



THE FLORIDA GULF COAST UNIVERSITY
DESIGN AND CONSTRUCTION GUIDELINES

May 14, 2010

Florida Gulf Coast University
Design and Construction Guidelines

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DIVISION 0 – OWNER REQUIREMENTS

INTRODUCTION:

***NOTE: All grey highlighted text added as a revision. Also identified by caption: (REV. 3.03.10).**

The guidelines described in this document are for the use of architects, engineers, designers, and both in-house and outside construction personnel. They are presented to assist the professional with the design, construction, and management of building projects at the Florida Gulf Coast University, by familiarizing them with University design and construction policies and preferences. The design professional shall incorporate applicable portions of this guide into the project drawings and specifications unless specifically relieved of particular provisions by the University Director of Facilities Planning.

This manual is divided into various sections and modeled approximately after the Construction Specifications Institute (CSI) 16-division format, and including specific Owner requirements for the project design and construction.

The information contained in this document is intended to be based upon sound architectural and engineering principles as well as the University's years of experience in these fields. However, these guidelines are neither completely inclusive nor totally exclusive. If a situation develops which is contradictory to these guidelines or, if the design professional can demonstrate a more advantageous solution, the University will welcome requests for modifications, upon approval by the Director of Facilities Planning.

We also welcome comments and suggestions for improvements to this document to better serve the University. Questions, comments or suggestions can be addressed in writing to Barrett Genson, Director of Facilities Planning, Florida Gulf Coast University, 10501 FGCU Blvd., Fort Myers, Florida 33956. Mr. Genson also serves as the Chief Building Official for the University.

TYPICAL PROJECT REVIEW REQUIREMENTS:

FGCU staff will review the following architectural and engineering design phases as follows:

- Schematic Design—
 - Facilities Program verification.
 - Schematic Floor Plans & Elevations at 1/8" scale illustrating the University's program.
 - Schematic Architectural Site Plans at 1" = 20' scale.
 - Schematic Civil Site Plans at 1" = 20' scale.
 - Submit a preliminary estimate of construction cost based on current area, volume or similar conceptual estimating techniques.
 - Staff Review Time: (14) days
 - Provide: (3) Full-size drawing sets; (2) Half-size drawing sets

- Written Approval Required: Director of Facilities Planning
Academic Affairs Representative

- Design Development—
 - Shall be based on approved Schematic Design documents.
 - Architectural Floor Plans, Sections, and Elevations at 1/4" scale shall fix and describe size and character of the project as architectural, structural, civil, mechanical, and electrical systems and materials and other elements as appropriate. An outline draft of the Project Manual and Specification shall also be presented.
 - Architectural, structural and MEP drawings shall be 1/4" scale.
 - Architectural and Civil Site Plans shall be at a minimum of 1" = 20' scale.
 - The Architect shall advise the Owner of any adjustments to the preliminary cost estimate presented during Schematic Design.
 - The Construction Manager shall also advise the Owner of any adjustments to the preliminary cost presented during schematic design.
 - Staff Review Time: (14) days
 - Provide: (6) Full-size drawing sets; (2) Half-size drawing sets and
(3) sets of the Outline for the Project Manual/Specification.

 - Written Approval Required: Director of Facilities Planning
Academic Affairs Representative
Director of Physical Plant
Director of EH&S
Director of Computing Services
Director of AET Services

- 50% Complete Final Contract Documents—
 - Shall be based on approved Design Development documents.
 - The drawings and specifications shall be developed with significantly more detail of architectural, structural, civil and MEP systems, including but not limited to building sections, finish schedules, and important details.
 - A preliminary board of sample finishes shall be submitted to the Owner for approval.
 - The Architect and the Construction Manager shall update the preliminary cost estimate presented at the conclusion of Design Development.
 - *Provide similar amount of documents as provided for the Design Development Phase.*
 - *Written approval required similar to Design Development. (REV. 3.08.10)*
 - Staff Review Time: (21) days

- 75% Complete Final Contract Documents – (REV. 2.10.10)
 - Provide similar quantities of drawings as noted in the Design Development section.

- Provide similar quantities updated Project Manual/Specification information at 75% completion.
- Written Approval Required:
 - Director of Facilities Planning
 - Academic Affairs Representative
 - Director of Physical Plant
 - Director of EH&S
 - Director of Computing Services
 - Director of AET Services
- 100% Complete Final Contract Documents—
 - Shall be based on approved 75% Contract Documents. **(REV. 2.10.10)**
 - All architectural, structural, civil, and MEP system drawings shall be 100% complete and ready for the Construction Manager to bid the project., and ready to submit for GFA International and State Fire Marshal approval.
 - The Project Manual/Specification shall be 100% complete, and ready to submit for GFA International and State Fire Marshal approval. A total of (5) stamped and sealed sets will be required.
 - A board of sample finish materials shall be complete and ready for final approval.
 - Staff Review Time: (21) days
 - Provide: Similar sets of drawings and Project Manual/Specifications as noted in the 50% Construction Document submittals.
 - Written Approval Required:
 - Director of Facilities Planning
 - Academic Affairs Representative
 - Director of Physical Plant
 - Director of EH&S
 - Director of Computing Services
 - Director of AET Services

OWNER PROVIDED/CONSTRUCTION MANAGER INSTALLED EQUIPMENT:

(To be determined during Design Development.)

OWNER PROVIDED/ OWNER INSTALLED EQUIPMENT:

- Podiums in Academic Classrooms, Lecture Halls and Laboratories as noted.
- Office and Cubicle furniture, Classroom tables and chairs, Lecture Hall chairs, Faculty Lounge furniture, Student Lounge furniture, and Corridor/ Study area furniture.
- Door mats
- Trash containers for restrooms, classrooms and corridors.
- Non-code required interior room signage.

PROJECT COMMUNICATION:

All project communication between the Architect and the Owner, and the Construction Manager and the Owner shall be directed to the Director of Facilities Planning or a designated representative for

dissemination. For information, communication between the Architect and the Construction Manager effecting the project shall copy the Director of Facilities Planning or a designated representative.

TYPICAL PROJECT DOCUMENT REQUIREMENTS:

The following documents have been developed and customized by Florida Gulf Coast University's Facilities Planning Department. Such documents must be used "AS IS" and should not be altered in any way other than to provide the requested information. The following appendices shall be incorporated into the Project Manual and examples can be viewed at the conclusion of these guidelines:

List of Appendices

- A. General Conditions of the Agreement Contract Between Owner & Contractor
- B. Building Permit Form
- C. Assignment of Antitrust Claims
- D. Hazardous Waste Controls **(REV. 2.26.10)**
- E. Certificate of Partial Payment
- F. Construction Contract Change Order
- G. Construction Contract Change Order Justification
- H. Certificate of Substantial Completion
- I. Certificate of Occupancy
- J. Certificate of Contract Completion
- K. Certificate of Contractor's Affidavit
- L. Owner Direct Purchases
- M. Voice & Data Design Standards
- N. Master Plant List
- O. Construction Indoor Environmental Quality (IEQ) **(REV. 2.26.10)***
- P. Mechanical Design Criteria **(REV. 3.03.10)***
- Q. Interior Paint Specifications **(REV. 3.04.10)***
- R. Outdoor Lighting Fixture Specifications **(REV. 3.04.10)***
- S. Exterior Paint Specifications **(REV. 3.04.10)***
- T. Code Blue System Specifications **(REV. 3.08.10)***
- U. Professional Qualifications Supplement **(REV. 5.05.10)***

GENERAL CONDITIONS OF THE AGREEMENT-- Appendix A (Supplementary)

Please note that these general conditions are similar to AIA Document A201, however they have been customized to meet the requirements of the University.

BUILDING PERMIT-- Appendix B (Supplementary)

The following items must be completed before the Director of Facilities Planning will issue a Building Permit for a typical major project:

- Submittal of (3) stamped and sealed 100% construction document sets to the Facilities Planning Department. If the construction documents are approved for submittal by Director of Facilities Planning, the FPD will then submit the construction documents to GFA International for design review and approval.
- Submittal of (2) stamped and sealed 100% construction documents sets to the Facilities Planning Department. If the construction documents are approved by the Director of Facilities Planning, the FPD will then submit the construction documents to the State Fire Marshal for review and approval.
- The site engineering aspects of the project will be submitted by the project civil engineering consultant to the South Florida Water Management District for their review and approval.
- The NPDES requirements of the project shall be submitted to Lee County by the project civil engineering consultant for the County's review and approval.
- Upon approval by GFA International, State Fire Marshal, South Florida Water Management District and Lee County NPDES, the Director of Facilities Planning will issue the Building Permit. Where applicable, the Lee County Health Department approval shall also be obtained.
- Note: There is no cost to the Construction Manager to obtain the Building Permit.
- Note: Upon the signature of the Construction Manager for the Building Permit, along with the Contractor's submittal of satisfactory Performance and Payment Bonds, and a satisfactory Certificate of Insurance, the Director of Facilities Planning will issue a Notice to Proceed for the construction of the project.

ANTITRUST CLAIMS—Appendix C (No Supplementary Information Required)

HAZARDOUS WASTE CONTROLS--Appendix D (Supplementary)

Questions regarding this document should be directed to Lewis Johnson, Director of Environmental Health and Safety.

CERTIFICATE FOR PARTIAL PAYMENT--Appendix E (Supplementary)

This form must be included with all payment requests, in addition to AIA G702 and G703 by the Construction Manager. Accordingly, it should be completed and signed by the CM, but must also be approved by the Project Architect before submittal to the Director of Facilities Planning. Such documentation shall be submitted in triplicate with original signatures. If these procedures are not followed during a typical partial payment application, the payment will not be approved until the above information is complete.

CHANGE ORDER--Appendix F (Supplementary)

All change orders must be accompanied by this form with appropriate back-up information and the Change Order Justification Form--Appendix G. Note: Each Change Order must be signed by the Construction Manager and the Project Architect before being approved by the FGCU Vice President of Administration and Finance. Also, the Change Order will not be official until the FGCU official approves it.

CHANGE ORDER JUSTIFICATION—Appendix G (No Supplementary Information Required)

SUBSTANTIAL COMPLETION--Appendix H (Supplementary)

The Substantial Completion of a project will only be approved by the Director of Facilities Planning upon approval of GFA International and the State Fire Marshal that the building is approved to be used for its intended purpose. Please note that the Construction Manager and Project Architect signatures are also required along with a copy of the list of incomplete items for the building upon the date of Substantial Completion.

CERTIFICATE OF OCCUPANCY--Appendix I (Supplementary)

Upon approval of the Certificate of Substantial Completion, and upon implementation of FGCU's insurance certificate for the building and its contents, the Director of Facility Planning will issue a Certificate of Occupancy.

CERTIFICATE OF CONTRACT COMPLETION—Appendix J (No Supplementary Information Required)

AFFIDAVIT OF CONTRACT COMPLETION—Appendix K (No Supplementary Information Required)

OWNER DIRECT PURCHASES--Appendix L

The University will implement a Owner Direct Purchase program of major material components and equipment for a typical major project. The minimum dollar amount will be defined for each project by the University, however the Construction Manager shall prepare their Guaranteed Maximum Price to include all required sales taxes as if all materials and equipment were to be paid for in the normal manner.

VOICE AND DATA DESIGN STANDARDS—Appendix M

MASTER PLANT LIST—Appendix N

CONSTRUCTION IEQ – Appendix O (No Supplementary Information Required) (REV. 2.26.10)

MECHANICAL DESIGN CRITERIA – Appendix P (No Supplementary Information Required) (REV. 3.04.10)

INTERIOR PAINT SPECIFICATIONS – Appendix Q (No Supplementary Information Required) (REV. 3.04.10)

OUTDOOR LIGHTING FIXTURE SPECIFICATIONS – Appendix R (No Supplementary Information Required) (REV. 3.04.10)

EXTERIOR PAINT SPECIFICATIONS – Appendix S (No Supplementary Information Required) (REV. 3.04.10)

CODE BLUE SYSTEM SPECIFICATIONS – Appendix T (No Supplementary Information Required) (REV. 3.08.10)

(REV. 5.5.10)

CONSTRUCTION DOCUMENT STANDARDS:

NOTE: The Construction Documents Standards are described in Division 1.

(End of Division 0)

DIVISION 1 - GENERAL PLANNING AND DESIGN

A. INTRODUCTION AND SCOPE

This section contains general guidelines affecting the design of major Florida Gulf Coast University building projects and related project sites. These guidelines are either covered by the CSI format used by these Standards, or they fit easily within just one of the divisions. The guidelines included in this Section are intended to supplement State or Federal mandated requirements, SUS or University Policies, and/or University conventions or preferences.

B. UNIVERSITY GUIDELINES

1. GENERAL:

These FGCU General Design & Construction Guidelines have been established to express issues that are common to all new major building projects on the FGCU campus and similar FGCU projects built in other communities.

2. CONFLICTS WITH APPLICABLE CODES AND STANDARDS:

Accordingly, these supplementary guidelines are not intended to supersede any of the requirements found in applicable federal, State and local building codes. However, in some instances, such guidelines are also intended to be more stringent in requirements as well supplementary in nature. If conflicts are found, the FGCU Director of Facilities shall be notified in writing and written clarification received before proceeding with any further design or work affected by the conflict.

3. INCLUDED AS SUPPLEMENTAL STANDARDS:

FGCU has developed and customized their own Division 0 specification sections (generally referred to as "non-technical," or "front-end," specifications) for use on the construction projects they administer. For example, FGCU has created a customized General Conditions for each project, that must be included in Division 0 utilized "as is." These various sets of "non-technical" specifications are considered to be mandatory for all new University building projects.

C. SITE PLANNING GUIDELINES

The location of new FGCU campus buildings shall comply with the current Campus Master Plan and related site permit approvals with the Corps of Engineers and the South Florida Water Management District.

A new campus building must be designed with all sides having the appearance of being the "front" of the building, with each facade oriented and linked to surrounding campus buildings or features. Several design techniques have been utilized in campus construction to relate new buildings to the surrounding environment and avoid a "back-of-the-building" presentation of any facade. A/E firms undertaking the design of campus facilities should examine the following techniques, which appear on campus, and incorporate them into architectural and site design when appropriate. The following criteria should be reviewed for every major project:

1. BUILDING SITING, ORIENTATION AND LINKAGES:

Overall, the building site, orientation and linkage should seek to preserve and maintain open spaces; provide access for emergency service and disabled persons' vehicles; and respect adjacencies to other facilities and the natural environment. Building sites should carefully consider the creation of quadrangles and the relationship to existing buildings and pedestrian pathways to create pleasant and functional open spaces.

2. OTHER USES ON THE SITE:

In order to minimize storm damages and also emphasize the design characteristics of buildings, open spaces & full tree canopies, electrical and telecommunication lines should be located underground. The location of transformers or meters of any type on any power pole or hung on the outside of any building is not recommended. These utilities should be placed at grade within the building or in an exterior location screened from public view. Any above-grade utility equipment such as electrical transformers that cannot be reasonably located underground, should be screened from view.

Service areas and loading docks must be sensitive to pedestrian movements and safety, and shall be screened from public view. Any required loading docks should be recessed entirely within the building and closed off with rolling overhead doors or other appropriate screens compatible with the building exterior.

3. LAYOUT OF EXTERNAL CIRCULATION:

Parking accommodations are not always required for a project. However, when parking is provided, service vehicles must have access and disabled parking and visitor drop off areas shall also be provided. When parking is provided off-site, the project site design must include well developed pedestrian and bicycle amenities linked to the larger non-vehicular circulation network. Bicycle storage racks are to be provided on site in accordance with these guidelines.

At least one accessible route complying with 11-4.3 of the FBC (Florida Building Code, Chapter 11, Florida Accessibility Code for Building Construction) shall be provided within the boundary of the site from accessible parking spaces, passenger loading zones, and public streets or sidewalks, to an accessible building entrance.

Pedestrian access to buildings must be coordinated with the established network and the location of existing and proposed pedestrian crossings and roadway areas.

