all pre-construction meetings. It has also engaged the services of a safety inspection firm to oversee the contractor’s approach to site safety in both occupied and unoccupied sites. The regular scheduling of oversight reviews by this inspection firm and the use of this firm for special inspections and consultations is the responsibility of the AES/CPDC PM.

Though not necessarily experts themselves, authorized representatives of the University (PM & Construction Engineers) should alert the experts when they see activity that appears as though it is being performed unsafely, so that the experts can inspect and work with the contractor to eliminate a non-compliant activity if deemed necessary.

Tasks
• Disseminate the safety EHS Manual
• Refer contractors to the UConn Environmental Health and Safety Dept for knowledge of UConn requirements and policies
• Schedule regular safety inspections utilizing the UConn safety inspection consultant
• Inform EH&S and the safety consultant if there is suspicion by casual observation of unsafe work performance

Deliverables
• Site safety Inspection reports by the safety consultant
• Any reports required by policy, procedure, governmental regulation and law

Notice/Review/Approval/Informed
Storrs & Regional Campuses
• N – AES AVP
• R – Project Manager
• R – AES Dir of Project Management
• N – UConn EH&S

UCHC
• N – CPDC AVP
• R – Project Manager
• R – Director of Construction Services
• I/R – Research Safety/Public Safety, as needed

Resources
• UConn Environmental Health and Safety website
• EHS Requirements Manual for Construction, Service, and maintenance contractors
Invoices and Payments

Invoices are to be paid in accordance with contractual requirements based upon the original terms, schedule of values or progress as measure by the AES less retainage. Processing of invoices requires collaboration between AES/CPDC and Plant Accounting. The tool to ensure that a documentation trail of approval and collaboration exists is called a “Goldenrod Sheet’ or more formally “APPROVAL FOR PAYMENT”. Note: The “Goldenrod Sheet” is only required on projects for which Storrs Plant Accounting is responsible for funding verification. For UCHC DM/ADA/Lump Sum renovation projects and all other UCHC funded projects, the approval of payment is accomplished by signatures from CPDC on the invoice and Accounts Payable review payments for sufficient funding in FRS.

Tasks
- Invoice is received
- Plant Accounting records receipt, covers it with a golden rod sheet and forwards to AES/CPDC for detailed review and approval
- AES/CPDC AVP approves
- Plant accounting finalizes process through Accounts Payable

Deliverables
- Signed Golden rod sheet with appropriate backup
- Plant accounting processes payment through Accounts Payable

Notice/Review/Approval/Informed
Storrs & Regional Campuses
- Initiator – Vendor or contractor
- R - Plant Accounting for budget/funding availability
- A – PM
- A – AES AVP
- A - Plant Accounting enters data into the accounting system and processes payment through Accounts Payable

UCHC
- Initiator – Vendor or contractor
- R - Plant Accounting for budget/funding availability
- A – PM
- A/R – CPDC AVP
- A/R – Director of Construction Services, if applicable
- R - Finance enters data into the accounting system and processes payment through Accounts Payable

Resources
- Plant Accounting for Capital Projects
- UCHC PD Policies and Procedures
Audit, Compliance, and Ethics

The intent of this procedure is to create a general awareness of increased accountability for Connecticut State employees, UConn in general, and the UCONN 2000/21st Century UConn Program in particular. Established in 2004, the University of Connecticut Joint Audit and Compliance Committee was mandated to provide oversight responsibilities relating to the integrity of the University of Connecticut financial accounting and monitoring systems.

On July 1, 2006, in PA 06134, the legislature created a Construction Assurance Office at the University reporting to a Construction Management Oversight Committee to specifically review and monitor compliance with the policies and procedures of the University in the areas of construction, contracts, procurement, code compliance, budgets and schedules. To ensure adequate audit coverage the Office of Audit Compliance and Ethics has responsibility of facilitating all internal and external audit efforts and works closely with the Auditors of Public Accounts.

Tasks

• Keep good documentation and files in accordance with this manual to minimize the disruption of an audit
• Document all significant activities and decisions during a project’s life including internal conversations whose results should be recorded in writing
• Meet with Auditors at completion of their fieldwork to discuss their noted audit deficiencies and recommendations for improvements
• Obtain and review draft audit report and respond in writing with AES/CPDC’s plan to correct the noted deficiencies
• Determine if Audit comments require changes or additions to the procedures manual

Deliverables

• Quarterly progress reports to CMOC and Construction Assurances Director

Notice/Review/Approval/Informed

• R – AVP AES/CPDC for audit responses
• R – Construction Assurance Officer

Resources

• Ethics hotline, 1-888-685-2637
Permits, Code Review, Plan Check, Construction Submittals

Each project’s requirements vary depending on the project’s size and scope. Threshold projects are under the jurisdiction of the Office of the State Building Inspector, and non-threshold projects or renovations to University buildings that are the jurisdiction of the Division of Public and Environmental Safety at UConn. Any questions on requirements and jurisdiction may be directed to the Building Code Officials at DPES for answers or referral information. All projects that require a building permit including small renovations will be filed with one of these two agencies. Other permits may be required. Some examples are as follows:

- Various environmental agencies may have jurisdiction. This should be verified in the Planning stage with the UConn Office of Environmental Policy, if applicable
- The demolition of an entire building requires a local demolition permit
- Landscape plans may require review by the Arboretum Committee, if applicable
- All food service establishments require an application to the University’s Environmental Health and Safety Department (Storrs only) and a permit application to the State Department of Health Permit.
- Fire protection plans must be submitted to Factory Mutual for review and approval.
- A Statement of Special Inspections must be submitted to DPES or OSBI as required.

