



COLLEGE *of*  
CENTRAL  
FLORIDA

**FACILITIES  
DESIGN AND CONSTRUCTION STANDARDS**



October 2014

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I.

## **SAFETY**

**Safety is College of Central Florida's highest priority.**

**All current applicable safety regulations and standards dictated by Occupational Safety Health Administration (OSHA) and College of Central Florida will be implemented and observed.**

## II.

### INTRODUCTION

College of Central Florida provides the Design and Construction Standards outlined below to the design and construction professionals in order to establish general and specific architectural, mechanical, plumbing, and electrical, communication and site specification requirements for each project. These standards have been developed to support the educational programs contained in each facility.

The development of these requirements is intended to serve as a guide with the understanding that the project design professional will be responsible for the full development of these requirements as part of their scope of work.

The guidance provided is not intended to conflict with the State Requirements for Educational Facilities (SREF), the Florida Building Code or any other applicable code.

The design professional shall promptly bring any such conflicts to the attention of the Owner.

This manual of Design and Construction Standards has been prepared by the College of Central Florida to guide Architects and Engineers, hereinafter referred to as the Professional, commissioned to design buildings and other facilities for The College of Central Florida. The information contained herein applies to the College of Central Florida, Citrus Campus, Levy Center, Hampton Center and Appleton Museum; and all other locations.

These standards and guidelines are the result of considerable experience in the design, construction, operation and maintenance of a substantial number of physical facilities. It is intended that the material included in this manual shall be applied in the preparation of documents for the design and construction of new buildings and renovations to existing physical facilities. If the Professional believes that a specific situation requires a deviation from the standards contained in this manual, he should discuss such a deviation with the College of Central Florida Project Manager, and request in writing that a special exception be approved.

All buildings and other projects for the College of Central Florida shall be designed as quality institutional facilities with components specified to provide maximum life-cycle usefulness. The College of Central Florida establishes the total project budget, including the maximum fund available for construction. The Professional is charged to monitor program requirements and cost estimates to assure that the project is designed within available funding, and that it does not deviate from the quality standards established in this manual.

The Professional shall design the project in compliance with all applicable Federal, State and Local codes, ordinances, laws and other regulations which have jurisdiction

over the nature of the construction. If any of the above are at variance with the material in this manual, the most demanding requirements shall be observed.

In addition to the above mentioned codes, for College of Central Florida owned buildings, the College of Central Florida uses the most current editions of the following codes and standards as design criteria:

Applicable codes of the USBC

The College of Central Florida has an Energy Conservation Program which maintains a strong position calling for the maximum possible use of energy-efficient designs and specifications, for structural, mechanical and electrical work. The Professional should be aware that all designs will be reviewed by the College of Central Florida within this context.

The process for complying with zoning or land use regulations shall be managed by the College of Central Florida.

The Professional shall attend all hearings/meetings required for securing necessary approvals and permits.

The Professional shall be responsible for completing all the appropriate planning modules, soil erosion control plans and other documents which may be required.

The Professional shall be responsible for obtaining whatever permission necessary to connect to non-College of Central Florida owned utility lines.

## REVISIONS OF THE DESIGN AND CONSTRUCTION STANDARDS

Changing technology and changes in College of Central Florida requirements will require continuing revisions and updates to the manual. All comments and proposed corrections or revisions should be directed in writing to:

Kevin Justice  
Manager Facilities Operations  
3001 S.W. College Rd., B-10  
Ocala, FL 34474 (352)-854-2322  
[justicek@cf.edu](mailto:justicek@cf.edu)

After review and approval of the Facilities department, the revisions will be made to the web version of the standards.

All pages of revised and/or new sections will be dated in the lower left-hand corner. Changes within the date indicated shall be in bold underlined text and deletions shall be indicated by strike through.

The revision date will also be recorded in the Date Revised column in the Table of Contents. Each user of the manual shall delete obsolete pages and insert revised pages as required.

Before starting a project for the College of Central Florida, all Professionals shall ensure that their copy of the Design and Construction Standards is up to date.