4. LOCATION OF OUTDOOR USES:

Sites for various outdoor uses are designated in the current Campus Master Plan. If possible, the building site and design of a building should create an opportunity for small open spaces, and/or exterior courtyard areas. The following are important characteristics to consider in the design of new open spaces and natural areas on campus:

- a) Retention of unique or particularly attractive natural features, if possible;
- b) Planning for a variety of natural spaces, from large, open lawns to small exterior spaces that allow for informal gathering of students, faculty and staff;
- c) Sensitively located seating and bench/table arrangements to enhance areas for study, eating and conversation;

- d) A concise, integrated system of well lit and patrolled “night safety paths” linking main campus entries and night time activity centers to promote personal safety for all users; and consideration for noise in the outdoors.
5. STORMWATER MANAGEMENT:
On-site retention and detention facilities for storm water runoff shall be designed as required to retain natural landscape features, if possible, and integrated into the overall site design to create natural open spaces and wildlife habitat. The civil engineering sub-consultant, for each project, shall design and submit the site design to meet existing Army Corps of Engineers and South Florida Water Management District standards and obtain their approval as required.
6. TOPOGRAPHIC AND SOIL CONSTRAINTS:
- a) There is a topographic balance to achieve on any given project site. That balance is to maintain a relatively flat building site under 5% slope with appropriate drainage contours for engineering purposes, and to maximize topographic relief visually for landscape aesthetics and differentiation in the environment. Emphasizing slopes and topographic contours helps define and separate places in the same manner as a berm might and establishes landmarks in the environment. Topographic relief is useful in reducing glare and light reflections in the built environment and helps reduce and absorb unwanted noise.
 - b) Sites with slopes greater than 5% generally require more earthwork and a greater effort shall be made to balance cut and fill on the site. Designs that call for large amounts of unnecessary grading are discouraged. New construction shall be designed to fit the topography and blend the structure into the site. Finish grading shall reflect smooth transitions between grades and constructed forms. Contours that slope from one parcel across another shall be graded to minimize runoff directly onto lower parcels. All cut slopes shall be rounded at the top to present a softer transition line between constructed and existing slopes. Where slopes are greater than 3:1, retaining walls or special erosion control measures such as groundcover planting beds shall be used.
 - c) Site grading shall recognize existing drainage patterns while solving drainage problems that may exist or result from ground plane alterations during construction. Site grading shall be sympathetic to existing land forms while providing appropriate transition of architectural elements to grade. Site grading shall provide for an uninterrupted flow of vehicular and pedestrian traffic through the campus. Sensitive use of site grading can provide aesthetic qualities to the development relieving rigid architectural lines, creating private spaces, screening objectionable views and adding interest and relief to flat sites with little or no natural topographic interest.
 - d) Appropriate methods of controlling erosion and sedimentation to minimize destruction of soil resources shall be used during site development such as: phasing and limiting the removal of vegetation; minimizing the amount of land area that is cleared; limiting the amount of time bare land is exposed to rainfall; use of temporary ground cover on cleared areas if construction is not imminent; and special consideration for maintaining

vegetative cover on areas of high soil erosion potential (stream banks, steep or long slopes, storm water conveyances, etc.).

7. CAMPUS SAFETY AND SECURITY:

- a) Safety and security shall be considered as an important factor of all site designs. In addition to Facilities Planning reviews, site designs shall be reviewed by the office of Environmental Health & Safety, University Police Department and the Physical Plant Department for their approval, as a minimum.
- b) Emergency access shall be provided to a new building for a minimum of 50% of a building's length at two sides to allow access for emergency and fire fighting vehicles.
- c) Natural Surveillance: A design concept directed primarily at keeping intruders easily observable such as features that maximize visibility of people, parking areas and building entrances, pedestrian-friendly sidewalks and streets; and adequate nighttime lighting.
- d) Natural Access Control: A design concept directed primarily at decreasing crime opportunity by denying access to crime targets and creating in offenders a perception of risk.
- e) *Refer to Division 2 Code Blue System. (REV. 3.04.10)*

D. STATE FIRE MARSHAL REQUIREMENTS

1. GENERAL:

All new major building projects and any renovation projects determined by Facilities Planning to affect life safety features, shall be reviewed and approved by the State Fire Marshal (SFM) before construction can begin. Submission of design documents (at 100% issue only) for approval will be handled by Facilities Planning. SFM approved documents shall be retained in the FGCU Project File for use during inspections conducted by the SFM's office. After approval, any changes to the contract documents that affect life safety features must be approved by the SFM.

For major renovations and new construction projects, intermediate inspections are an on-going effort during various stages of construction. However, a final inspection and approval are required from the SFM before a Certificate of Occupancy will be provided for the building.

FGCU also contracts with a local fire department for fire and emergency services. Site plans shall be reviewed and approved for apparatus egress to a typical building and its site.

E. SITE UTILITIES

When planning site utility projects for the FGCU campus, designers shall coordinate with Lee County Utilities for the site water and sanitary sewer design, and Florida Power & Light for

electrical site and building needs, and appropriate FGCU staff for telecommunications and Embarq needs. Additional requirements are as follows:

F. STORMWATER MANAGEMENT

1. GENERAL:

All storm water management on the FGCU Campus, Fort Myers shall be in accordance with the University's current storm water permits from the South Florida Water Management District (SFWMD) and the State of Florida Department of Environmental Protection (FDEP). Consequently, all new construction performed on campus shall be in accordance with the University's existing permits.

To ensure implementation of permit requirements in University construction, the Project A/E shall review the above-mentioned permits, as applicable, and incorporate the storm water management requirements contained therein into project construction documents. These requirements shall include, but are not limited to, the following items:

- a) Turbidity barriers shall be installed at all locations where the possibility of transferring suspended solids into the receiving water body exists due to the proposed work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. Thereafter, the Contractor will be responsible for the removal of barriers.
- b) The Contractor shall comply with NPDES requirements and therefore select, implement, and operate all erosion and sediment control measures required to retain sediment on-site and to prevent violations of water quality standards as specified by the Lee County NPDES Department.
- c) The Contractor shall construct and maintain a permanent protective vegetative and/or artificial cover for erosion and sediment control on all land surfaces exposed or disturbed by construction. This protective cover shall be installed within seven (7) days after final grading of affected land surfaces. A permanent vegetative cover shall be established within (60) days after planting or installation.
- d) The Project A/E shall provide language within the construction documents that establishes the Contractor as being responsible for the removal of any sediment, trash, or debris entering the University's storm water drainage system from the project site.
- e) On the FGCU Campus, the Physical Plant Department (PPD) is responsible for maintaining the storm water drainage system and administering the storm water permit(s) by ensuring University compliance with permit conditions. PPD shall be contacted in all matters affecting storm water management on the FGCU Campus and for guidance with the University's storm water management requirements and permitting procedures.

2. POTABLE WATER AND SANITARY SEWER UTILITIES:

The University campus is dependent on Lee County Utilities for their potable water and sanitary sewer services. When planning a new major project, LCU should be involved as

soon as possible in the site design process. The Director of Facilities Planning can provide the name and telephone number of the LCU contact person.

3. ELECTRICAL UTILITY:

The University campus is dependent on Florida Power and Light for *all* of the campus electrical needs. Accordingly, when planning a new major project, FP&L should be involved as soon as possible in the site and building design process. The Director of Facilities Planning can provide the name and telephone number of the FP&L contact person.

(REV. 2.25.10)

4. DATA COMMUNICATION UTILITIES:

The University is served by FGCU Data and Communications staff for site and building planning. The Director of Facilities Planning can provide the name and telephone number of the FGCU representatives for these campus needs. As noted above, these representatives should be involved in site and building design as soon as possible.

G. NEW CONSTRUCTION GUIDELINES:

1. GENERAL:

All new FGCU construction projects and renovation projects shall be designed to meet applicable federal, State and local codes. It should be noted that Lee County exercises no jurisdiction over FGCU projects other than NPDES permits and the related installation/maintenance of silt barriers for erosion control and Health Department approvals in some cases. As previously noted, all projects shall be planned with input from Lee County Utilities.

In the process of design for a typical project, submittals for various design phases of the project are reviewed by applicable internal staff such as Facilities Planning, Physical Plant, Environmental Health & Safety, Academic Event Technology and Computer Services Departments. A Building Committee, as designated by the Vice President of Administration and Finance, may also be involved with progress reviews of the typical building project. The University will also expect pre-construction estimates from the architect and the construction manager to assure that the building project remains within established budget parameters.

Upon completion of the 100% Final Construction Documents, the project documents will be reviewed and approved by a local Building Code Compliance Consultant employed by FGCU and the State Fire Marshal. Once the University is satisfied that all pre-construction conditions are met, the Director of Facilities Planning, who represents FGCU as the Chief Building Official, will issue a Building Permit for the project.

Please note that no construction can commence until the Building Permit has been issued or as expressly approved by the Director of Facilities Planning.

2. CONSTRUCTION DOCUMENT STANDARDS:

Project Drawings:

- a) All project drawings shall be provided in Autocad. Clarification of the version to be utilized shall be confirmed with the FGCU Facilities Planning Department for approval.

- b) During the design process for questions and communication, pdf's are acceptable to transmit information, however all final construction documents need to be in Autocad format and shall be full-size D or E sheets.
- c) Typical scale sizes for site plan drawings should be at least 1" = 20', with site details drawn at an appropriate larger scale as required for readability.
- d) Typical scale sizes for floor plan and elevation drawings should be 1/4" = 1', with building details drawn at an appropriate larger scale as required for readability.
- e) At the conclusion of each design phase, the architect should submit full-size drawing sets, and half-size drawing sets to the Facilities Planning office as noted in Division "0".
- f) If jpg or tif formatted drawings are sent to Facilities Planning to transmit information, please do not compress such files.
- g) All final submittals of project drawings at 100% completion shall be accompanied by an electronic disk of said information to reflect what is on the paper drawings.
- h) As part of submittal of the 100% contract documents, Facilities Planning will require a total of (5) five complete sets of stamped and sealed drawings for submittal to the appropriate review agencies. Facilities Planning will receive such sets of drawings and disperse (3) sets to the local review agency and (2) sets to the State Fire Marshal's office. In addition, FGCU will require (3) additional CD sets of that submittal, however those (3) sets do not need to be stamped and sealed.
- i) If addendum drawing sets are necessary, the same amount of stamped and sealed drawings sets will be required. FGCU reserves the right to request that such addendum sets be complete sets of drawings and not just individual sheets.
- j) At the final close-out of a project, hard copies of drawings and disks shall be submitted to reflect all revisions to the 100% drawings including Addendums issued during construction, Architectural Supplemental Information, etc.
- k) As-Built drawings shall be submitted as described in the Agreement between the Owner and the Architect.

Project Manual:

- l) All major building projects shall be accompanied by a Project Manual, including a specification following the latest Construction Specification Institute format.
- m) Three (3) sets of a "draft" Project Manual must be submitted with each of the design phase submittals to the University starting with the Design Development Phase and including 50% Construction Documents submitted. See Division "0".
- n) At the completion of the 100% Contract Documents, and when approved by the Director of Facilities Planning, (5) sets of stamped and sealed drawing sets shall be submitted to the FP Department. Likewise, FGCU also requires (4) sets of stamped and sealed Project

Manuals. Such documents will be distributed to various review agencies for review and approval.

- o) The Project Manual shall clearly delineate the appropriate CSI sections being utilized for the project.
 - p) Where possible, the A/E should utilize double sided page printing for the Project Manual to reduce the amount of paper required.
 - q) The manufacturers listed in the Specification are to set a standard that is acceptable to the University. It is not to be interpreted as excluding all others. "Or equal" is implied even if not stated unless the list of acceptable manufacturers is appended with the phrase "No others are acceptable," then it shall be understood that substitutions are not allowed, and specifications shall be so written.
 - r) An electronic copy of the Project Manual/specification shall be provided with the 100% set.
3. ENERGY CONSERVATION:
- a) All construction shall adhere to the requirements of applicable State of Florida Building codes.
 - b) All new FGCU major academic buildings shall be designed to achieve **LEED Silver certification** as a minimum, and higher if the project budget allows.
 - c) The simplest and most effective method of energy conservation is to turn things off when not in use, however classrooms and offices shall have light sensors to turn off the lights when such rooms are not being used. Spaces with similar occupancy schedules shall be grouped together on the same HVAC system, to accommodate unoccupied shutdown.
4. SPACE PLANNING:
- a) The general listing and identification of various types of spaces have been identified in the Facilities Program as approved by FGCU administration.
 - b) The A/E shall verify said program with user group prior to starting the design process. Changes to the program upon verification need to be approved by FGCU administration.
 - c) **Typical Space Allowances:**
 - Faculty and Staff Offices = 120 sf.
 - Department Head Offices = 200 sf.
 - College Dean's Offices = 250 sf.
 - Conference Rooms = Approximately 300 sf. (20 sf./person x 15 people)
 - Lecture Rooms = Approximately 7 sf./person where fixed seating is applicable.
 - Classrooms = 20 sf. person
 - Laboratory Rooms = 40 - 50 sf. person depending on the type of Lab.

- d) **Restrooms**--Each floor shall have separate restrooms for men and women, with the capacity of each room's fixtures determined by code requirements. Each restroom shall meet applicable Americans with Disability Act requirements. The handicapped (HC) stall will be a minimum of 6'0" x 7'0". The location of the restrooms should be as centrally located as possible on each floor to provide easy access to all building occupants.
- e) **Custodial Closets**--Each floor requires a dedicated custodial closet, with a mop sink, a mop hanger over the sink, and four shelves on one wall. In addition, each building requires a closet for storage of custodial supplies and equipment, to be located on the ground floor, adjacent to the custodial closet. The size of both types of closet shall be approximately 6' X 8'. These closets shall have self-closing doors, which open directly onto the corridor, and shall not be provided with conditioned air. If gross floor size is over 20,000 sq. ft., then a second closet is required on that floor.
- f) **Mechanical Equipment Rooms**--Typically there is one Mechanical Room per floor. The first floor Mechanical Room should be located on an outside wall. Scaled drawings that show the space required by all equipment shall be approved by Physical Plant. The space required for servicing, maintaining, operating, and replacing parts shall be clearly shown. A minimum of 3 ft. clear space shall be included around the perimeter of all mechanical equipment.
- g) **Data Communications Rooms**—Typically, the Main Distribution Frame is located on the first floor of a building, and is approximately 160 square feet in area. Intermediate Distribution Frame rooms are located on all subsequent floors and are approximately 100 sf. in area. Each floor shall have such a separate telecommunications room. The placement of such rooms should be stacked from floor to floor if possible. The Computer Services Department shall approve the size and location of such rooms. Additional information about these rooms and related equipment can be found in another section of these guidelines.
- h) **Electrical Rooms**--One per floor and approximately 100 square feet each. The placement of such rooms should be adjacent to the Telecommunications Room and stacked where possible. The first floor location should be on an exterior wall.
- i) **Rooftop Equipment**--Exterior rooftop equipment location is not acceptable, however if special considerations are required, such rooftop locations will be approved by both the Director of Facilities Planning and the Director of Physical Plant.
- j) **Screening of Equipment**—Access to roof required from within the building via ladder, roof hatch or door opening. All exterior and rooftop equipment must be provided with adequate physical protection in the form of fencing, guardrails or bollards, as necessary. Locate so as to be visually unobtrusive; coordinate with the FGCU Director of Physical Plant. Roof overhangs shall be protected from vehicle traffic or have a free clearance of at least 14'-6". **(REV. 2.25.10)**

5. SUPPLEMENTARY SITE AND BUILDING DESIGN GUIDELINES:

- a) **Landscape and Irrigation**--University standards should be verified with the Director of Physical Plant. Accordingly, the University will want to utilize native vegetation similar to existing landscape plantings at the site. *See Appendix N. (REV. 3.04.10)*
- b) **Exterior/Interior Signage**--The University will supply and install all exterior and interior signage, except that which is required by code.
- c) **Exterior Lighting**--Exterior lighting fixtures should match similar existing FGCU fixtures, as required by LEED standards and in accordance with the fundamentals published in the most current edition of Illuminating Engineering Society handbook. *See Appendix R. (REV. 3.04.10)*
- d) **Exterior Mechanical, Electrical and Service Equipment**--Placement of such equipment at the exterior is not preferred. If there is no alternative, such equipment shall be screened to give an attractive appearance to the building and the campus in general. Screening of trash dumpsters shall be compatible with the appearance of the building.
- e) **Organization of the Building Location**--The design of the building should allow for possibility of building expansion in the future.
- f) **Handicapped Access**--The site and the building shall be designed to meet all applicable codes for handicapped Access. However, please note that FGCU has an ADA Committee that reviews all projects for such accessibility and may request more stringent requirements than defined in applicable codes.
- g) **Building Exterior and Interior Finishes & Maintenance**--An important design consideration for the A/E shall be the maintenance of the building. Accordingly, material selections for exterior and interior finishes are critical to the longevity of the building as well as meeting LEED standards. Additional information regarding finishes will be included in another section of these guidelines.
 - The building exterior shall be a combination of materials already prevalent on existing buildings:
 - Concrete Exterior Block Walls with a Painted Stucco Finish.
 - A minimum of 10% of the exterior wall to be Pre-Cast Concrete panels with a terra cotta color fast finish and texture to match existing buildings
 - A portion of the roof shall be a metal, standing seam roof system to match existing buildings. *The standing seam roof shall be Berridge – Forest Green.* The roof pitch shall be approximately 5/12. **(REV. 3.04.10)**
 - Exterior window systems shall be similar to existing window systems with tinted single pane glass, tinted green, and designed to be similar to other buildings.