**Tasks**

- Submit project plans and specifications to the Code enforcement Agency having jurisdiction
- Submit Fire Protection design drawings to Factory Mutual
- Submit appropriate plans for permits to the State Department of Environmental Protection, as required
- Submit landscaping plans to Arboretum Committee, Storrs only
- Submit Food Service Plan Review to University of Connecticut Environmental Health and Safety committee, if applicable
- Submit State Health Department Permit, if applicable
- Submit Statement of Special Inspections to Department of Public and Environmental Safety or Office of The State Building Inspector, if applicable
- Obtain Hot Work Permits from the University of Connecticut Fire Marshal’s office or UCHC Public Safety

**Deliverables**

- All regulatory permits and approvals as needed
- University Environmental Health and Safety Department approvals, as required
- University Arboretum committee approvals, Storrs only
- Factory Mutual approval for fire protection plans, as required

**Notice/Review/Approval/Informed**

- A – Regulatory Agency as required

**Resources**
Environmental Compliance

Environmental compliance is an umbrella term for many issues and considerations that must be made at the outset of a project as a result of increased societal concern for our natural resources and public well being. They relate to air quality, energy, water, wastewater, wetlands, etc. The definitive resource for these issues within UConn is the Office of Environmental Policy or UCHC CPDC. They should be consulted during the planning stage so that costs, issues, and long lead time application processes can be made part of the plan and the initial budget.

Tasks

• Work with OEP/CPDC to prepare an environmental action plan at a project’s outset to ensure that cost and schedule implications are reflected in the budget and the Project Plan
• Support OEP and other University Departments in executing the plan, and in tracking progress

Deliverables

• An Environmental Action Plan
• Applications, support documentation and project based services required to implement environmental activities

Notice/Review/Approval/Informed

Storrs & Regional Campuses

• R – AES AVP
• R – AES Directors for implementation
• R – Office of Environmental Policy for execution

UCHC

• R – CPDC AVP
• R – Director of Construction Services
• R – Research Safety Office
LEED Practices and Certification

The State of Connecticut and the University in the interest of good citizenship, has enacted a policy/state statute which requires the University to seek US Green Building Council Silver LEED accreditation for any new building or renovation project whose total project cost is $5 million or greater for new construction and $2 million for renovation. Implementation requires experience LEED AP expertise on the team from the early planning stage. Cost impacts for both professional services and construction must be recognized in the earliest of budgets and carried throughout the project. The LEED leader for the University will be designated at the outset of the project and will work closely with the AES/CPDC Directors, Project Manager, OEP and the design and construction teams to assure the desired result.

Tasks
- Provide LEED leadership on the team
- Procure consulting assistance
- Develop an effective accreditation plan
- Perform per plan
- Coordinate submissions with the USGBC until accreditation is received

Deliverables
- Pursuant to the USGBC and OPM process

Notice/Review/Approval/Informed Storrs & Regional Campuses
- A – AES AVP
- R – OEP
- R – PM
- N – CPCA for procurement of Commissioning & other relevant specialty services and issues

UCHC
- R/A – CPDC AVP
- R/A – Director of Construction Services
- R – PM
- N – CPCA for procurement of Commissioning & other relevant specialty services and issues

Resources
- ASHRAE Commissioning Guideline
- USGBC LEED accreditation standards (www.usgbc.org)
- State of Connecticut High Performance Building Regulations (under development)
Building Inspection

Buildings under construction will be inspected by the Office of the State Building Inspector, the State Fire Marshal, UConn DPES Building Officials, and the UConn Fire Marshal in accordance with the State Building and Life Safety Codes. For further description, consult the appropriate code and the Department of Public Safety Manual.

Tasks
- See Procedure 600

Deliverables
- Not Applicable

Notice/Review/Approval/Informed
Storrs & Regional Campuses
- R – AES AVP
- R – Director of Project Management
- Action/A – PM
- N/A/R – DPES/DPS

UCHC
- R – CPDC AVP
- R – Director of Construction
- Action/A – PM
- N/A/R – DPES/DPS

Resources
- Connecticut State Building and Fire Code
- DPES Manual
Management Reporting

Management Reports are prepared by AES/CPDC, DPES, CPCA, Plant Accounting, the Office of the CFO, and others. Some are statutory in their requirement, some are to assure effective communication, and some are necessary for proactive management. All are prepared from different systems and databases. While there is cooperation in the sharing of data, opportunities for standardization are currently being reviewed.

Tasks
• In development

Deliverables
• In development

Notice/Review/Approval/Informed

• AES/CPDC AVP
• AES/CPDC Directors
• Project Managers
• Plant Accounting
• CMOC/CAO
• Plant Operations
• CPCA/UCHC PD
• DPES
• OSBI & OSFM
• University Buildings & Grounds
• BOD/BOT & its committees

Resources
• In development
Procedure Manual Modification Process

The AES/CPDC Associate Vice President will each designate a management “point-person” to manage the changes and improvements made to any procedure in this manual. Any requests for changes will be sent to this manager. The manager will route the proposed change to all AES/CPDC Directors, the other Associate Vice President, and to any other affected University stakeholder. After reaching consensus on the specific change the manager will route the re-written procedure and get a sign off by each Director approving the change. The manager will change the revision date and distribute the new document to all manual holders.

Tasks
- AES/CPDC Manager receives proposed changes
- AES/CPDC Manager routes proposed changes for comment
- AES/CPDC Manager rewrites proposed procedure
- AES/CPDC Manager routes proposed procedure for sign off
- AES/CPDC Manager issues revised procedure

Deliverables
- Draft Change
- Draft Proposed Procedure
- Revised procedure
- Sign off documentation

Notice/Review/Approval/Informed
- N – All manual users
- R/A – All AES/CPDC Directors & other University Stakeholders
- N/A – CMOC/CAO

Resources
- Not Applicable