**III.**

**GENERAL NOTES TO THE PROFESSIONAL**

**1 Board of Trustees Submissions**

The Professional shall be responsible for the preparation of graphic material to be presented to the College of Central Florida Board of Trustees when their approval is required for a project.

**2 Standard Drawing Size**

Drawings shall be prepared on standard sheet sizes 24 inches by 36 inches or on sheets 30 inches by 42 inches. Use of any other sheet size requires the prior approval by the College of Central Florida Project Manager.

**3 Planning of Support Services Area**

During the planning and design stages of the project, the Professional shall consider the need to provide certain support service areas that may be required for a particular project but not necessarily identified in the program.

**4 Retention of Existing Trees**

- a To encourage the retention of mature trees which are one of the College of Central Florida 's prime assets, and to correct the current slow depletion of the campus tree canopy, the Professional shall site the building to minimize the loss of and impact on mature trees under direction of the college tree committee and landscape architect.
- b The landscape plan for the project shall be integrated with the surrounding landscape design and it shall include trees.

**5 Construction area workspace and Safety Considerations**

- a Runways and ramps should be installed in all buildings where bulk supplies are handled. Ramps should have a surface providing traction.
- b All glass and glazed doors used at entrances, stairwells, etc., shall have adequate push plates or bars and proper glass as required by applicable building codes or regulations.

**6 All windows in buildings (above ground floor) must be of the type which can be washed on both sides from the inside of the building. Where construction is such that this type of window cannot be installed.**

- 7 All outside steps must be adequately lighted. Treads and landings should have positive drainage away from the building.
- 8 Suitable railings and guards shall be provided at all places such as stairwells, outside steps, bridges, loading ramps, etc. where persons are exposed to the possibility of falls from one level to another.
- 9 All inside lighting fixtures must be placed so relamping can be accomplished with minimum effort and hazard.
- 10 Chemical and flammable liquid storage and usage areas will be ventilated sufficiently to remove all fumes and shall be constructed in accord with all applicable codes and College of Central Florida requirements.
- 11 For the College of Central Florida piping color code and the usual painting called for under the mechanical trades, the College of Central Florida uses a "Color Code" for the identification of certain equipment and piping.

## 12 Submittals

To assist the Contractor(s) in following through on all the various submittals that will be required of them, the Professional shall include in the contract documents, complete with the Specification section/paragraph reference, a table indicating all the shop drawings, catalog data, manufacturer's operating instructions, maintenance instructions, certificates, warranties, guarantees and any other pertinent operating and maintenance data.

## 13 Equipment Screening

All exposed exterior mechanical and electrical equipment is to be screened from view. The screening method to be employed will be determined on an individual project basis.

# **SECTION ONE: GENERAL REQUIREMENTS**

## **1 BUILDING REGULATION AND CODES:**

- a **Building Area Allowances:** The facility shall meet applicable codes and regulations with respect to area limitations set forth in SREF, the Florida Building Code and the Florida Fire Prevention Code. Building area allowances and applicable construction types shall be verified by the design professional in their initial phase of work.
- b **Plan Review and Approvals:** The project will be reviewed and approved at specific stages of the design and development process as set forth in the



contract. Reviewing authorities may include: District Board of Trustees, Department of Education and Architect/Engineer Plan Reviewer, college building official.

2 TESTING SERVICES:

- a Provision of testing lab services for soil and density and concrete shall be the responsibility of the Owner. Contractor is responsible for all trade test.

3 PROJECT SIGN AND COLORS:

- a Coordinate project construction signage with Owner. Colors shall be standard college colors and material shall be purchase from Innerface Sign Systems. Building plaque shall be bronze. Director of Facilities shall approve all signage and plaques.

4 BUILDING SAFETY STANDARDS:

- a The facility shall comply with applicable codes and health and safety regulations. Design professionals are directed to determine the safety and security of project requirements and implement those requirements as part of the design process.
- b The facility shall have a fire alarm system according to applicable codes, regulations and Owner standards. The system shall be Siemens and shall be purchased directly by the Owner. A combination audible/visual device shall be installed.
- c The facility safety devices, fire extinguishers, exit lights, exit hardware, etc., shall comply with applicable codes and regulations. Elevators, provide heat detectors per code and rated separation of elevator machinery room.