- The finish floors in the public corridors and bathrooms shall be porcelain tile depending on the nature of the space. The finish floor in lab areas should be vct. The finish floor in offices, most classrooms and conference rooms shall be carpet.
- The building interior wall finishes will primarily be painted drywall over steel studs or exposed concrete block walls.
- The ceilings will primarily be 2 x 2' acoustical tile with a tegular edge, or drywall. Some rooms, such as mechanical, telecommunications, etc. can exclude any finishes and just have exposed metal decking.

6. ACOUSTICAL TREATMENT:

- a) Acoustical treatment is suggested in all areas where student privacy is a concern or noise levels are high, particularly in classrooms, offices, conference rooms, assembly rooms, elevator equipment rooms, and mechanical rooms.

7. MECHANICAL SYSTEMS:

- a) The building's primary HVAC design consideration shall be a Variable Air Volume system. All VAV boxes should be designed with their location in corridors for easy access during maintenance. FGCU *requires* variable frequency drives on air handling motors.
(REV. 2.10.10)
- b) All mechanical equipment shall be installed according to established commercial practices, and with future maintenance needs taken into account. A minimum of 3 linear feet of clear space perpendicular to the equipment is required for maintenance at all 4 sides of the unit.
- c) Energy conservation is very important in the design of systems and the equipment selected. Accordingly, such systems and equipment should be designed selected and installed to State of Florida *Model Energy Efficiency Code for Building Construction*, and as required for LEED certification.
- d) All mechanical equipment should be designed and installed inside the facility in separate mechanical rooms.
- e) No electrical, mechanical, custodial or service rooms shall open into a stairwell.
- f) Electrical, mechanical, custodial, service, and communication rooms shall be separate and independent of each other.
- g) Door openings should accommodate equipment removal if necessary. Mechanical Rooms, which exit into corridors, should have doors that swing into the room and be capable of being flat against such interior walls.

8. ELECTRICAL SYSTEMS:

- a) Lighting, for both exterior and interior systems, should be in accordance with the fundamentals of IES Lighting Handbook, most current edition, as published by the Illuminating Engineering Society (IES).

- b) The lighting equipment should be coordinated with other building features, however the Director of Physical Plant shall have the right to review and accept all proposed light fixtures.
 - c) Control of all lighting systems comply with the requirements of LEED certification, however the intent of the systems should be to economize electrical use as much as possible.
9. INTERNAL CIRCULATION:
- a) The building should be designed with at least (1) elevator to service all floors.
 - b) The stairways must meet fire exiting requirements and be used for general circulation within the building.
10. STRUCTURAL SYSTEM:
- a) In the selection of the type of structural system, the total facility should be considered, since the selection will influence the cost of HVAC systems, as well as architectural elements, and the cost of lighting and other utility requirements.
 - b) When selecting a system, consideration should be given to the availability of skilled labor, the design life of the facility, maintenance costs over the life of the building, feasibility of pre-assembly of major building components and the site environment.
11. LIGHTENING PROTECTION SYSTEM:
- a) A lightning protection system shall be provided and installed in all new buildings.
12. CABLE TRAY AND RACEWAY SYSTEMS:
- a) An overhead cable tray system for data transmission lines shall be provided as a telecommunication distribution system throughout the facility. An open tray system should be designed to allow for easy access.
13. DIRECT DIGITAL CONTROL SYSTEMS AND INSTRUMENTATION:
- a) The building shall include a completely functional Direct Digital Control system with electric automatic temperature controls.
 - b) The system shall connect the DDC to the existing Central Energy Management system to address, graphic display, monitor and control all of the following:
 - Thermostats
 - Solenoid air valves
 - Electronic valves
 - Control dampers
 - Field sensors
 - Control all interior lighting by zones with the exception of corridors, restrooms, mechanical, electrical and custodial rooms

14. FIRE AND SECURITY ALARM SYSTEMS:

- a) FGCU has a campus wide standard. Review with the Director of Physical Plant.
- b) Both fire and security systems shall be linked to the FGCU Police Dept.

15. WATER SUPPLY AND PLUMBING SYSTEMS:

- a) The water supply is distributed through a campus system from Lee County.
- b) Locations of the water supply mains should be verified with Lee County.
- c) The exterior of the building shall have at least (1) outdoor faucet per side.
- d) Potable water supplies must contain back flow preventers.

e) Each building shall have a separate water meter properly sized for the buildings demand by engineer of record for building. (REV. 3.04.10)

- f) Floor drains to sanitary sewers shall have wet type P drains.

g) For preferred plumbing fixtures and equipment refer to Division 15 Plumbing. (REV. 3.04.10)

16. GARBAGE AND WASTE REMOVAL SYSTEMS:

- a) The system to remove hazardous waste from a building will be determined by the Director of Environmental Health and Safety (EH&S).
- b) Depending on the type of hazardous waste, specific room may be required by the Director of EH&S.
- c) Non-Hazardous waste will be removed by Physical Plant personnel.

17. EXTERIOR ROOF SYSTEMS:

- a) As noted in another section, each building shall have a portion of its roof as “green” standing seam to match existing campus buildings. See Division 7.
- b) Additional roof finish information will be provided in Division 7.

18. DATA COMMUNICATIONS SYSTEMS:

- a) Communication systems manholes and conduits may be required to support the buildings energy management system, fire alarm system, telephones, video and computer operations. See additional information on manhole and duct bank requirements *as noted in Appendix M. (REV. 3.08.10)*
- b) This facility should also have dedicated lines to the Network Operation Center in Griffin Hall. The intention is that the computer systems will be capable of wireless connections too. The contract for electrical work shall include requirements for installations of conduit of 1” minimum diameter from each communication wall outlet, stubbed above ceiling level. A pull string and appropriate junction or pull boxes shall also be provided

in each conduit to facilitate future cable installation. Cable trays shall be installed to route the workstation cable to the IDF/MDF.

19. BUILDING DATA COMMUNICATIONS BACKBONE CABLING:

- a) Cables from each logical grouping of telecommunications wall outlets specified above will be terminated at an IDF or MDF to be specified by University telecommunications personnel. Maximum length for an individual cable run shall be 200 feet.
- b) IDFs will be connected to the MDF by a backbone cable appropriately sized to be specified by University telecommunications personnel. A cable riser diagram shall be provided in order to show all IDF/MDF interconnects. The riser diagram should be shown in an isometric plan view illustrating the relative routing along halls and between floors.
- c) Cable trays with a minimum 6 square inch cross section or conduit with a minimum 4 inch diameter should be used to provide paths for cabling.
- d) The MDF shall be connected to the Network Operations Center by fiber optic cable.

20. DATA COMMUNICATIONS CLOSETS:

- a) Building and floor data communications closets shall be provided for each building to house IDFs and the MDF. The building data communications closet will also provide building access to the outside plant (campus backbone). Each building data communications closet shall be a minimum of 160 square feet and each floor data communications closet shall be a minimum of 100 square feet. Where possible the floor closets should be located vertically above the building closet. Closets shall not be shared with other building utility or electrical services.
- b) All data communications closets shall have a lighting intensity of 50-70 foot candles at 30 inches above floor.
- c) The walls, floors, and ceiling of all telecommunications closets shall be painted or otherwise treated to eliminate dust. If painted, the paint should be light colored, latex-based.
- d) All telecommunication closets shall have plywood backboards in the dimension of 8' x 4' x 3/4" mounted on back and side walls. The backboard shall be affixed in such a manner that it will adequately support the weight of the cable, terminal, and other equipment that will be attached to it. It should be treated with a fire retardant material.

- e) All data communications closets shall contain vertical cable riser space for riser sleeves and bushings that provide access to other closets. University data communications personnel shall provide sleeve sizing and quantities.
- f) The ambient temperature shall be maintained at a temperature of between 40 and 85 degrees Fahrenheit, and the humidity shall be maintained between 20 and 80 percent relative humidity, unless otherwise specified. Temperature and humidity requirements should be maintained on a 24-hour, 7-day per week basis.
- g) *Doors on IDF/MDF's should swing out. These rooms should open into a hallway or open space that is not behind a locked door or behind an electrical or mechanical room.*
(REV. 2.24.10)

21. DATA COMMUNICATIONS CONDUITS AND PULL BOXES:

- a) Four (4) 4" conduits need to be run into the MDF. These need to be along one wall (see diagram) and should be placed to reduce footprint in the room. Put them as close to the wall as possible and don't stack them.
- b) One of these needs to have three (3) 1" inner ducts installed. All three inner ducts should have pull strings and be labeled with a permanent label. *All conduits should have pull strings. All unused conduits or inner ducts should be capped. Tape is not a proper cap.* **(REV. 2.24.10)**
- c) A pull box of sufficient size (3'X4', 4'X4', or 5'X5') will need to be located directly outside of the building for the conduits to be terminated in. The pull box will need to be located in an area with clear access and should not be covered with landscaping nor should invasive plants or trees be located within 3 feet of the pull box.
- d) There should be no more than two (2) 90 degree bends in the conduit from the MDF to the pull box. One bend located at each end, one to bring it up through the floor in the MDF and one to bring it up into the pull box. It is preferred that the conduits enter the pull box at mid- height and penetrate the side of the box. This will require only one 90 degree bend in the run.
- e) The conduit from the pull box to the MDF should enter the building in a straight line so as to reduce stress on the fiber that will be installed. Continuous sweeps are permitted; however, no angled bends should be used except as mentioned.
- f) Four (4) 4" conduits need to be run from the pull box used to enter the building, back to the closest manhole/pull box. These conduits can be stacked.

- g) Pull box's need to be located every 250 feet. The conduit between pull boxes should be straight runs or gently swept.
- h) Two (2) 1" conduits will need to be run from the four post rack to the fire alarm panel located in the MDF. The conduits should be properly terminated in the top of the fire alarm cabinet.

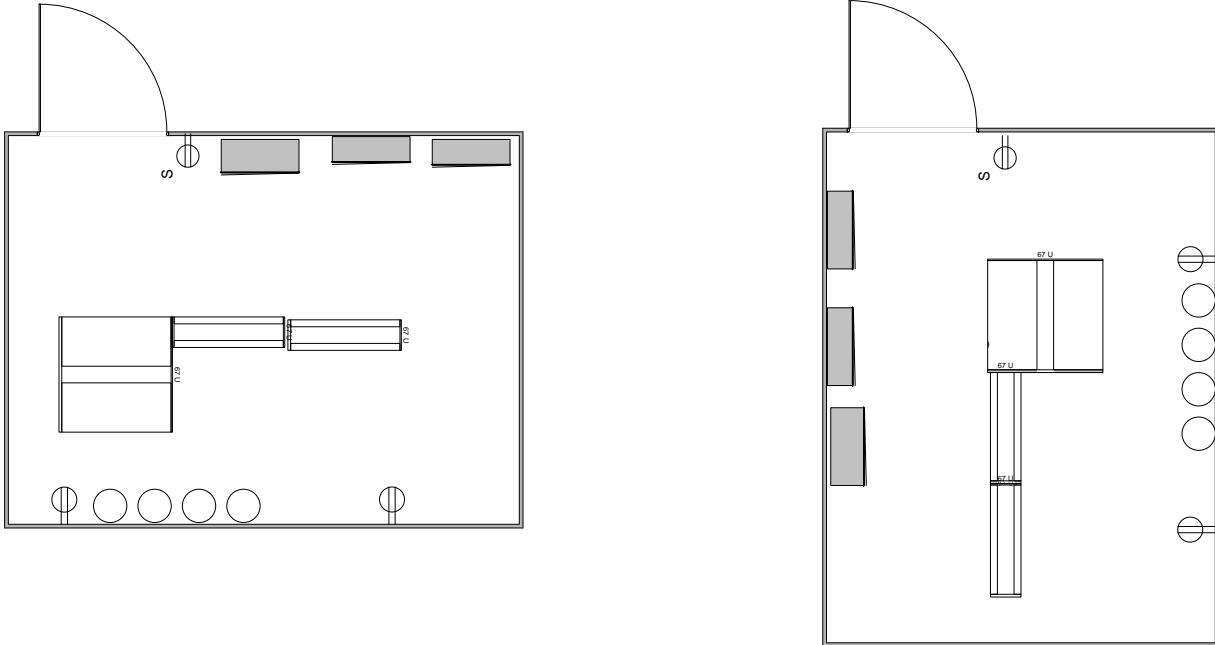
22. MISCELLANEOUS DATA COMMUNICATIONS ROOM INFORMATION:

- a) The floors in the MDF and IDF do not need any coverings. Paint *or concrete sealing is acceptable.* (REV. 2.24.10)
- b) The walls of the MDF and IDF should be covered with 3/4 inch plywood. The plywood needs to be fire retardant or painted with fire retardant paint.
- c) No electrical panels should be located in the MDF or IDF under any circumstance.
- d) The fire alarm control panel for the building will be located in the MDF. Please see diagram 1 for location. The fire alarm panel will need 120v. duplex power outlet. Verify with Data Communications personnel location of this outlet.
- e) Building HVAC control can be mounted in the MDF. Please see the diagram for layout considerations. Please stack the panels used for HVAC control vertically next to the fire alarm panel. Please leave at least six (6") inches of space between the HVAC control and the fire alarm panel.
- f) The HVAC panel will require 120v. duplex power outlet.
- g) Two separate 20 amp circuits will need to be located on the wall behind the racks. See diagram 1 for location.
- h) If the building is to have a generator for emergency power, please place the MDF and the IDF's on generator power. This will reduce the cost of the backup equipment needed for the building since we provide phone service over the network.
- i) Do not place any other equipment in the MDF or IDF's without discussing with a Data Communications personnel first.
- j) Nothing should be placed on the wall behind or directly to the sides of the racks.
- k) Air conditioning is required in each MDF/IDF, however special systems are not required. *MEP consultant should properly size A/C required based on equipment sized for room. Use building air and no separate unit in space.* (REV. 2.25.10) We do not require massive air flow or separate controls for each location. Normally, building air is adequate. Switches heat dissipation is 123 BTU/h (36W). UPS's heat dissipation is

300.00 BTU/hr. Number of switches is directly dependent on size of building. Number of UPS's is dependent on number of switches, usually (10) per room **(max)**.

(REV. 2.24.10)

- l) Diagram No. 1 shows alternate floor plan layout designs for MDF and IDF rooms that are acceptable to the University.



Preferred (REV. 2.24.10)

Diagram No. 1

- m) The design team shall include the resources needed to fully develop a complete scope of work for all telecommunications, I/T, and audio/visual systems and components, including a BICSI certified RCDD. The University will require that all data communications, I/T, audio/visual systems and components be designed and annotated on "T" drawings in accordance with the above referenced standards. Construction documents must account for all work (i.e., with notes for work "by others").
- (BICSI): Building Industry Consulting Service International, Inc.
 - (RCDD): Registered Communications Distribution Design)
- n) Data Communications plant work (exterior of facility) is typically purchased by the project through the FGCU Computing Services. The architect/engineer shall coordinate with Computer Services to eliminate conflicts with other utilities, landscaping, etc., shall include all such work "by others" in the construction documents, and shall ensure that no gaps exist between the contractors' scope of work and the scope(s) of work "by others."

- o) The interior voice & data work shall be included in the construction documents and coordinated by the architect/engineer.

23. LEED CERTIFICATION:

Seeking high performance, energy-efficient, and sustainable buildings, Florida Gulf Coast University utilizes Leadership in Energy and Environmental Design (LEED) criteria as developed by the U.S. Green Building Council (USGBC) for the design and construction of all major construction and renovation projects. The following specific design guidelines are based on the latest LEED-NC version available at the time of the project inception.

- a) Use the most efficient water closets, automated faucet fixtures, etc. to meet or exceed LEED, Water Efficiency Credit 3.2.
- b) To promote alternative transportation and reduce pollution from automobile use, specify changing/shower facilities for a minimum of 0.5% of Full-Time Equivalent occupants and bike racks to accommodate 5% or more of the peak building users.
- c) To reduce pollution from automobile use, designate a minimum of 5% of the total parking capacity as preferred for low-emitting and fuel-efficient vehicles.
- d) To reduce private automobile usage and reduce negative environmental impacts associated with automobile use, specify designated parking for carpools or vanpools for a minimum of 5% of the parking spaces provided.
- e) Pervious concrete is acceptable for paving to meet or exceed LEED, Sustainable Sites, Credit 6.2.
- f) Minimize the impact of thermal gradient differences between developed and undeveloped areas, the roof shall be designed to reduce heat absorption, meeting the criteria listed below:
- g) Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than 78 for low-sloped roofs and 29 for steep sloped roofs for a minimum of 75% of the roof surface.
- h) Develop and implement an Indoor Air Quality Management Plan during construction in accordance with LEED, Indoor Environmental Quality, Credit 3.1; Construction IAQ Management Plan: During Construction.
- i) Evaluate new construction or renovation projects for inclusion of carbon dioxide (CO₂) monitoring system to measure (CO₂) concentrations within all densely occupied spaces (those with a design occupant density greater than or equal to 25 people per 1000 sq.ft.). For each mechanical ventilation system serving non-densely occupied spaces, provide a direct outdoor airflow measurement device to meet or exceed LEED, Indoor Environmental Quality, Credit 1: Outdoor Air Delivery Monitoring.
- j) Specify low VOC emitting materials including adhesives, sealants, paints, carpet and composite wood to meet or exceed LEED, Indoor Environmental Quality, Credits 4.1-4.4.

- k) Specify deck to deck partitions to separate outside exhausting from housekeeping areas and copying/print rooms from contaminating regularly occupied areas; specify permanent entryway systems (grills, grates, etc.) to meet or exceed LEED, Indoor Environmental Quality, Credit 5.

- l) To the extent possible, maximize day lighting in accordance with LEED Indoor Environmental Quality, Credit 8.1: Daylight & Views: Daylight 75% of Spaces, and LEED Indoor Environmental Quality, Credit 8.2: Daylight & Views: Daylight 90% of Spaces.

(End of Division 1)

DIVISION 2 – SITEWORK

AESTHETIC COMPATIBILITY

1. The use of chain link fences shall be kept to a minimum, but where their use is required; the entire fence system shall conform to ASTM F669 Heavy Industrial Fencing, with ASTM Medium Industrial wire fabric, black PVC coated per ASTM F668.
2. Ensure that Project Site is coordinated with Master Plan criteria.

GENERAL GUIDELINES

1. Provisions shall be made for locating a dumpster receptacle and recycling containers in an accessible site with aesthetic screening provided.
2. The building shall have at least one loading zone to accommodate frequent moving of portable equipment to and from the building and to allow maintenance vans and personnel to have ready access to the building. Where loading docks are provided, they shall be located as close as possible to freight/passenger elevators and shall be covered.
3. All parking and spaces used outside of the construction area will require that decals be purchased from the University Parking Services Department, except for construction vehicles with the contractor's logo on them.
4. The contractor will determine the number of special entrance permits that are required and will submit a request for these permits to the Facilities Planning Project Manager.

SAFETY PROVISIONS, SECURITY PROVISIONS AND TEMPORARY SERVICES

1. A six-foot high heavy woven steel wire fence on steel posts (where appearance is a consideration, a privacy type fence might be required) with gates shall be erected around the project site *with a privacy screen*. No trespassing signs to meet OSHA requirements shall be specified. The fence shall be shown on the drawings. The Owner shall be held harmless if improper or inadequate fencing is installed by the Contractor and injury or damage results. **(REV. 2.10.10)**
2. Building Security. Provide one exterior door of any enclosed structure with a lockset including a university security cylinder during construction. Furnish the facilities Planning Project Manager two keys for each lock or two masters for all gate locks. These keys will be turned over to the University Police Department for emergency access to the construction site.
3. Safety of Persons and Property. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to all university faculty, staff, and students and all other persons who may be affected thereby. Also, all the work, all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any Subcontractors or Sub-subcontractors. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction shall also be protected.
4. When the use or storage of explosives or other hazardous materials on campus is necessary for the execution of the work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel. Notification of such activities

shall be provided to the facilities Planning Project Manager and the University Environmental Health and Safety Department prior to their being brought and/or used on campus.

5. The specifications shall require the Contractor and its employees, while working on the premises, to comply with the Safety Orders issued by OSHA, the University Director of Environmental Health and Safety and any other safety, health or environmental regulations of the State of Florida having jurisdictional authority.
6. The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the University's Environmental Health and Safety Department and the Facilities Planning Project Manager.
7. The Contractor shall not load or permit any part of the work to be loaded so as to endanger its safety.
8. In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss. Notification of such occurrences must be made to the University Police Department as soon as practical.
9. The specifications shall require that no persons, other than employees of the Contractor, Architect/Engineer, Department of Physical Plant or Facilities Planning enter the construction work site without specific prior approval of one of these parties. Warning signs may be posted to assist in the enforcement of this requirement.
10. The Contractor shall provide continuous utility services until the date of Substantial Completion, or Beneficial Occupancy, whichever comes first, including operation of permanent equipment and services.
11. Provide temporary heating and cooling as necessary to protect the work from dampness and cold, and to dry out the building prior to millwork doors, paint and acoustical tile installation.
12. Provide temporary water necessary for construction, drinking, and testing of plumbing and mechanical systems from the department of Physical Plant through the University Project Manager. The connection point must be verified by the Physical Plant Department *and Lee County Utilities* (REV. 2.25.10). The line size must be adequate for all demands. Make necessary connections and install a meter, and install all pipes from the meter. Remove temporary lines upon job completion. All costs, including use and connection fees, shall be paid by the Contractor at current rates. All temporary water lines will have backflow preventers.
13. Provide temporary Sanitary Facilities and maintain in a neat and sanitary manner for the use of the Contractor's employees as necessary to comply with the regulations of the State Board of Health and the county and municipality. The point of tie-in to sewage systems, if utilized, shall be designated by the *Physical Plant Department*; otherwise, the Contractor shall provide adequate chemical portable sanitary facilities for Contractor's forces. Chemical toilets will not be emptied in the university sewage system. Pit toilets are prohibited. (REV. 3.08.10)

14. Provide temporary, as well as permanent, fire protection facilities including fire hydrants. During construction, fire hydrants shall be installed within the specified distance of a building according to the occupancy classification to meet the NFPA requirements that pertain thereto.
15. Provide temporary Barriers and Enclosures. The Contractor shall provide rigid barricades, especially for open trenches and excavations, shielding, and/or warning signs including audible warning devices for the sight impaired, to protect all University employees, students, and the general public from hazards outside the required construction site fence. This includes but is not limited to: open trenches, falling objects, and the lighting and posting of warning signs about physical hazards during darkness to comply with all OSHA requirements.
16. Noise and Dust Control. In occupied buildings, indicate areas for which noise and dust control must be provided and specified methods of control. If details of installations are involved, specify these in the applicable sections of the technical specifications. The Contractor shall be required to install barriers indicated by the Architect/Engineer and shall provide other dust control barriers as required by construction operations.
17. Clean-up Enforcement. The specifications shall contain provisions that the Contractor must remove mud and spillage from public and university streets without delay. Failure to clean streets promptly could result in streets being cleaned by the Owner at the Contractor's expense.
18. All catch basins and storm drain lines in the vicinity of the site shall be protected at all times from the entry of mortar, concrete spoil, dirt and other construction debris. The residue from the cleaning of concrete trucks, wheelbarrows, concrete buggies, etc., must be prevented from entering the drainage system. If cleaning is done, it must be contained and the Contractor must remove the residue from the campus with other construction refuse.
19. Repairs of Damages to Facilities. The specifications shall contain provisions that damage to roads or other facilities on the grounds, resulting from Contractor's hauling, storage of materials, or other activities in connection with the Work, shall be repaired or replaced, at no expense to the Owner. Repairs or replacements shall be made to the Owner's satisfaction. Clean up of areas shall occur on a weekly basis. Contractor shall not overload vehicles with material causing spillage and possible future damage.
20. Planning for Temporary Control. Specify that the University Police Department must be notified at least 1 week in advance of any anticipated work affecting traffic flow. To ensure maintenance of flow and to safeguard all parties involved in planning temporary routing, a field inspection should be made jointly by the Architect/Engineer, the Owner, and Contractor prior to performing any work that would interrupt normal traffic patterns. Rerouting of traffic shall be planned, as to route and direction, in cooperation with the Police Department *and Physical Plant Department*. (REV. 2.10.10)
21. Temporary lanes shall be well marked, and obstructions, barriers, lane changes, or detours shall be indicated by appropriate signage at each point of potential confusion, as well as at each change in direction of a temporary route. The University Police Department shall be notified in advance of the anticipated time of return to normal traffic patterns. Upon completion of construction affecting streets or traffic flow, but before temporary control devices and lane

markings are removed, the area shall be restored to receive traffic in the normal pattern. The Police Department shall be notified of the actual time of completion of restoration.

22. Project Identification and Signs. Include requirements for temporary project identification and informational signs required during construction, and removal at completion of work.
23. Contractor's Office shall be of size suitable for the use of the Contractor, Subcontractors, and the Architect/Engineer's representative. Office shall be air conditioned, lighted, and provided with doors with locks, and private line telephone service. One lockable space in the office shall be provided for use of the Architect/Engineer's representative; space shall be equipped with plan table, desk, suitable chairs or stools, plan rack, filing cabinet, and telephone. The Contractor or an authorized agent shall be present at the office or shall arrange to be called readily, at all times while the work is in progress.

PARKING

1. The Director of Facilities Planning and the University Chief of Police prior to the production of final construction documents and bidding the work must approve all parking lot design and designation of parking spaces.
2. Address parking by including parking requirements as part of facility design and cost as well as restoration of displaced and disrupted parking.
3. All parking spaces shall comply with applicable code regulations and be a minimum of 9 feet wide.
4. Striping of all lots must be done using set-fast water borne traffic marking paint. Colors: TM226 White, TM2132 Red, TM2159 Yellow and TM2133 Blue. (Sherwin Williams numbers)

DEMOLITION

1. Include the removal of all structures interfering with new construction in the demolition plans. Debris resulting from stripping and demolition operations shall be removed from University property at frequent intervals so as to prevent this material from accumulating on the site.
2. Removal of trees and shrubs shall include the removal of stumps and roots to the extent that no root greater than three inches in diameter remains within five feet of an underground structure or utility line or under footings or paved areas. Grubbing in open areas shall include removal of stumps and three-inch roots to two feet below finish grade elevations.
3. In open areas, foundations of structures shall be removed to a minimum of three feet below finish grade elevation. Where new structures will replace existing structures, indicate extent of foundation removal on the drawings. No existing slabs will remain under fill for new structures. Hazardous material removal shall be conducted prior to structural removal as required by federal, state and local requirements.
4. Identify cutting and patching in detail, including incidental cutting, fitting, and patching required to complete the work or to make several parts fit together properly.

5. Streets shall be power broomed at least once per week in the area of demolition, or as requested by the University.
6. Materials and Equipment:
Salvage on Demolition and Renovation Projects. On all projects involving demolition and/or renovation, the Architect/Engineer should review with the Facilities Planning Project Manager (for inclusion in the bid documents) the possibility of salvage of materials and equipment, either for use in the remodeling project, or by the Department of Physical Plant. The Facilities Planning Project Manager, upon notification by the Architect/Engineer of salvage not needed in the remodeling, will notify the Architect/Engineer of materials and equipment to be removed by the Owner or to be turned over to the Owner by the Contractor. The Contractor will remove non-reusable materials, including toxic and/or hazardous waste, from campus. The university reserves the right to remove salvage prior to start of construction, and, in certain instances, to require the Contractor to turn over certain items of salvage.

EARTHWORK

1. Prior to issuance of Building Permit, no excavation, drilling, exploratory work or installation of fence posts, etc., is permitted until the Contractor and university personnel review drawings of existing utility lines. Any damage done to known lines shall be repaired immediately in a manner acceptable to the University Physical Plant Department and at the Contractor's expense.
2. Earthwork includes, but is not necessarily limited to the following: excavating, filling, backfilling, grading and compaction. Dewatering of excavations and work areas, as required. Shoring and bracing, as required. Disposal of excess and unsuitable excavated materials. Preparation of sub-grade for building slabs, walks, decks and pavements. Backfilling of trenches within contract limit lines. Excavation and backfill required in conjunction with underground mechanical and electrical utilities, and buried mechanical and electrical appurtenances is included as work of this section. "Excavation" consists of removal of all material encountered to sub grade elevations indicated and subsequent disposal of materials removed. The construction manager should be aware that rock will be encountered.
3. Earthwork for Buildings:
The site for the new building will be stripped and the area around the existing buildings graded to suit the architectural requirements. Excavation and removal of materials from the premises will be done as required for the building and structures. This will include disposal of debris and waste material, foundation drainage, backfill, compaction, shoring, sheathing, temporary protection and barricades. Storm water drainage will be controlled during construction of the project. Fill as required for rough grading elevation. Site preparation for building according to Geotechnical Engineer's recommendations.
4. Earthwork:
This area should address excavation, filling and grading for the new structure as required to suit site appurtenances. Grading and filling will be performed to lines and grades required by civil engineering. These grade lines will be integrated with the new paving and surfacing as well as landscaped areas. Removal of the unsatisfactory or deleterious materials from the premises will be done as required for the work. Disposal of debris and waste material, temporary protection of work, barricades, rerouting requirement, signage, etc. will also be included. Storm water drainage will be controlled during construction of the project and will also be included.

5. Rough Grading:
Slopes shall not be greater than one vertical to six horizontal in grassed areas. Steeper slopes will be considered in unique circumstances and will be reviewed and approved by the Owner.
6. Excavating:
The excavation and backfilling of trenches, etc., for piping, manholes, pull boxes, etc., in the mechanical trades is considered better placed under those divisions than under this general division but the Architect/Engineer should ensure that the compaction of backfill in trenches is covered and that the soil type is the same and that restoration has occurred.
7. Under no circumstances shall topsoil, rock and other excavated soils be removed from the campus. If such materials are not required for the project, the Contractor should consult with the University Project Manager who will advise the Contractor regarding a disposal location.
8. Where topsoil is removed and grading is accomplished on the site, or where the existing ground surface is otherwise disturbed, care shall be taken to prevent soil erosion. If soil is needed, specify that the Contractor will have to obtain it from private sources at the Contractor's expense.
9. When necessary to hold large piles of excavated earth on the job site, the Contractor should be required to provide cover or adequate means of water sprinkling to keep the sand particles wet and prevent them from being wind-blown about the campus.
10. Backfilling is required at building perimeter and site structures up to sub grade elevation. Fill under interior and exterior slabs-on-grade or pavement, and fill under landscaped areas shall meet applicable ANSI/ASTM standards.
11. Trenching:
When excavating and backfilling for the mechanical and electrical trades is covered in this portion of the specifications, make certain that the compaction of back-fill is properly specified and meets applicable ANSI/ASTM standards and the requirements of Section 553.60, F.S., the Trench Safety Act.

PEST CONTROL

1. New buildings should have lockable access doors installed in chases to facilitate application of chemicals to prevent infestation of household pests. Access doors shall match or exceed the rating of the wall systems in which they are installed.
2. Termite treatment is required for every building. The Subcontractor, for soil poisoning, must furnish a service agreement stating the work performed *per specifications*. **(REV. 3.08.10)**
3. If treatment is provided prior to substantial completion, the Architect/Engineer should specify modification of service and guarantee so that the university is not billed prior to acceptance of the building.
4. Chemicals and application shall conform to EPA's Federal Insecticide, Fungicide and Rodenticide Acts.

UTILITY WORK

1. Connections to Existing Utilities:

If connections to university utilities are permitted, the specifications shall require the Contractor to make requests for utilities service through the Facilities Planning Project Manager. Contractor shall make all necessary arrangements for the service, including the point of tie-in, times permitted for utility work, shutdown scheduling, traffic control, amount of lead time notification, etc., with the Department of Physical Plant through the Facilities Planning Project Manager. The Architect/Engineer shall obtain drawings of existing utilities and shall consult university personnel regarding services available and points of connections to services. All services shall be metered through meters furnished by the Contractor.

2. Detectable or non-detectable plastic marking tape shall be installed underground above all buried utility lines; to facilitate the location of the lines before damage to the lines can occur during required excavation.

3. Ensure that all proposed and expanded services and distribution systems and infrastructure are coordinated with the University's Utilities Master Plan and Lee County Utilities.