## **SECTION TWO: SITE CONSTRUCTION**

### **GENERAL:**

The plans shall clearly delineate the limits of construction and areas to be preserved. Location of construction fence, staging areas, temporary access and related requirements shall be indicated on the drawings. Requirements for protection of students and staff during construction shall be coordinated between the design professional and the contractor and approved by the facilities department. Reconditioning the existing landscape and paved areas disturbed during construction shall be the responsibility of the contractor.

### **1. DEMOLITION:**

- a. **Building/Selective Demolition:** The scope of the demolition shall be defined clearly on the plans. Contractor shall coordinate all utilities and maintain marking throughout the project. Temporary shoring, support and protective measures required shall be the responsibility of the contractor. Contractor shall be responsible for cutting/capping existing utilities as required.
- b. **Salvage:** The Owner shall determine the disposition of existing salvageable equipment.
- c. **Asbestos:** If suspected asbestos is encountered during construction, the contractor shall immediately notify the Owner.

### **2. SITE PREPARATION:**

- a. **New Construction:** Comply with the recommendations of the geotechnical engineer for clearing, grubbing, excavation and construction of the building pad. Stipulate minimum satisfactory soil classification groups for imported fill and require certificate of radium levels less than or equal to 2 Ci/g. Provide details to prevent damage to surrounding areas and waterways from soil run off.

### **3. BUILDING LAYOUT:**

- a. A Florida registered land surveyor shall perform building layout during construction.

### **4. STORMWATER DRAINAGE AND RETENTION:**

- a. Coordinate with existing campus storm water management system. Provide additional pipe, swale or retention areas as required to meet Water Management District (WMD) requirements.

5. CONCRETE SIDEWALKS:

- a. All sidewalks shall be construction using welded wire fabric reinforcing and shall be placed over a polyethylene vapor barrier. Concrete mix design shall be 3,000 psi. Joints shall be hand tooled.
- b. Concrete bumpers for students and visitors shall be painted Sherwin Williams "All Surface Enamel" Latex White. Bumpers for staff and faculty shall be painted red approved by Facilities Department and handicap bumpers painted blue in accordance with American with Disabilities Act (ADA) and local codes.

6. LANDSCAPE AND IRRIGATION:

- a. Landscape design must be simple and functional. Exotic and cold-sensitive plants material shall be avoided. Coordinate design with existing plants in the area of the building.
- b. Irrigation shall be contracted for by the Owner and shall include all landscape areas using the existing campus water distribution system.

7. SITE SIGNAGE:

- a. Exterior identification and directional signs shall conform to existing campus standard. Standard college colors are red, white and blue as follows:
  - i. Porter Glyplex High Gloss Oil #4144 Harbor Blue
  - ii. Sherwin Williams "DTM" Safety Red Latex Factory Mix

8. SITE LIGHTING:

- a. Site lighting shall match campus standard metal halon, LED or an approved by Facilities Department.

**SECTION THREE: CONCRETE**

1. CONCRETE DESIGN VALUES:

- a. Concrete testing shall be the responsibility of the Owner. The minimum concrete standard is 3,000 psi strength laboratory designed and tested concrete mix for foundation and slabs.
- b. Vapor barriers and concrete slabs shall conform to Florida DCA standard for radon-resistant construction.

**SECTION FOUR: MASONRY**

1. STANDARD EXTERIOR WALL CONSTRUCTION:

Standard exterior wall construction shall be cavity type with 8"x8"x16" concrete masonry unit interior wythe and face brick veneer. The brick standard is manufactured by Boral Brick Company "Atlanta Buff " #10-912. Vapor barrier shall be bituminous waterproofing applied to the cavity face of the concrete masonry units. Mortar shall be typically type S. Tool all exposed mortar joints slightly concave.

## 2. MASONRY CONTROL UNITS:

Provide masonry control joints at interior and exterior walls in accordance with NCMA recommendations. Contract documents shall clearly indicate moisture control measures including through wall flashing, weep holes and vents.