4. Water Distribution System:

Water main materials: ductile iron pressure water pipe and PVC pressure pipe, joints are optional. Provide gate valves at all new branches, fire hydrants, backflow prevention devices and meters. Discuss valve location and installation details such as valve boxes, direct burial, and ground level access to valve operator with the university. Water lines will be disinfected according to AWWA Standard C-601. All pipes will be tested for leakage. Detectable plastic marking tape shall be installed underground above buried utility lines, as required; to facilitate the location of the lines before damage to the lines can occur during required excavation.

5. Sanitary Sewer System:

Sanitary sewers shall *meet Florida Building Code as required* with joints as recommended by pipe manufacturer. Sanitary manholes shall be precast concrete or cast-in-place concrete. Cover and frames shall be cast iron. Cleanouts shall be commercially manufactured wye branches.

(REV. 3.08.10)

PAVING

1. All exterior ramps, stairs, landings and walks shall have an integral non-slip finish and provided with a waterproof sealant coating.

2. Expansion joints shall be provided in all concrete sidewalks every 20'-0" regardless of width. The expansion joint shall be made of elastomeric pre-molded expansion joint filler, manufactured for expansion joints. Tooled control joints are not to exceed 5'-0". Consult Portland cement Association, Cement Mason's Guide Booklet. All sidewalks shall be designed to prevent water from ponding on them; either crowned or sloped and contain ADA approved tactile warnings.

3. Asphaltic Concrete Paving: Provide materials and installation to comply with requirements of the Florida Department of Transportation and as determined by the civil engineer. Minimum installation shall consist of 1" plant mixed type S-1 asphaltic concrete surface course over 6" compact base over 10" stabilized soil, unless civil engineers determine otherwise. All sidewalks shall have tooled edges where exposed.

4. Concrete Paving: Provide Class 'A' concrete with a minimum compressive strength of 3000 psi in 28 days. All products, materials, and execution shall comply with applicable ANSI and ASTM Standards. Provide pre-molded type 2" thick, full depth of concrete, maximum 30'-0" o.c. and at junctions with vertical surfaces. Specify expansion joints and show on the drawings. Control joints shall be saw-cut to squared relief, e.g., 6'0" wide sidewalk, 6'0" space between. Line up control joints so that new stress points do not occur and cause more cracking of the concrete surface. Provide floated, troweled, and medium broom finished surfaces. The university recommends boring as the standard procedure for crossing streets/roads. Saw-cut finished surfaces only as a last resort. Concrete walks shall be cut and replaced from joint to joint, doweled to the remaining slab.
5. All walks shall be a minimum of 6" thick with edges increased to a minimum of 2 additional inches thick and 10'-0" wide, steel reinforced. Secondary sidewalk width should be a minimum of 6 feet, and should match surrounding walk patterns. Care must be taken to prevent slick finishes, and to avoid the possibility of marking or vandalism while the concrete is curing. Expansion joints must be properly designed and indicated on contract drawings. Medium broom finish on all sidewalk Work is required. Protect concrete from defacement by fencing or providing appropriate personnel to maintain and secure the area until the concrete has properly cured.
6. The University will not accept defaced concrete.

LANDSCAPING

1. Tree Relocation. Provide instructions in the Construction Documents for relocation of existing trees or other major landscaping and ground coverings.
2. Landscape Grading. Acceptable fill materials shall be in accordance with Geotechnical Engineer's Report and recommendations. Topsoil: Existing stockpile topsoil shall be free from sticks, stones, roots, clods and any extraneous material. Imported topsoil shall be a fertile, friable, natural topsoil of loamy character obtained from a well-drained, arable site free from sticks, stones, roots, clods and extraneous matter. Topsoil shall be a black loam, indigenous to general area in which the project is located and shall be suitable for planting and seeding. Specify a six-inch depth of topsoil for seeded areas and 12-inch depth for planting areas.
3. All areas not otherwise landscaped shall be sodded with appropriate sod. Comply with ASPA (American Sod Producers Association) - Guideline Specifications to Sodding. Scarify subsoil to a depth of six inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil. Topsoil shall be a minimum of two inches depth over area to be sodded.
4. Landscaping Materials shall be scheduled in the landscape plan, including plant name in botanical identification, nominal size of trunk or spread of branches, height or other identifiable criteria. All landscape plans shall be reviewed by the Director and/or appropriate staff of the Landscape and grounds department of Florida State University. Creative designs with regard to maintenance, practicality, ingenuity, and appropriateness to the area are encouraged. Prior to the start of the design work a site review and analysis meeting will be scheduled with the Director of Landscape Operations.

Quality: All installed plant material shall be Florida Fancy or Florida #1 as per Grades and Standards for Nursery Stock, Florida Department of Agriculture and Consumer Services. FGCU reserves the right to refuse any material with visible insects or mites or with apparent insect or mite injury. Plants that are diseased, sun scalded, cold injured, showing nutritional deficiencies or for other reasons are deemed unattractive may be refused.

Size: Shrubs smaller than 3 gallon pot size will be rejected. Preference should be given to 5 gallon, 7 gallon or larger sizes. Exceptions due to availability or type must be approved by the Director or Asst Director of Grounds. Shrubs should show a good branching pattern. Poorly shaped specimens may be refused. Palms must be free of noticeable trunk injuries and have fronds that are free of necrotic spots and yellowing. All trees shall be a minimum of 2 inches in caliper thickness measured at breast height.

5. Planting Specifications: *See Appendix N (REV. 3.04.10)*

Planting Shrubs: All planting beds shall be tilled. All landscaping beds shall be prepped and cultivated with appropriate aeration and soil amenities to enhance drainage. The landscape contractor shall assure percolation of all planting beds prior to installation. Root balls are to be scarified before planting if there are visible encircling roots (pot bound). Shrubs shall be planted at ground level. The top of the root ball will not be buried.

Weed Barrier: All landscape beds shall be covered with a weed barrier fabric that gives a 20 year or longer protection unless otherwise approved by the FSU Landscape Department. Approved weeds barriers are: DeWitt Pro-5 Weed Barrier; UPC MFG# 042579, SCC MFG# 00042579 or DeWitt 20 year Weed Barrier UPC MFG# 042579, SCC MFG# 0042579 or equal. No soil will be permitted on top of the weed barrier fabric.

Mulches: There shall be a minimum of 2 ½ inches of mulch install over planting beds. "Red Mulch" is to be utilized which consists of shredded pine (with or without the addition of shredded hardwood) with a fade resistant, non toxic biodegradable red stain coating. Pine straw will be permitted as mulch in areas with a strong slope provided it is fresh and free of limbs.

Planting Trees: Trees are to be planted to soil that has been loosened or tilled prior to planting by excavating to a minimum diameter of twice the width of the root ball. Tamp loosened soil at the bottom of the planting hole to prevent settling. Small trees, less than 3" caliper thickness, are to be staked using two evenly spaced 8 foot 2"x 2" pine posts driven to a height of 5 ft above finished grade. Tree trunks are to be protected from rope or straps ties used for staking with rubber hose or other equivalent or approved protective covers. Large trees are to be staked using 3 ropes or double strand galvanized guy wires secured with wooden or plastic ground stakes. **Steel reinforcing rods shall not be used as stakes.**

6. Tree Mitigation Notes: All tree mitigation activities shall be supervised by an Arborist certified by the International Society of Arboriculture (ISA).
7. Survey existing trees to save major existing trees from damage by the new construction. Identify these trees in the landscaping plan and make provisions to keep damage and stress from occurring to the trees due to construction activity.

Barricades: Before the start of construction, construct a physical protective barrier around existing trees noted to remain. The protective barrier shall extend as close to the drip line as possible. Because roots grow beyond the drip line, enclosing as large an area as possible is desirable.

Protection from Compaction: There shall be no additional compaction within the drip line of protected trees. Storage of construction materials or equipment is not permitted inside the barricade.

Trenches: Dig trenches by hand or tunnel under the tree if underground utilities must be installed within the drip line. Prune roots larger than ¾" by hand. Do not rip them out with a trencher or other excavating equipment. Bridge roots when trenches for new construction would damage them.

Root Pruning: All roots greater than 2 inches in diameter with a root saw or pruner. All roots are to be cut cleanly.

Watering: After rooting pruning and until substantial completion, all affected tree root zones are to be watered at a rate equivalent to 1 inch of water per week.

Fertilization: A slow release (at least one half of the nitrogen shall be an insoluble form fertilizer) to be applied by broadcast application over the root zone following the recommended rate.

Limb Pruning: All limb pruning is to be performed under the direct supervision of a certified Arborist.

8. Landscape Irrigation:

All landscaped and sodded areas shall be irrigated with an automatic sprinkler irrigation system. The irrigation system shall be designed to minimize water spray on pedestrian walkways and buildings. All sprinkler lines shall be self-draining. Design the irrigation system to prevent or minimize runoff of irrigation water onto roadways, driveways, walks, etc. Drip irrigation systems are encouraged where deemed appropriate. *Contractors shall be responsible for any damage to existing irrigation during construction and temporary irrigation.*

(REV. 2.10.10)

Controller – Clock: Match existing Rainbird, water proof unit suitable for exterior installation if required. The basic controller shall have a minimum of 12 stations capable of being expanded to a maximum capacity of 42 stations. The controller shall be equipped with an integrated, pre-wired SmartPort to permit connection of wireless remote controls or other devices that may be necessary to coordinate new installations with existing.

The controller shall be adaptable to a compatible computerized central control system through a communications module with a selection of hardwired cable, UHF radio, dial-up-modem, and cellular telephone. The controller shall be capable of two way communications with the central computer management and monitoring system. All hardwire connections shall be through conduit.

Controller Installation: An authorized Hunter representative/installer shall insure proper communications with the central control system. A standard telephone jack shall be provided within three (3) feet of the controller with a designated dial-up number. A designated 120 volt circuit shall be provided for the controller. There shall be 1-2 inch sweep for separate irrigation zone wires; 3 – 1 inch sweeps for the grounding wires, antenna cables, and remote control access. All sweeps shall be easily accessible outside the building line.

Rain Sensor Shut Off: shall be Hunter Mini-Clik or Wireless Rain-Clik as appropriate for the installation.

Electric Valve: All valves shall be professional grade solenoid valves with min. 150 psi rating that provide flow control, dial setting pressure regulation, and have internal and/or external bleed.

Wiring: Wires shall be bonded and taped ever 20 ft and buried beneath the main line.

Piping: All piping shall be schedule 40 installed to allow for expansion. Sleeves where required under walks etc shall be schedule 40 and a size bigger than the pipe it encompasses. All irrigation trenches shall be a minimum of 2 feet.

Turf Heads and Sprays: Heads and sprays shall be professional grade of heavy-duty ABS construction including an extra thick body and cap. Spray shall be adjustable from 1 to 360 degrees by a top adjustment screw.

Bubblers: shall be ½” pressure compensated adjustable flow up to 2.0 gpm. Bubblers shall be capable of fine tuning by a top mounted stainless steel screw. Back Flow Preventers shall be installed on all systems. They located to minimize their visual impact on the campus. Provide covers labeled ‘irrigation’. Riser Pipes shall be schedule 40 and be (painted) green in color and sized in accordance with the height of plants. Swing Joints shall be used in high traffic areas.

Pressurization: Pressure on the system should not exceed 75 psi unless otherwise specified. An approved pressure reducing valve shall be provided. Valves Boxes shall be provided for every irrigation valve. Boxes shall be installed level with the final grade, lockable and labeled ‘irrigation’. Boxes in high traffic areas shall be concrete with a maximum size of 12 inches. Boxes in low traffic areas may be green PVC.

Zones: Irrigation shall be separated by (1) Turf; (2) Shrub; (3) Trees unless otherwise approved. Spray heads shall not be on a rotor zone. Drip irrigation is encouraged when appropriate.

9. The Project Manager shall notify the *Physical Plant Department* when a project is ready for final review and acceptance. At final acceptance *the Physical Plant Department* shall be responsible for care.

EXTERIOR SIGNAGE

All exterior sign types shall be designed and fabricated by the Physical Plant Department *and outside vendor.* **(REV. 2.25.10)**

STORMWATER DRAINAGE GUIDELINES

1. Follow these considerations when preparing the design of site storm water drainage and related facilities: Comply with flood plain management criteria.
2. Determine the impact that the proposed facility has on the current drainage system and plan accordingly.
3. Building floor elevations shall be set to minimum standards above 100-year flood plain elevation, but in no case lower than two feet above the 100 YFP.
4. Overland flow capacities from the 100-year storm event available for all flow in excess of capacity of underground and open channel conveyance systems.
5. No floodwater from the 25-year storm event greater than six (6) inches deep on local roads, parking lots or other non-street vehicular use areas.
6. No flood waters from the 25-year storm event in one driving lane each direction of collector streets.
7. No floodwater from the 25-year storm event in two driving lanes each direction of arterial streets.
8. Where open channel conveyances are to be constructed, storm event in excess of capacity of underground conveyance system, or for full 25-year storm flow if no underground system exists.
9. The rate of off-site discharge shall not exceed the pre-development rate of discharge.
10. No floodwater from a 5 or 10-year storm event in one driving lane of local roads.
11. No floodwater from a 5 or 10-year storm event in the driving lanes of any other road than a local road.
12. Underground conveyances not overflowing from a 5 or 10-year storm event.
13. Storm Drainage System. Provide catch basin or inlets of precast or cast-in-place concrete? Grates and frames shall be cast iron or galvanized steel. Drainage pipe to be concrete, corrugated metal pipe or helicoidal metal pipe (bituminous coated or aluminum).

CODE BLUE SYSTEM (REV. 2.25.10)

1. The A/E shall include new locations for the University's system of emergency blue lights, as appropriate for the project.
2. The FGCU Police Department shall determine the location and the type of Blue Light Systems for each project. **(REV. 3.05.10)**
3. *See Appendix T for additional information regarding the Code Blue System.* **(REV. 3.05.10)**

(END OF DIVISION 2)

DIVISION 3 – CONCRETE

GENERAL REQUIREMENTS

1. Require concrete tests as specified in appropriate articles of the SUS Professional Services Guide. For quality control, all material products and execution shall conform to ACI 301 and applicable ANSI/ASTM Standards tests.
2. Require proper coverage of reinforcement in specifications and during inspection. Reinforcing bar supports frequently are exposed to the weather on soffits and other surfaces, and corrode. Use plastic supports.
3. The Architect/Engineer shall justify the use of admixtures. In general, admixtures are not desired.
4. Include specifications for cold weather concreting in accordance with ACI 03200.04
5. Provide proper seals where pipes pass through floors, to be made tight around the piping to prevent passage of vermin, rodents and fire.
6. Specify proper filler where expansion space is needed.
7. Provide a straight expansion-joint-filler appearance.
8. Exposed concrete used as an interior finish material shall be formed and finished to tolerances and finish requirements that are appropriate for the occupied space. Tolerances and finish requirements shall be indicated in the contract documents.
9. Horizontal finish tolerances may be specified using F-numbers (floor flatness (Ff) and floor levelness (Fl)) defined by ACI 117 and ASTM E-1155.

EXTERIOR EXPOSED CONCRETE OR PRE-CAST STONE

1. No buildings or other structures shall be built using exposed concrete finishes, other than exposed concrete paving and pre-cast architectural concrete or cast stone. Exposed concrete, pre-cast concrete and cast stone using steel reinforcing shall have exaggerated concrete coverage and/or epoxy coating to prevent rusting and spalling.
2. Do not cut cast stone or other pre-cast concrete pieces that contain steel reinforcement.
3. Architectural concrete specifications and inspection procedures shall be structured to ensure compliance with these requirements.
4. Provide a sample of finished concrete for approval before proceeding.
5. Architectural Precast Concrete: Tolerances and finish requirements for architectural precast concrete panels shall be indicated in the contract documents.
6. Cast Stone: See “Cast Stone” in Section 04000.

7. Exposed Structural Concrete: The University discourages the use of exposed structural concrete columns, beams, joists, and slab soffits in public areas exposed to view.
8. Exposed Concrete at Stairs: Exposed concrete at stairs should have chamfered edges no greater than ½". See also Section 05000 – Metals, 1.3, A. STAIR NOSING.
9. Exterior Concrete Slabs on Grade and Stairs: Exposed concrete traffic surfaces shall have a slip resistant broom finish. Batch colored concrete on exterior slabs is prohibited.

(END OF DIVISION 3)

DIVISION 4 – MASONRY

GENERAL REQUIREMENTS

1. Lay concrete masonry units as follows:
 - a) With full mortar coverage on horizontal and vertical face shells.
 - b) Bed webs in mortar in starting course on footings and in all courses of piers, columns and pilasters, and where adjacent to cells and cavities to be filled with grout,
 - c) Fill all below grade cells with grout and
 - d) Maintain joint widths indicated, with only minor variations to maintain bond alignment, typically 3/8" (10 mm) joints.
2. Lay solid concrete masonry units as follows:
 - a) Completely fill bed and head joints, butter ends with sufficient mortar to fill bed and head joints and shove into place, do not furrow bed joints or slush head joints,
 - b) Slope beds toward cavity in cavity walls to minimize mortar protrusion into cavity, use a drag stick to keep cavity clear of mortar and trowel mortar protrusion flat against cavity face of brick.
3. Lay hollow concrete masonry as follows:
 - a) Lay vertical cell units with full head joints, unless otherwise indicated,
 - b) Provide bed joints with full mortar coverage on face shells and webs,
 - c) Lay horizontal cell units with full bed joints, unless otherwise indicated,
 - d) Keep drainage channels, if any, free of mortar,
 - e) Form head joints with sufficient mortar so excess will be squeezed out as units are placed in position,
 - f) Butter both sides of units to be placed, and
 - g) Maintain joint widths indicated, except for minor variations required to maintain bond alignment, 1/4" – 3/8" (6-10 mm) unless otherwise noted.
4. Tool all exposed joints slightly concave when thumbprint hard, using a joint tool larger than joint. See item No. 18 for additional information.
5. Cut joints flush for masonry walls that are to receive waterproofing or other direct applied finishes (other than paint), unless otherwise indicated.
6. Plasticizers, accelerators, retardants, water repellent agents, or other admixtures are not recommended for mortar unless specifically required and approved by the University Project Manager.

7. Tops of all masonry walls, exterior and interior, where applicable, shall be built tightly against the floor construction above for stability, fire and sound protection, except where provision must be made for expansion, requiring alternative means for ensuring stability, etc. Provide masonry and other anchors sizes and spacing in project specifications.
8. Composite Masonry mock-up: Erect a 4 x 4 foot minimum panel size, include specified mortar and accessories. The panel shall show color range and texture of masonry units, bond mortar joints and demonstrate minimum standard for the work. Completed masonry work in the building shall be equal to that shown in the approved panel. The panel shall not be removed until masonry work is completed or until removal is authorized.
9. Provide concrete block units wherever feasible for interior wall finish. All units shall comply with all structural codes and shall be properly protected at the job site to insure placing in the wall without excessive moisture content.
10. All walls exposed both sides shall be 8" thick, minimum.
11. Provide bullnose on all exposed external concrete block corners that extend to the floor (or to top of base). Rub out all casting irregularities (so as to result in smooth transitions from flat face to rounded corner) before any finish treatment is applied.
12. See Item No. 19 for weep hole information.
13. Provide a weep cavity where concrete blocks are veneer faced with brick or precast units. Face units shall not be installed directly against outer face of interior wythe. The exterior facing shall be tied to the interior wythe with ties specifically designed for this purpose. A damproof coating shall be provided on the outer face of the interior wythe prior to install the facing..
14. Check split coursing at the head of any type of opening.
15. Glass Unit Masonry. Provide horizontal joint reinforcement, uniform joint treatment interface with adjacent wall systems and compliance with strict structural and code requirements.
16. Masonry Cleaning. Refer to the Southern Brick and Tile Manufacturing Association to for bulletins covering cleaning. (Cleaning should be done sufficiently early for the walls to dry thoroughly; at least four weeks prior to application of silicone or other recommended waterproofing.
17. CONCRETE UNIT MASONRY
 - a) Concrete Masonry Units (CMU): Concrete masonry unit construction shall comply with guidelines established by the National Concrete Masonry Association (NCMA).
 - b) Mortar Type: Specify type "N" for above ground masonry: specify type "S" for below-grade and other structural applications.
 - c) Expansion and Control Joints: Expansion joints and control joints shall be detailed and specified to accommodate potential movement that may cause cracking.

- d) Reinforcing and Grouting: Hollow cells shall be reinforced and grouted per structural requirements. Test grout per ASTM C 1019.

18. MORTAR

- a) Mortar: Mortar shall be specified based on performance criteria. Mortar specifications and construction shall be sensitive to masonry materials. To the extent possible, color shall match existing.
- b) Mortar Joints: Mortar joints shall be tooled slightly concave. Struck or raked joints shall not be used in exterior walls unless required to match the existing joints in historic buildings.
- c) Calcium chloride shall not be added to mortar mixes.

19. MASONRY ACCESSORIES

- a) Metal Accessories: Brick ties, plates, fasteners, lintel angles, relieving angles and other metal accessories shall be galvanized steel (minimum G-90) or stainless steel.
- b) Flashing: Flashing shall be carefully thought out and positioned. Flashing shall extend beyond openings and have end dams at vertical terminations. Through wall flashing for brick veneer shall extend a minimum of 8-inches above weep location. Coordinate and detail the interface between below grade waterproofing and through wall flashing, as well as base flashing and weeps. For stone coping and brick masonry veneer above roof areas, through wall flashing shall be fabricated from copper sheet metal and shall have receivers for roof counterflashing.
- c) Cavity Walls: Cavity walls shall be specified, detailed and constructed so that cavities drain freely without being obstructed with mortar accumulations in the cavity. Weep media products shall be used where necessary. Brick ties shall be specified with built-in drips to prevent water from bridging the cavity.
- d) Weeps: Weeps shall be installed at all through wall flashing locations in accordance with Brick Institute of America guidelines. Open head joints with honeycomb plastic weep inserts are required rather than cords, tubes or open head joints. Locate through wall flashing and weeps a minimum of 12-inches above adjacent roofs to allow reroofing without interfering with their operation.

20. CAST STONE

- a) "Cast Stone" is an architectural precast product in place of natural cut stone. The use of precast stone pieces, intended as decorative pieces to match, accentuate or blend with the architectural style of other buildings on Campus, is encouraged. Windowsills, headers, string courses, lintels, column caps, wall coping and other masonry accent details may be cast stone.
- b) Cast stone manufacturers shall demonstrate competence through experience and expertise. Similar projects with satisfactory owner, architect and contractor references shall be provided.
- c) A minimum of a 2' X 2' sample of pre-cast panel shall be provided for owner approval on all projects.

21. QUALITY CONTROL

- a) **Pre-Construction Conferences:** The University may coordinate a building envelope preconstruction conference for all new construction and exterior wall renovation projects. Participants should include the University office responsible for administering the project, the University office responsible for maintaining the facility, the Architect/Engineer, Contractor, Masonry Installation Contractor, and other related trades representatives.
- b) **Mock-up panel assembly:** Depending on the facility, a mock up panel assembly may be required to demonstrate the interfaces of building envelope systems. The project specifications shall indicate the nature of the mock up panel(s). Depending on the complexity of the building envelope system, it may be necessary to provide schematic details of the mock up panel(s).
- c) **Testing:** Depending on the facility, performance testing of installed masonry systems shall be performed to verify that they are installed properly. The project specifications shall indicate the frequency and use of standard field test procedures developed by ASTM.
- d) **Building Commissioning:** The University may include the Building Commissioning as part of the project requirements. For certain projects, the Building Commissioning will include the Building Envelope, which includes exterior masonry cladding systems. The project specifications should provide information to outline the Building Envelope Commissioning requirements.

(END OF DIVISION 4)

DIVISION 5 – METALS

EXTERIOR FERROUS METALS

1. Structural Metal. All structural steel work shall comply with AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" and applicable ASTM Standards.
2. All exterior ferrous metals shall be hot-dipped galvanized including all shelf angles and other metal used in cavity walls, whether or not it is exposed to view.
3. Shop Painting. Has it been specified that all iron and steel items must be shop primed and have additional coats applied at the job to prevent rusting?
4. Use galvanized steel angles in all exterior masonry, stone or precast concrete walls, and in all interior walls where used in conjunction with stone.
5. Use galvanized steel angles in all interior walls where used in conjunction with stone.
6. All exterior ferrous metals exposed to view shall be primed and painted with a paint coating designed for compatibility with the galvanized surface on which it is applied.
7. All interior ferrous metal shall be painted with three mils of paint on all. Use galvanized steel angles in all exterior masonry, stone or precast concrete walls and in all interior walls where used in conjunction with stone.
8. All metal components shall conform to applicable ASTM requirements and shall include gratings, castings, supports for ceiling hung equipment and framed partitions, construction inserts and fastening devices, expansion joint inserts and covers, stair nosing and access doors for both ceiling and wall applications, vertical ladder for elevator pit; welded steel ladder (to meet OSHA). Elevator pit sump gratings; corner guard angles; steel angles, channels and clips; pipe sleeves for mechanical and electrical trades; trench drain gratings and frames; galvanized steel corner guards and, miscellaneous structural shapes.
9. Handrails and Railings. Handrails shall not end in 90 degree angles where there are circulation paths nor extend more than 3 inches past the circulation areas. All rails: 1-1/2" standard steel pipe. All posts: 2" x 2-1/2" standard steel pipe. Comply with all applicable codes.
10. Expansion Control. Complete and of compatible materials to produce waterproof expansion joint seals including matching wall, deck and wall, wall and roof and wall intersection systems.

EXTERIOR METAL STUDWALLS

The use of exterior metal stud backup wall assemblies will be considered only on a project by project basis. **The masonry backup wall systems is the University's preferred method of construction.**

(END OF DIVISION 5)

DIVISION 6 - WOOD AND PLASTICS

GENERAL REQUIREMENTS

1. Wood Blocking and Curbing. Provide pressure treated lumber for all lumber in contact with concrete, masonry or steel. Wolmanizing process is considered best of the treatments for lumber in buildings; Boliden salts are excellent and treatment is equivalent to Wolmanizing if pressure treatment of 100/150 psi is used.
2. If plastic laminate is used, a backing sheet of manufacturer's recommendation must be specified. This material shall meet flame spread-rating requirements of NFPA 101 for interior finish consistent with the occupancy classification.
3. Wood handrails shall not be used.
4. Provide (1) 2x4 studs in hollow metal doorframes – hinged side.
5. CERTIFIED WOOD
A minimum of 50% of all wood building components, including but not limited to rough and finish carpentry, flooring, sub-flooring, wood doors and finishes shall be certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria. All composite wood and agrifiber products inside the building shall be free from urea- formaldehyde resins including particleboard, MDF, plywood, wheatboard, strawboard, panel substrates, and door cores.
6. ROUGH CARPENTRY
 - a) Interior Walls: Metal framing shall be used for interior wall partitions, as wood framing is not acceptable.
 - b) Exterior Walls: Wood framing shall not be used in exterior walls.
 - c) In all Type-I Construction (per NFPA 220) buildings, the use of wood wall construction is prohibited, with the exception of:
 - Blocking for the installation of cabinets, shelving, and wall hung equipment.
 - Nail strips for the installation of wood base, chair rail, and crown molding.
 - In fully sprinklered buildings, 1x2 pressure treated wood furring strips may be utilized where gypsum wallboard is to be applied over concrete block or other masonry walls. However, wood furring strips shall be cut off even with the top of the gypsum wallboard to minimize exposure. Galvanized hat or Z channel are preferred.
 - d) In all Type-I Construction (per NFPA 220), the use of wood above suspended ceilings is prohibited.

- e) Wood Utilized as Part of a Low Slope Roof Membrane System: All wood blocking, nailers, and cant strips shall be pressure treated and certified (with appropriate stamp) for use in roofing applications.
- f) All pressure treated wood shall be certified Arsenic Free.

7. ARCHITECTURAL WOODWORK

- a) General Requirements: Florida Gulf Coast University's objective is to maintain a high degree of flexibility in the arrangement and potential use of all interior spaces. To this end, the use of custom made "built-in" cabinets, desks, book cases, counter tops and such is to be avoided where ever there is the option of utilizing manufactured products that are moveable and/or relocatable. Where use of built-in furniture is necessary, the design and construction shall be modular and relocatable.
- b) Custom Casework: Plastic laminate work shall be AWI "custom" grade. Fine woodwork and special plastic laminate work shall be AWI "Premium" grade. The use of particleboard in the construction of laboratory casework, or in millwork to be located in wet use areas, is prohibited.
- c) Counter Tops:
 - Plastic Laminate Counter Tops: Counter tops shall be a minimum of ¾" plywood with 1/16" general purpose grade high pressure decorative laminate surfacing. In laboratories where chemical are used, plastic laminate shall be acid resistant type. Plywood for use in sink cabinets and counter tops shall be minimum AC-EXT-DFPA grade. In all other areas, use minimum AD or AA-INT-DFPA grade.
 - Wood Counter Tops: Hardwood as a counter top finish is discouraged and can only be utilized with the approval, on a case-by-case basis, of Facilities Planning Project Manager.
- d) Cabinetwork:
 - General: The design and construction of all cabinetwork shall be a minimum A.W.I. "Custom Grade", in accordance with the latest edition of the American Woodwork Institute "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program" guide book. The use of particleboard in the construction of laboratory casework, or in millwork to be located in wet areas, is prohibited.
 - Cabinet and Drawer Hardware: Specify only cabinet hardware that complies with ANSI A156.9, "American National Standards for Cabinet Hardware" and, verify compliance in shop submittals and by inspection of installations.
Drawer slides shall be side-mounted type rated for intended use but in no case carrying less than a 100 lb. load rating. File drawer slides shall carry a minimum 150 lb. load rating.
Acceptable Manufacturers: Grass America, Stanley, or Blum, Inc.
Cabinet hinges shall be flush overlay, concealed self-closing, all metal, 165 degree opening.
Acceptable Manufacturers: Grass America, Stanley, or Blum, Inc.

(END OF DIVISION 6)

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

GENERAL REQUIREMENTS

1. Water-proofing product (sheet butyl, PVC, EPDM, CPE, CSPE, neoprene, hypalon, or composite laminated membrane) shall be designed to function as principal moisture stop in arresting water predominantly in a horizontal application; adhesive bonded, self-adhered, loose laid, or mechanically secured installation.
2. Slabs on grade shall be designed and installed so as to prevent damage to membranes during construction. At special areas and where waterproofing is considered necessary for slab on grade, a double slab system is preferred in order to reduce chances of a punctured membrane. A product equal to "Bituthane" by W. R. Grace should be considered under the wear slab. For a basement waterproofing condition, a water bar is essential at walls and columns.
3. Provide a through-wall damp-proofing membrane to prevent moisture in the soil from extending up the wall by capillary action. Material can be as light as 2 oz. copper-backed sisal paper if properly lapped and sealed at joints.
4. Special consideration shall be given to preventing leakage in shower and drying room areas.
5. A depressed floor shall be provided for toilet areas where ceramic tile is used to allow space for the waterproofing pan and slope to drain.
6. In waterproofed floor areas, a 24-hour water test required prior to placement of the finish flooring. If leaks occur, another test is required after repairs are made.
7. Water Repellent Materials. Provide clear elastomeric water repellent.
8. Vapor Barriers and Retarders. Provide a method used to continue a seal formed by a vapor and air barrier for each building enclosure construction, and to seal gaps between adjacent materials forming wall and roof openings.
9. Fire Stopping. Fire stop material shall be used to close openings and continue a fire resistance rating uninterrupted.
10. Gutters and Downspouts. All gutters and downspouts, hangers, straps and shoes shall be completely detailed and/or described. Gutters and downspouts shall be held 1" from the building wall to allow air to circulate between gutter/downspout and wall surface.
11. Sealants, Caulking and Seals. Specify the work shall be done by experienced mechanics. Provide the highest quality of sealants for each individual application. Evaluate life-cycle costs for sealant products. In addition to caulking for water tightness, caulking shall be specified for finished appearance, i.e., at cracks between the juncture of different materials or of horizontal with vertical surfaces. Caulking is not to be used as permanent construction. Caulking shall be specified for use only as a supplement to properly designed and detailed joints.

ROOFING

1. Sheet Metal Flashing and Trim. Provide in accordance with the Architectural Sheet Metal Manual by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
2. Skylight Structures. The University prefers clerestory structures in lieu of skylights. If skylights are used in the building design, the University cannot stress enough the importance of the quality of the skylight and the care of its installation and related moisture protection. During preparation of the specifications, ensure that performance requirements have been made as stringent as possible.
3. Scuppers. Provide overflow scuppers in parapet walls to prevent water building up if the roof drains clog.
4. Gravel Stops. Where gravel stops are used over exterior surfaces, provide high gravel stops, to prevent water from spilling over with resulting stain effect.