## **SECTION FIVE: METALS**

### GENERAL:

Structural design must conform to wind requirements of the Florida Building Code. Store materials off the ground using pallets, platforms or other supports, vented to prevent condensation damage.

## 1. STRUCTURAL STEEL:

Comply with applicable provisions of AISC "Specification for Structural Steel Buildings – Allowable Stress Design". Welding standards shall comply with AWS D1.1 "Structural Welding Code – Steel". Contractor shall submit current and appropriate welding certificates for all welders on the project or approved equal.

## 2. ERECTION STANDARDS:

Ensure bituminous coating provided at all steel columns that extend below grade and may be in contact with earth. Contractor shall not be permitted to use thermal cutting of structural members, however thermal cutting of secondary members is allowed only upon written prior approval.

## **SECTION SIX: WOOD AND PLASTICS**

### GENERAL:

Provide pressure treated lumber for wood or blocking in contact with concrete, masonry or exterior. Provide incidental blocking as required for casework, chalk or tack boards and wall stops for doors.

## 1. CASEWORK:

Casework shall be high-pressure laminate finish. Cabinet bases shall be constructed with pressure treated wood blocking. Hardware shall be heavy duty.

## **SECTION SEVEN: THERMAL AND MOISTURE PROTECTION**

### **1. ROOFING:**

- a. All new buildings shall be constructed roofs to match the campus standard.
- b. Manufacturer shall have at least ten years experience in roofing and the installer shall have a minimum of five years experience in the specified type of roof system.
- c. Warranties shall include the manufacturer's 20 year full labor and materials warranty with 30 years available at Owner's option, a 20 year warranty against perforation and a two year installer's warranty.

### **2. GUTTERS, FLASHING AND TRIM:**

- a. Gutters, flashing and trim shall be designed and installed as an integral part of the roof system and shall be covered under the same warranty.
- b. Gutter downspouts shall be routed to an underground storm water collection system.

### **3. INSULATION:**

Roof insulation shall meet Florida Energy Efficiency Code standards. Fiberglass bat insulation shall be required for acoustical isolation.

## **SECTION EIGHT: DOORS AND WINDOWS**

### **1. DOORS AND FRAMES:**

Exterior doors shall be hollow metal 3'x7'x1 3/4" thick, color Sherwin Williams "Industrial Enamel" Oil #1141 @ 75% (tint) or approved equal. Trim shall be the same. Typical interior doors shall be stain grade solid core oak finish, 3'x7'x1 3/4" thick. Doors shall have either windows or side lights. Interior hollow metal frames shall be 16 gauge factory galvanized with fully welded mitered joints, color Sherwin Williams "Industrial Enamel" Semi-Gloss Oil #2122 or approved equal.

### **2. FINISH HARDWARE:**

- a. Doors and door hardware shall be closely coordinated with the Owner. Finish hardware (locks, keys, exit devices) shall be Sargent. Exterior doors at main entrances

shall have automatic openers operated by hand activated push plates. Electronic door hardware shall be Locknetics (card reader, keyway, push button).

b. During construction locks shall be equipped with a construction key feature that permits voiding the construction keys without removing the cylinder. The Owner will complete the final keying of the locks.

### 3. WINDOWS:

Provide natural light for instructional spaces in accordance with SREF, environmental considerations and energy efficiency.

## **SECTION NINE: FINISHES**

### 1. FLOORING:

- a. Vinyl Composition Tile: provide at all storage rooms and service areas. Manufacturer shall be Tarkett or approved equal.
- b. Carpet: provide at conference rooms, offices and classrooms. Manufacturer shall be Collins & Aikman or approved by Facilities Department.
- c. Ceramic Floor Tile: provide at toilet rooms, lobbies, corridors, common area approved by Facilities Department.
- d. Finish at mechanical and electrical rooms shall be painted prior to equipment installation with a color approved by Facilities Department.
- e. Base shall be carpet base approved by Facilities Department
- f. Contractor shall be responsible for vacuuming and cleaning all floors.