EXTERIOR CLOSURE ASSEMBLIES

1. Don't use exterior wall assemblies that have not been tested for 20 years such as EIFS (Exterior Insulated Finish Systems).
2. Don't rely on sealants to prevent water infiltration.
3. Don't use galvanized metal for flashing.

GENERAL ROOFING GUIDELINES

1. Roofs shall be maximized, but in no case less than 1/4 inch per horizontal foot. The slope of the roof can be obtained either through the structural design or tapered insulation. The design and workmanship of the finished roof shall be such that no water shall pond on the roof surface more than 24 hours after a rainfall.
2. An interior means of gaining access to the roof shall be provided with locking capability.
3. The A/E shall specify a minimum of three manufacturers of roofing systems and shall obtain notarized letters from each factory technical representative that the type of roofing system specified will perform in this locality and that all materials delivered to the job site and used by the contractor complies with the specifications. Minimum warranty shall be 20 years unlimited with no dollar limit.
4. Roof drains shall be unobstructed, properly connected to storm drains and designed and installed as per the Florida Building Code.
5. Emergency overflow scuppers shall be constructed below the flashing and not more than one inch above the roof surface.
6. If pre-stressed concrete structural members are used to support flat roofs or roofs with minimum pitch (with or without a light-weight concrete topping poured on the structural members), an expansion joint shall be provided at the ends of each pre-stressed section where the structural members butt together to allow for proper expansion. The roof insulation shall be applied in two layers with no bonding applied between the two layers. Regardless of the thickness required to

obtain required pitch or "R" rating, the thickness shall be enough to prevent expansion and contraction of the pre-stressed members. The bottom layer of insulation shall be bonded to the felt layer above. Care shall be taken to avoid coincident placement of joints.

7. On all built-up or membrane roofs, roof walkways shall be provided from roof access point(s) to and around all roof installed mechanical or electrical equipment.
8. Don't provide rooftop A/C units or exposed ductwork.
9. Parapet walls and caps (or coping) shall have through the wall flashing. If limestone caps are used they shall have a lead "T" shaped cap embedded in caulking between each piece of stone cap. Mortar shall not serve this purpose.
10. Warranties from roofing manufacturers shall include coverage for installation as well as materials. In the event of roofing material failure, the roofing manufacturer shall warrant all costs of roofing repairs, including labor. Warranty shall be in effect for as long as the material warranty is in effect.
11. As an additional service, the A/E shall provide full-time inspection service during installation of the roof and post-installation moisture testing as required by the above standard practice. The proposed inspector shall be approved by the Facilities Planning Project Manager prior to commencing work on the roof.
12. The A/E shall physically verify dimensions where critical to the project design, such as roof areas, room layouts, etc.
13. Roof installations must meet current wind load design standards.
14. Sheet Metal Flashing and Trim. Provide in accordance with the Architectural Sheet Metal Manual by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
15. A portion of the roof shall be "green" standing seam to match the University standard on existing buildings.

(END OF DIVISION 7)

DIVISION 8 - DOORS AND WINDOWS

GENERAL DOOR GUIDELINES

1. All exterior doors shall be insulated metal doors with adequate weather stripping and threshold utilized to conserve energy. If glass is used, the glass shall be thermal/safety glass, and non-reflective.
2. All interior solid core wood doors to be left natural shall be finished with a natural material, which is insoluble and resistant to marring, abrasion and staining.
3. Doorframes shall be properly anchored to prevent movement of frame during the opening and closing of the door. Galvanized frames shall be used in exterior applications and interior frames subject to moisture. Frames in masonry shall be fully grouted.
4. To prevent the flexing and breaking of the wall along the door frames, a nest of studs shall be provided around each door installation to accommodate the weight of the door and the shock caused by the closing of the door. The number and gauge of studs in the nest must be specified. The finished wall shall extend into the doorframe throat opening a minimum of 1-1/2 inches for wrap-around frames.
5. All operable items on exterior doors shall have an integral finish. Not applied, painted, baked-on, etc.
6. At least one main entry door shall be accessible from adjacent sidewalks by wheelchair and shall display the proper handicapped signage. Preferably all other entry doors shall have proper signage to direct wheelchair handicapped persons. The current ANSI standards shall apply to raised letter signage for the blind. Provide automatic door opening devices for the handicapped at entrance doors on the accessible path.
7. Exterior doors shall be of "monumental" quality, minimum width of each leaf 3'-0" and minimum height of 7'-0". In renovation projects, a different height may be used, if appropriate, upon approval by the Project Manager.
8. Interior doors shall be 3'-0" wide x 7'-0" high each leaf, except as approved by the Director of Facilities Planning and in renovation projects the door height shall match existing. Do not mix door heights in adjacent areas. All doors shall be solid core wood stave. Classroom doors shall have glass view panels set in steel framing or wood stops according to code, or shall be provided with a minimum of 12" glass sidelight at full height of the door.
9. All doorways shall be numbered, however door signage will be provided and installed by the owner.
10. View panels in any fire door shall conform to Florida Fire Prevention Code specifications.
11. Install doorstops on all doors.

12. Hollow Metal Door Frames. All interior frames shall be a minimum of 16 gauge metal. Exterior frames shall be a minimum of 14 gauge metal. Provide reinforcing of frames for hardware. A light angle is desirable. Where two doors swing from the same mullion the metal should be of heavier material and reinforced. All frames shall be pre-primed
13. If fume hoods or other large equipment occur in a room, provide doors of adequate width to provide clearance for moving the items in or out. If size is questionable, use larger size opening.
14. All corridor doors and doors to closets shall be 1-3/4" solid core to meet requirements of NFPA 80 and 101, and able to use standard locksets. Where cutouts for closers are required, the head rail should be not less than 6 inches. If hardwood edges are desired, they should be completely specified with the thickness given. Wood doors shall meet the Standards of The National Woodwork Manufacturers Association.
15. Wood door quality shall be clearly specified as well as manufacturer's name noted.
16. Plastic Faced Wood Doors, Facing and Adhesives. Plastic laminate shall conform to NEMA LD-3Adhesives for both exterior and interior shall conform to ANSI/NWMA-I.S.1.

GENERAL HARDWARE GUIDELINES

General

1. Include a completely itemized hardware schedule in the specification. A cash allowance for finish hardware shall not be used unless otherwise authorized.
2. The hardware schedule shall include a complete list of items proposed as standard, together with manufacturers' names and with the names of manufacturers whose products are proposed as equals. This schedule must be approved by the University Project Manager at 50% Construction Documents.
3. All hardware shall be furnished under this section.
4. Specify one manufacturer as standard and, whenever possible, at least two other manufacturers whose products are proven equal.
5. The hardware supplier shall furnish to the door manufacturer templates or the actual hardware.
6. Hardware added to existing buildings will be of the same manufacturer as the existing hardware, unless specified otherwise, and shall include compatibility with the American with Disabilities Act.
7. Use non-handed door closers whenever possible: Russwin 2800 series, Sargent 1230 series, or LCN equivalent.
8. When fire exit bolts are required, use horizontal exit bolts for single doors and horizontal exit bolts with removable mullions for double doors. Vertical rod fire exit bolts are not desired unless their use is dictated by specific functional requirements.

9. All operable items on exterior doors shall have an integral finish -- not applied, painted, baked on, etc.
10. Provide only five-knuckle, stainless steel ball-bearing hinges, with non-removable pins, on exterior doors. Provide heavy-duty ball-bearing butts, with 4 ball bearing for exterior doors and interior doors over 3 feet wide and standard weight butts with 2 ball bearing for interior doors up to 3 feet wide.
11. Provide extra-heavy adjustable pivots at exterior doors that have a high frequency of use.
12. Provide Von Duprin type 99 in a finish compatible with the door.
13. Provide Kawneer Panic Guard, or comparable, at exterior double door aluminum entrances
14. All building entrance/exit doors shall be equipped with exit devices with concealed vertical rods. **Surface vertical rods for exit devices are not acceptable.** Where exterior doors are required to have a removable center mullion rim type devices may be provided.
15. Provide aluminum or steel removable mullion at all lockable pairs of doors, interior and exterior.
16. Provide surface applied Russwin 2820 series, LCN 4040 series, or comparable closers. Provide Corbin 110 series at dormitories. Locate on room side of doors so not visible from corridors, lobbies, and other public spaces.
17. Use stainless steel at all locations where severe usage is anticipated.
18. Provide weather-stripping at heads and jams and surface applied automatic door bottoms, on machine room doors and other doors where excessive noise is anticipated.
19. Avoid thresholds raised above floor levels at doors to trash and receiving rooms and at all doors intended for use by handicapped persons. Maximum height of all thresholds shall be ½”.

20. Door Hardware Preferences

- **Steel Doors and Frames:** Steelcraft/Ceco Door Products/ Republic Builders Products
- **Hinges:** Hager/Stanley NO SUBSTITUTES
- **Exit Devices:** Von Duprin 98/99 series NO SUBSTITUTES
- **Door Closers:** LCN 4040 series NO SUBSTITUTES
- **OH Stops/Holders:** Glynn Johnson/Rixson
- **Wall Stops/Floor Stops/Flushbolts/Silencers/Push Pull Plates:** Glynn Johnson/Rockwood/Ives
- **Locks and Latches:** Stanley/Best 626 satin chrome finish w/ #3 lever w/H rose
NO SUBSTITUTES

- **Cylinders/Keys/Keying:** Stanley/Best NO SUBSTITUTES
1E72 Rim cylinders for panic device trim
1E74C181 Mortise cylinders w/ Adam Rite MS cam for all store front doors

Door Hardware Specifications

- All locks and cylinders shall be 7 pin interchangeable cores as manufactured by Stanley/Best Access Systems. All bittings shall be issued by FGCU in order to maintain grand master key system. Contact Jim Lee (239) 590-1317 to set up keying meetings.
- All locks and cylinders to be construction master keyed. All exterior and secured interior locks and cylinders shall be supplied with “Pink” construction cores (furnished by FGCU), all others to have “Black plastic thumb turns”.
- Provide two (2) keys per permanent core and 6 building master keys.
- Contractor shall adjust all hardware in strict compliance with manufacturer’s instructions. Prior to turning over project to owner (FGCU), contractor shall clean and make any final adjustments to the finish hardware.

Keying

1. All door locks shall be on the proprietary University Keying System (**BEST** Removable Core) as specified by the Physical Plant Department. **All** keyed locks shall be subject to the Zone Master as assigned to the facility.
2. The contractor shall provide extra copies of the approved hardware submittal and current floor plans, showing door numbers, to the Facilities Planning Project Manager. The Facilities Planning Project Manager will then provide this submittal to the Physical Plant Department, together with room numbers, the building number(s). In order to allow adequate time for proper “pinning”, the project’s approved hardware submittal must be provided to the Physical Plant Department **120** (one hundred and twenty) days prior to substantial completion for projects containing more than 250 doors, and **90** (ninety) days for projects containing less than 250 doors. The Physical Plant Department keeps material on hand for small projects having less than 12 doors. Cores can be provided and installed on these jobs with a minimum of two weeks notice. All hardware must be purchased with Best removable core cylinders “**less cores**”. The University will accept no substitutes. Cost of the cores will be borne by the contractor. The contractor must coordinate with the Physical Plant Department, which will procure cores on the contractor’s behalf. All keys and cores shall be supplied and installed by the FGCU’s Physical Plant Department, in order to maintain consistency of University master keying systems.
3. All keying schemes shall be planned in coordination with the Physical Plant Department. All Best cores and keys shall be obtained by the Physical Plant Department. The process shall begin early enough to insure that systems (key plans, keyways, cores) are compatible with Florida Gulf Coast University’s total Master Keying System, that time phasing is proper, and that the Physical Plant Department retains control of **all** keys and cores.
4. The Contractor will supply and install temporary construction cores and provide construction personnel and the owner with keys during construction.

5. The final keying schedule is prepared by, and directly submitted to Best by the Physical Plant Department.
6. Interior stand-alone card access shall be Simplex. In order to maintain consistency, the University will accept no substitutes. Installation and programming will be done in coordination with the Physical Plant Department.
7. All card access will have Best key override, coordinated with the Physical Plant Department.

Interior Door Hardware

1. Use Best mortise lock 35H7J, Russwin ML2255, or Sargent 8237, for classrooms and laboratories.
2. Use Best mortise lock 35H7E, Russwin ML 2251, or Sargent 8205 for corridor and office doors.
3. Use Best mortise lock 34H7R, Russwin ML 2212, or Sargent 8203, for restroom doors. Provide kick plates, push plates, or pull plates of lexan or stainless steel.
4. Use Best mortise lock 35H7EW, Russwin ML 2257, or Sargent 8250, for custodial closets.
5. Hardware trim shall be Satin Chrome, US26D, 626 finish. Trim design: Best 15J, Russwin NSN, or Sargent WT L, cold forged escutcheon plate.
6. Use Locknetics 5596 MGK 17 LC 626 ATK, with Best cylinder and core for stand alone interior card access.
7. Use astragals on interior double doors for security.
8. All interior fire doors shall have magnetic door holders actuated by the building fire alarm system, where appropriate and allowed by code.

Exterior Door Hardware

1. Von Durpin shall be specified. **(No substitutions).**
2. Single doors - Use a Von Durpin 99 series. Do not use mortise lock.
3. Double Doors - Use Von Duprin 99 series with removable mullions. Use Russwin 298 foot and head bolts with dust proof strikes, or Sargent equivalent. Do not use mortise locks.
4. All exit bolts installed on exterior doors should have cylinder dogging devices.
5. All hinges on exterior doors or doors in security areas should have non-removable pins to prevent the unauthorized removal of the door from the outside.
6. Exit bolts for narrow stile exterior doors shall be Von Duprin 55 series.
7. Doors that are of the narrow stile type shall have the same hardware functional requirements as specified for other exit bolts. All double doors shall have a removable rabbeted mullion and each door leaf shall not be less than 36 inches wide.

8. Provide latch guards at secure exterior doors.
9. All mullions are to be key locked into the door frame; contractor to provide Best cylinder.

Electronic Card Access

1. Where feasible, provide electronic building card access and control system compatible with existing university system(s). The University is in the process of establishing University-wide standards for these systems. A specification for this system will appear in a later version of this document. In the meantime, coordinate with University's Project Manager and the Physical Plant Department (239) 590-1313.

GENERAL DOOR AND HARDWARE GUIDELINES FOR SPECIFIC SPACES

Restrooms

1. All interior restroom and vestibule doors are to have 10" wide kick and push plates of stainless steel or lexan and are to be non-lockable.

Custodial Closets

1. Entrance doors shall swing outward where possible.
2. Each closet lock shall be individually keyed and keyed to the grandmaster system.

Classrooms

1. Classroom doors shall have a maximum of 100 sq. inches of glass view panels set in steel framing or stops according to code.

(END OF DIVISION 8)

DIVISION 9 - MATERIALS AND FINISHES

GENERAL MATERIAL AND FINISH GUIDELINES

1. The selection of materials shall have the benefit of long range, life cycle cost analysis. All selections shall, however, be within budget limitations. It is expected that the A/E will advise the University of all savings opportunities regarding material selections. Solid and hazardous waste disposal costs for excess materials shall be included in the life cycle cost analysis.
2. The A/E shall coordinate all color and material color selections with the Project Manager. Color schedules will be required for University review with the check set of working drawings. Schedules and samples shall be provided for interior finishes, such as paint, vinyl, baseboards, carpet, tile, bathroom partitions, and the like as well as exterior finishes, such as paint, roof shingles, glazing, and so on. Colors shall be presented in the form of a non-returnable "color-board," which demonstrates all color selections in the form of an overall project color palette.
3. **A sample board(s) of all finishes and finishing material shall be submitted to the Director of Facilities Planning for approval no later than the 50% Construction Documents phase. In case of special concrete finishes or stucco work, a sample at least 2'-0" square shall be submitted.**
4. As a minimum, use a latex-based semi-gloss paint on all wall surfaces to be painted to facilitate cleaning. Use water based epoxy paint behind and beneath water coolers, trash receptacles, adjacent to elevations, in vending rooms and in all restrooms. Do not use paint containing lead. See Appendix Q.
5. All horizontal, plastic laminate surfaces shall have a matte finish.
6. Blown-on acoustical ceilings and walls are not acceptable.

GENERAL FINISH REQUIREMENTS FOR SPECIFIC SPACES

Restroom Floors

1. Floors shall be of ceramic, porcelain or quarry tile with dark epoxy grout. They shall have a watertight membrane/sealed so as to prevent seepage.