### 2. WALLS:

- a. Wall paint shall be Sherwin Williams approved by Facilities Department.
- b. Walls that receive "Walltalkers" shall be finished to a level 4 or better. All other walls will be textured with an "orange peel" finish or knock down as approved by Facilities Department. Contractor shall provide mock up for approval.

### 3. ACOUSTICAL CEILING TILE:

Armstrong RH 90 tegular tile #1732.

### 4. EXTERIOR PAINT:

Sherwin Williams "A/100" Gloss Latex #1141 @ 75% (tint) or approved equal.

## **SECTION TEN: SPECIALTIES**

### **1. SIGNAGE:**

The design professional shall provide a list of permanently affixed interior and exterior signage to address all safety, means of egress and other information as required by applicable codes. Signage brand is Innerface.

All signage will be furnished and installed by the Owner.

### **2. TOILET PARTITIONS: TBP**

### **3. VANITY TOPS: TBP**

**4. GRAB BARS AND MIRRORS:** Shall be specified by the design professional and installed by the Contractor.

**5. PAPER TOWEL DISPENSERS, TOILET PAPER DISPENSERS AND SOAP DISPENSERS:** Shall be purchased and installed by the Owner.

**6. TRASH RECEPTACLES, PENCIL SHARPENERS AND CLOCKS:** Provided by the Owner.

### **7. FIRE EXTINGUISHERS:**

a. Spacing, location and type of fire extinguishers shall be determined by the design professional and shall be indicated on the life safety plans.

b. Campus standard is Larsen stainless steel semi-recessed cabinet. Fire extinguishers shall be furnished and installed by the Contractor to match campus standard Type ABC dry chemical extinguishers in either a five or ten pound size.

### **8. PROJECTION SCREENS: TBP**

**9. WHITEBOARD:** Wall Talker material shall be used for projection and writing surface.

### **10. TACKBOARDS: TBP**

Tackboards shall be vinyl-faced, fiberboard backed with aluminum trim 4'x4'. Locate adjacent to classroom door in interior of typical classroom.

## **SECTION II: FIXTURES AND EQUIPMENT:**

The college F/F provider shall provide a detailed furniture and equipment plan and furnish detail identifying data for all movable furniture, systems and equipment required for a completed and usable facility.

In general furniture shall be freestanding and easily movable.

Movable furniture, systems, furnishings and equipment shall be procured by the Owner and installed by others unless otherwise indicated.

Vending machines and kitchen equipment will be furnished and installed by the Owner.

#### **AUDIO/VISUAL SYSTEM:**

Standard classrooms shall be designed to incorporate a complete audio visual system including a ceiling mounted projector and an instructor's lectern. The audio visual system will be furnished and installed by the college; however, the design professional shall be responsible for coordinating the infrastructure requirements for the system in the contract documents.

#### **SECTION 12: FURNISHINGS TBP**

#### **SECTION 13: SPECIAL CONSTRUCTION**

##### **1. ACCESS FLOORING:**

- a. Provide raised panel modular access flooring at computer classroom areas as directed by the Owner. Design standard is Steel Case.
- b. The access floor system shall include integrated electrical distribution system as provided by the primary manufacturer is Steel Case.

#### **SECTION 14: CONVEYING SYSTEMS**

##### **1. HYDRAULIC ELEVATORS:**

- a. Provide a pre-engineered hydraulic passenger elevator system by a manufacturer acceptable to College of Central Florida Facilities.
- b. Provide emergency communication system in accordance with applicable code.

#### **SECTION 15: MECHANICAL**

##### **1. PLUMBING:**



- a. Facilities shall have hot and cold water service, sinks and waste according to Owner standards and applicable codes. In group toilet rooms, cold water only shall be provided.
- b. Drinking fountains shall be provided per Owner standards and applicable codes in type, location and mounting. Typically located in the area near toilet facilities, fountains shall be of the high-low accessible type.
- c. Provide hose bibs and floor drains in all restrooms. Floor shall slope to drains.
- d. Tankless or "On Demand" gas water heaters shall be used. Provide hot water at all custodial spaces and kitchens.
- e. Provide floor drain and mop sink at each custodial space.

Provide hose bibbs and floor drains at each mechanical room.

Provide recessed tamper-proof hose bibbs at exterior of building.

#### TOILET FIXTURES:

Fixtures and seats shall be white and wall mounted. All plumbing shall be lead free. The design professional shall use standard electrical, plumbing and hardware fixtures to the greatest extent practical throughout the project. The standard fixtures shall be compatible with those in existing campus buildings. Insulation shall be provided at exposed piping at lavatories provided with hot water. All urinals shall be of waterless flush type as approved by facilities department.

#### HEATING, COOLING AND AIR CONDITIONING:

General: Provide heat, cool and ventilation to all program spaces according to applicable codes and environmental requirements. As required by SREF, HVAC systems shall be designed to provide indoor air quality, comfort and energy conservation. The HVAC system shall be compatible with the campus system. VAVs and shall be manufactured by TRANE or approved equal and shall have by-pass switches for maintenance purposes.

Temperature: Program spaces shall be cooled and heated to provide a temperature range from 68 in the summer and 74 degrees Fahrenheit in the winter with a relative humidity of 40 to 60%. Program spaces shall be provided with appropriate air changes according to space use, program activities and applicable code.

Hazardous Materials: Design professionals shall comply with applicable codes for segregation of and protection for hazardous materials and for special ventilation of flammable and/or caustic material storage units.

Equipment Standards: All exhaust fans on the roof shall be direct or belt drive and shall be located over service areas only (not classrooms, offices, etc.). Exhaust fans located within the building above the ceiling shall be located so that they are easily accessible and shall be located over service areas such as corridors and storage rooms.

VAV boxes mounted above the ceiling shall be located so that they can be accessed with a standard ladder. Where possible, locate VAV boxes above corridors and service areas so that they can be serviced without disrupting building operations.

Air handler filters shall be 2 inches thick, 30 to 35% pleated type. If an air cleaner is required, filters will be 4 or 12 inches thick at 90 to 95% to meet requirements. Air handlers shall be mounted on a continuous rail and a housekeeping slab of sufficient thickness to meet condensate drain requirements. Drain shall be located at the front of the housekeeping pad. All AHU shall be equipped with ultra-violet lighting approved by facilities department.

Manufacturers: All AHU, chiller and compressor components and VAVs shall be by TRANE or approved equal, purchased by the Owner and installed by the Contractor. Controls shall be SIEMENS.

Installation Standards: Sound isolation shall be provided where air handlers are adjacent to occupied spaces. Thermostats shall not be located adjacent to windows. Preferred location is near return air grilles. Fire dampers shall be provided at all rated walls per life safety plan requirements. Access doors to air handler rooms shall be a pair of 3'x7' doors.

Test and Balance: A firm contracted separately by the College shall perform HVAC test and balance.

## **SECTION SIXTEEN: ELECTRICAL**

### **1. GENERAL REQUIREMENTS:**

- a. The program spaces shall have electrical service according to educational program requirements, Owner standards and applicable codes. The design professional will use standard electrical, plumbing and hardware fixtures throughout the project. The standard fixtures should be compatible with those in existing campus buildings. Controls shall be Siemens.
- b. The program spaces shall have general purpose 120 volt 20 amp electrical grounded duplex outlets on perimeter walls at 18 inches above finished floor. Special furniture and equipment stations shall have general purpose 120 volt 20 amp electrical grounded duplex outlets in a grid under raised computer flooring.
- c. GFI outlets shall be provided in accordance with applicable codes and Owner standards. Dedicated 120 volt grounded electrical circuits and 208/240 volt

electrical circuits shall be provided for special equipment as required by applicable codes and manufacturers' recommendations.

d. Design professionals are directed to review the data including both in contract and not in contract furnishings and equipment relative to providing specific electrical requirements.

e. Installation Requirements: Label panel boxes, electrical outlets and junction boxes. Floor outlets shall have brass cover plates. Panels and breakers shall be Square D I line type. All duplex outlets providing power to computers shall be wired to a UPS panel that will readily interface with a UPS system.

f. UPS Systems: New facilities and major renovations shall be provided with a central UPS unit.

g. Surge Suppression and Grounding: Provide comprehensive surge suppression and grounding system to protect computers and /or audiovisual equipment from lightning strikes, etc.

h. Lighting: Design professional shall design lighting to meet requirements of SREF. The VCP for direct glare shall be greater than 70 according to standard testing procedures. General illumination shall be designed and circuited to provide for minimum illumination in the event of failure of any single lighting unit and will not leave any occupied area or a means of egress in darkness.

i. Task illumination for marker boards and other visual aids shall be designed to eliminate glare and shadow.

j. General illumination levels in instructional spaces other than laboratory shall be designed to the average raw foot-candle values recommended in the Illumination Engineering Society Handbook.

h. All device covers shall be stainless steel or approved equal.

## 2. LIGHTING:

a. Lighting controls and fixtures in instructional spaces shall be installed so that light level may be effectively reduced to facilitate use of audio visual equipment, projected visual aids, televisions or computer screens and to allow not taking while dimmed. T-5 lamps and electronic ballasts shall be used in all florescent fixtures. Indirect Fixture will be installed on office lighting.

b. Fixture Requirements: If specifically directed by Facilities, lighting shall be remotely controlled in multi-media facilities. Lighting controls will be positioned near the primary teaching position in all laboratories and classrooms. Exterior wall pack and pole lamps shall conform to college standard. Full cover fixtures required in mechanical, electrical and machinery rooms.

### 3. COMMUNICATIONS:

- a. The program spaces shall have voice, data, video and audio communications per Owner's standards and applicable codes.
- b. Communications requirements are based upon the following systems: telephone systems based on existing campus standard, network connection to campus data infrastructure, video instructional closed circuit television system.
- c. Typical classroom audio/visual systems: Provide receptacle on UPS circuit above ceiling for led projector. Projector shall be 17 feet from front wall in a typical classroom. At projector location, provide box and 1 ¼" diameter conduit to floor box at lectern location approved by facilities department.

#### IV.

### Facilities Construction - Best Practices

#### A. Construction Delivery

With a recommendation from the Plant Operations Department and Project Architect. It shall be the decision of the Vice President for Administration & Finance and the College President to recommend to the District Board of Trustees a project construction delivery method. With consideration to the project size and scope, projects \$280,000.00 (or as required per FS. 1013.451e) to \$3,000,000.00 may be hard bid. Projects \$3,000,001.00 and up may use the CM – Construction Management process and follow the college administrative procedure for Construction Manager Contract Administration.

#### B. Pre-Construction Services

The selected CM may be asked to perform these services working along with the College Project Manager, Director of Facilities, and project architect to best determine the project scope, construction methods and materials to create a GMP – Guaranteed Maximum Price.

#### C. CM Subcontractor Selection

The CM is required to solicit sealed bids for all work, materials and supplies within the scope of the contract. The college Project Manager shall be present for all bid openings and shall sign and date all bid tabulations. The CM shall provide the College Project Manager a letter of recommendation of award for each bid proposal

#### D. GMP - Guaranteed Maximum Price

After the GMP has been delivered to the Project Manager, the Vice President Administration & Finance, Director of Facilities, and Project Architect will review the GMP by division to assure the project will meet the project educational specifications and approved budget. If approved the architect will provide the Director of Facilities a letter of recommendation to approve the GMP.

#### E. General Conditions Review Methodology

When negotiating the general conditions for a project there are a number of things to consider but they primarily center around what it will take in staffing to manage the project. This is simply an attempt to make a subjective process a little more structured.

Size of project (minor renovation of relatively small space or major expansion or renovation of an entire building or entirely new facility)

*The size of the project and its relative length impact staffing the most as it will determine the number and type of subcontractors on the site at any given stage during construction. It may also dictate the extent of submittals requiring review and approval.*

*A typical CM managed project will include a superintendent, a project manager, a project engineer and some form of upper level management support not housed on site.*

*Minor renovations that require only part time oversight may actually share the cost of superintendents and project managers.*

*Major renovations and new construction will most likely require full time staffing. The question is who and how much. Just dividing projects by cost categories does not take into account the type or complexity of the projects but it is at least a start. So given our own definition of minor as under \$2 million one could easily make the first determination on part time versus full time, keeping in mind there will be projects under that threshold that require full time staff.*

*Although others will argue this point the superintendent is the most important person on the payroll. They manage the day to day activity on the job site and are responsible for all of the sub contractor's activities. The project manager comes in second and is responsible for the project schedule and submittal processing among other things.*

*So continuing with our rationale for our major project threshold requiring full time staff does that mean a full time superintendent and project manager will be required on every project over \$2 million? No! A superintendent can manage more than one project over \$2 million depending on the complexity and schedule of those projects. The same goes for the project manager.*

*But once you start increasing the dollar value of the project several other issues come into play. With larger projects you could in fact have a second superintendent as an assistant or more as the project value grows. Since this is somewhat an arbitrary process already let's say:*

*From \$Zero to \$2 million we could expect a part time superintendent and project manager*

*From \$2 million to \$5 million we could expect a full time superintendent and project manager and possibly a part time superintendent and part time project engineer.*

*From \$5 million to \$10 million we could expect a full time superintendent with a possible second full time, a full time project manager and possible second part time, and a full time project engineer.*

*Above \$10 million we could expect two full time superintendents and a possible part time, two full time project managers and a full time project engineer with a possible part time.*

*All of this is still contingent on project complexity, schedule, location and occupancy.*

Location of project (easy access and confinement or hard to access and confine)

*Projects in the middle of campus may require closer oversight of subcontractor where heavy equipment or deliveries are everyday occurrences.*

Impact of project to campus (low impact, little noise, dust, odor etc. or high impact, lots of noise, dust, odors and complaints possible)

*Even minor projects that take place in occupied buildings may require an infinite measure of oversight in order to avoid disruption to classes taking place one wall away.*

Type or complexity of project (is it a simple project or highly complex with regard to mechanical, electrical and specialty systems)

*Naturally projects that involve partially or completely vacating normally occupied buildings adds a dimension of oversight that is different than new construction.*

Type and number of subs (is it a framing and painting subcontractor or is it sitework, structural steel, concrete, mechanical, electrical, plumbing, IT, and specialty subs)

*The type of sub contractors and the complexity of their work will affect the level of oversight required.*

Time constraints (is time not the driving force or is it a rushed summer time project that will impact opening at the start of fall term)

*Rapid fire summer projects that must be completed for the start of the fall term require additional staffing to manage sub contractors who many times will be working additional crews or working different scheduled from other subs.*

What is the expected extent of submittal reviews and shop drawing reviews?

Are coordination drawings required?

What is the safety factor? Again is it a simple project or a multiple floor project with extensive high work?

Does this CM have other work on campus with staff that can support this project?

What is more appropriate coming out of their fee?

Project Size	Superintendent	Project Manager	Project Engineer	Field Office Staff
Under 2 million	1/2 to 1	1/2 to 1	0	
2 to 5 million	1 +	1	1/2 +/-	1/2 +/-
5 to 10 million	1+ to 2	1 to 1 +	1	1
Over 10 million	2 to 3	2	1 +	1+

### General Requirement Review

What is needed to support the staff and project above?

***Once you determine the level of staffing required for your project you can evaluate what is a reasonable amount of support that group will need.***

#### **F. Professional Services Insurance Coverage ( Construction Managers and Design Professionals)**

The College Project Manager will coordinate with the College Risk Manager to assure that all required certificates of insurance for CM and Design Professionals are properly named and have the required coverage amounts as required by SREF- State Requirements for Educational Facilities, Florida Statutes, and the Florida College System Risk Management Consortium.

#### **G. Project Pay Request ( Construction Managers and Design Professionals)**

The CM shall provide the project architect (5) signed pay request with all support documentation for each line item. After the architect has approved the payment the (5) pay request shall be approved by the Project Manager, and the Director of Facilities, then approved by the business office for payment.

The architect shall provide the Project Manager (5) signed pay request with all support documentation for each line item. After the Project Manager has approved the payment the (5) pay request shall be approved by the Director of Facilities, then approved by the business office for payment.

NOTHING FOLLOWS