Custodial Closet Floors

1. The floor shall be finished with ceramic or quarry tile and dark grout, or sealed concrete. The walls shall be of ceramic tile or other special waterproof coating material, a minimum of 4 feet high.

CARPET

General Carpeting Design Guidelines

1. Carpet grain direction, seaming, and scribing shall be carefully addressed in drawings and specifications.
2. All carpet, unless otherwise specified, shall run in the same direction. Lay with a minimum number of seams and carpet sections. All carpet is to be smoothly laid with no bubbles, ridges, etc.

3. Where roll carpet is used, no seams shall occur at doorways and entries perpendicular to doors and entries. Seaming occurring at doorways parallel to doors shall be centered directly under doors. When seams occur at corridors, change of directions shall follow wall line parallel to carpet direction.
4. Cross-joints, which are necessary due to length of rolls, shall be placed in the cutting, to avoid occurrence at conspicuous locations, near doors, or at pivot points.
5. Where needed, raw carpet edges at doorways and the like shall be finished with a top quality metal strip or molding.
6. Do not specify carpet in stairways.

Carpeting And Related Products

Unless directed otherwise by the University Project Manager, all carpeting shall be supplied by the Contractor, and installed by the Contractor. The Contractor will be responsible for coordinating material delivery and installation with the sequencing of the work. Carpet shall be installed using an installer, installation materials, i.e., adhesives, edging, etc., and methods approved by the carpet manufacturer.

Carpet Construction

1. All yarn and other carpet materials shall be manufacturer’s first quality.
2. Carpet shall have the following construction characteristics:
 - a) Must have no secondary backing.
 - b) Must have multi-layer tufting foundation.

DETAILED PRODUCT CONSTRUCTION SPECIFICATIONS

Style Name:	STATITUFT III EverSet Bloc
Product Type:	Broadloom
Construction:	Ultra Performance System RE
Surface Appearance:	Textured Multicolored Loop
Pitch/Gauge:	1/8 (31.50 rows per 10 cm)
Pile Weight:	28.3 Oz. Per sq. yd. (960 g/m2)
Pile Thickness:	.145” (3.68 mm)
Stitches/Rows per inch:	8.4 (33.07 per 10 cm)
Dye Method:	Yarn Dyed
Nylon Type:	Fortis™ 6,6 Nylon
Protective Treatment:	Sentry Plus
Density:	7,026
Weight Density:	198,825
Primary Backing:	Not Applicable
Backing Foundation:	Composite Foundation
Secondary Backing:	Ultra Performance System RE Bloc

Pattern Repeat:	Not Applicable
Width:	12' (3.66m)
IAQ Green Label:	40904952

All specifications are subject to normal manufacturing tolerances.

*Substitutions are permitted if they meet the criteria shown in: DETAILED PRODUCT CONSTRUCTION SPECIFICATIONS. Acceptance of items submitted as equivalents will be at the sole discretion of the University and no one else.

Carpet Cleaning

1. As job progresses, surplus adhesive squeezed out between joints shall be removed. Any stains remaining shall be removed by approved methods.
2. Upon completion of work, all base and edging shall be cleaned, all foreign materials removed by approved methods.

General Carpeting Installation Guidelines

1. Installation of carpeting and related items shall be done by a competent contractor normally engaged in this trade with materials and methods complying with the specifications and drawings, and in such a manner as to insure a workmanlike job.
2. Any existing resilient vinyl cove base shall be cut to obtain a flush edge with the wall.
3. Sub-Floor Preparation: It is the responsibility of the carpet contractor to remove the existing carpet and pad, where necessary. All surfaces on which the carpeting is installed shall be clean and free of dust, dirt, and debris. Any holes, cracks, depressions, or other imperfections shall be filled and brought to a true plane with non-shrinking grout (similar or equal to "Surco" by W.R. Grace and Company). The A/E shall inspect the surface preparation prior to the installation of the carpet. Moisture tests of substrates are required prior to the installation of carpet and vinyl tile in new structures. A satisfactory reading, conforming to the manufacturer's requirements, shall be obtained before installation is permitted.
4. Damage to the facility or surrounding property incurred by the contractor during any stage of carpet installation shall be repaired and the damaged area restored to its original condition by the contractor at no expense to the University.
5. Installation of carpet shall not disturb the normal usage of the facility. Therefore, the contractor shall arrange with the University Project Manager a time schedule not concurrent with student, faculty, or staff occupation or use.
6. Carpet shall not be installed prior to drywall installation.

Glue-Down Installation Guidelines

- 1) Floors shall be free of all wax, grease, paint, oil or any other substance that would create adherence problems. Cracks, expansion joints, etc. are to be filled with a top quality patching compound and finished smoothly. The carpet contractor shall notify the A/E and the University of any flooring conditions that would prevent the completion of satisfactory work.

- 2) Floors are to be thoroughly swept and vacuumed by the carpet contractor before applying adhesive.
- 3) The mill or factory edge on all roll carpet is to be trimmed far enough in from the carpet edge in order to provide a clean and even seam. Manufacturers' recommended cutting methods shall be used.
- 4) Cut edges on all roll carpet are to be treated with a seam sealer at the edge of the carpet at the base of the pile and primary backing. On all carpets, excess sealer is to be removed in accordance with the manufacturer's recommendations. To insure an almost 100% contact with the adhesive, the carpet is to be pressed with a roller or push broom per the manufacturer's standard procedures. Note: Carpet with an attached cushion is not to be treated with a floor-covering roller exceeding 30 pounds.
- 5) All carpet shall be installed in strict accordance with the approved seaming plan.
- 6) Glue down carpet and/or carpet tiles shall not be installed over existing flooring materials.

Carpet Warranty

Contractor Warranty: The Contractor shall give the University a written, notarized warranty guaranteeing carpet installation and related work for a period of one year after the date of substantial completion. The warranty shall commit the Contractor to making all repair and replacement including labor and materials at no cost to the University.

Manufacturer's Warranty: The Carpet Manufacturer shall provide the University an unrestricted, full replacement, non-prorated, minimum fifteen-year warranty against wear, edge ravel, tuft bind and delamination. The Carpet Manufacturer shall coordinate any and all installation and material approvals, inspections and certifications required to support the specified warranty with the Contractor and Owner's Representative.

RESILIENT FLOOR TILE

General Considerations for Resilient Tile

1. The contractor shall visit the site and familiarize himself with the work to be accomplished. If verification of sub-flooring is required, the contractor shall, upon approval of the Project Manager, remove a portion of the existing flooring material, as required.
2. The A/E shall submit to the University representative samples and manufacturers' literature of materials to be used for approval.
3. The A/E shall submit no later than the completion of the 50% Construction Documents scheduled information regarding floor tile location, color, material, size, gauge, as well as similar information for base and edging. Specify 12" X 12" X 1/8" thick per Federal Spec. FS-312-IV.
4. Damage to the facility or surrounding property incurred by the contractor during any stage of resilient flooring installation shall be repaired and the damaged area restored to its original condition by the contractor at no expense to the University.

5. Installation of resilient flooring shall not disturb the normal usage of an existing facility. Therefore, the contractor shall arrange, with the University Project Manager, a time not concurrent with student, faculty, or staff occupancy or use.
6. Immediately upon completion of the tile installation, apply a high quality floor sealer and the minimum number of coats of floor finish recommended by the manufacturer to prevent damage to the floor during construction. Re-coat prior to acceptance of the facility by the owner.
7. 5% surplus floor tile to be saved for the owner.
8. Resilient Tile shall not contain asbestos.

General Resilient Tile Installation Guidelines

1. Installation of resilient flooring and related items shall be done by a competent contractor normally engaged in this trade with materials and methods complying with the specifications and drawings and in such a manner as to insure a workmanlike job.
2. Sub-Floor Preparation: All surfaces on which resilient flooring and edging are to be installed shall be cleaned free of grease, dirt, paint, and hardeners. Holes, cracks, and other depressions in the existing floor slabs shall be filled or patched, and brought to a true plane with a non-shrinking grout similar or equal to "Loxon."
3. Floor tile shall be laid with the proper adhesive, meeting Federal specification standards and with close, even joints, to a smooth, even surface, and square with the corridor axis.
4. Floor tile shall be laid with the grain direction alternating in a checkerboard pattern.
5. Floor tile at borders on opposite sides of the space shall be equal, and shall be laid, cut, fitted, and scribed to walls, columns, door frames, and the like after laying of the field tile.
6. Base and molded corners shall be firmly cemented to walls and other vertical surfaces with tight joints. Base throughout its entire length shall have its top and bottom edges in firm contact with the floor and walls. Base shall be scribed accurately to molded corners and to doorframes.

Resilient Tile And Related Products

1. The University must approve all resilient floor tile and related products. Samples of all resilient floor tile and related products as well as manufacturer's product literature must be submitted to and approved by the University prior to the 100% Construction Document submittal.
2. Adhesives for flooring and accessories shall be of the types specifically recommended by the resilient material manufacturers, for the installation conditions involved and shall meet Federal specification standards. For the installation of floor tile and edge strips, waterproof adhesive only shall be used.
3. All resilient tile and resilient base shall be of the same millrun to maintain consistency.
4. All resilient edging strips shall be vinyl with factory formed feathered edge (similar or equal to Johnsonite Reducer Strip)

Resilient Tile Cleaning

1. As the job progresses, surplus adhesive squeezed out between the joints shall be removed. Any stains remaining shall be removed by approved methods.
2. On completion of this work, all tile, base, and edging shall be cleaned as recommended by the tile manufacturer. All foreign matter shall be removed and any chipped or broken tile, base, or edging shall be replaced with sound material.

Resilient Tile Warranty

1. The contractor shall give the University a written warranty guaranteeing all work performed under this contract for a period of one year after the date of completion. In this written guarantee, the contractor shall agree to make all repairs or corrections required to maintain the completed work in first class condition for the one-year period at no cost to the University. If subcontractors are involved in this project, a similar written guarantee shall be furnished by each subcontractor covering his portion of the work. Subcontractors' warranties will not relieve the general contractor of any warranty responsibility.

STUCCO AND PLASTER

1. Use galvanized steel metal lath in conjunction with acoustic plaster to eliminate rust stains.
2. Where conditions require the highest corrosion resistance, specify that lathing accessories such as corner and casing beads be made of zinc alloy.
3. Provide ample control joints in stucco, particularly in overhangs. Two No. 60 expansion type casing beads butted together are preferred.

QUARRY TILE

1. Quarry tile is a desirable material for stairways, corridors, kitchens and for many other areas both interior and exterior because of its enduring quality, ease of maintenance and fire resistance.
2. Quarry tile treads are preferred for main stairs and should have an integral abrasive of approximately 65% aluminum oxide, ceramically bonded at high temperature.
3. Quarry tile treads shall be replaceable.
4. Quarry tile specified for exterior slab finishes must have an integral abrasive.

CERAMIC AND PORCELAIN TILE

1. The current edition of "The Handbook for Ceramic Tile Installation," published by the Tile Council of America, shall be used as a reference guide for selecting design details and specification wording.
2. Ceramic tile is desirable for floors and walls or wainscots in toilets as well as in some laboratories and utility rooms. Toilet floors shall have dark sealed grout.
3. Ceramic tile on a masonry wall is insufficient to prevent water from permeating a shower room wall. Specify parging or painting the back of the wall and provide a through-wall flashing near the base as a means of conducting the water back to the shower room floor.

4. Porcelain tile is desirable for floors in high traffic areas such as hallway, lobbies and foyers. All porcelain tile installations shall use a dark grout that is designed to be non-permeable such as epoxy grout, but an alternative using a one step process will be considered an equivalent, but shall be approved by the University in advance.

ACOUSTICAL CEILING TILE

1. Use extreme care in choosing the correct acoustic units. Do not specify exotic patterns, etc. Ensure that only standard patterns have been specified that will be available for many years in the future.
2. Specify that the Contractor cannot accept discontinued acoustic units, since matching replacements is impossible.
3. Specify that all acoustical ceiling materials shall meet flame-spread rating requirements of prevailing codes for interior finish according to occupancy classification.
4. Specify acoustical ceilings, not only by noise reduction coefficient, but also by tile thickness.
5. Specify mechanical suspension of acoustical ceilings. Adhesive attachment is not permitted.
6. Do not specify acoustical tile in dormitories. Acoustic tile is a poor material to use in dormitories because of vandalism.
7. Where exposed grid systems are specified, a reflected ceiling plan is required on the drawings. Specify construction tolerances regarding plumb, dimensions and locations, particularly where exposed masonry and concrete is used.
8. Specify that the buildings must be dried by heat or other means prior to installation of acoustical ceilings, to control humidity.
9. Specify that all suspension systems shall be intermediate duty rated. Heavy duty systems will be provided if the loading dictates. All grid systems shall be supported at a minimum of 4ft in each direction in accordance with the provisions of the latest edition of ASTM 635 and 636.
10. All lay-in light fixtures regardless of weight shall be independently supported from the structure above.

PAINTING

1. Require undercoats to have slightly different tints, and to be inspected and approved by the Architect/Engineer prior to application of the next coat.
2. Specify the total thickness of paint by "dry mil" or "wet mil" thickness (according to which is recommended by the paint manufacturer), and verify the thickness on the job by use of special low cost gages.
3. The University will assist the Architect/Engineer in specifying the quality of paint required, acceptable vendor products and paint specifications for specific types of paint and their application. Paints with the highest proportion of titanium dioxide should be used for dirt shedding properties. Exterior stucco shall be painted (1) coat of Loxon Acrylic Primer (Sherman Williams A24W300), and a

(1) final coat of Loxon Acrylic Coating (Sherman Williams A24W300 Series). The color shall be provided by the University Project Manager.

4. Clearly describe substrate preparation requirements.
5. Require metal doorframes in masonry walls to be back painted prior to installation.
6. Specify paint on steel and iron items on the basis of mil thickness rather than number of coats. Items exposed to the weather shall have a minimum of six mils total dry film measurement. Interior steel and iron shall have a minimum of four mils dry film measurement.
7. Use a clear silicone waterproofing or approved alternative the exterior of all brick buildings including the stone. 3% silicone is considered adequate; for limestone a 5% silicone is desirable. Products, which have been used and found acceptable, are: Florida Laboratories Chemclear 30 and Sonneborn- Hydrocide S-X.
8. Clear silicone waterproofing shall contain a minimum of 3-5% silicone resin solids in a hydrocarbon solvent conforming to formulation and performance standard of Federal Specifications SS-W-OO110 (G.S.A.). Container label shall certify that it meets above requirements. Where an interior paint is used on masonry or concrete surfaces, no silicone waterproofing is desired.
9. Maintenance prefers and uses a latex based paint for interior applications and an oil based paint for exterior applications. Interior paint shall be low VOC.

(END OF DIVISION 9)

DIVISION 10 – SPECIALTIES

GENERAL ACCESSORY REQUIREMENTS FOR SPECIFIC SPACES

Toilets

1. Fixtures and partitions shall be wall or ceiling hung to keep floors clear for cleaning. Fastening is to be by means of toggle bolts and through bolts into studding, stringers, or joists to prevent attaching to the wall only.
2. All items are to be securely installed. In drywall partitions, use solid 2x6 wood backing.
3. Solid plastic stall walls are preferable. Santana or Equal, graffiti resistant type.
4. Provide coat hooks on the inside of each stall door.
5. Provide soap dispensers – The architect shall verify with Physical Plant Director.
6. Provide toilet tissue dispenser – The architect shall verify with Physical Plant Director
7. Provide paper towel dispensers – The architect shall verify with Physical Plant Director.
8. Provide wall mounted semi-recessed stainless steel waste receptacles. The architect shall verify with Physical Plant Director.
9. Provide stainless steel sanitary napkin receptacles in all female toilet stalls.
10. Soap dispensers shall be of the type that use sealed soap refills (SEE LINE 5). BUILDING SERVICES WILL NOT SERVICE REFILLABLE DISPENSERS. They shall be wall-mounted above sinks, one per every two sinks, with an additional dispenser by each sink within independent handicapped accessible stalls. (The architect shall verify with the Physical Plant Director).
11. Do not provide ashtrays.
12. Mirrors are to be provided for all restrooms. Do not place mirrors in open view of the entranceway. Mirrors shall be mounted at a height to be handicapped accessible.

Custodial Closets

1. Provide 8'-0" of 12" shelving mounted at 4'-0" AFF on (1) wall of the custodial closet.
2. Provide FRP wall splash protection at a minimum of (2) side of the custodial sink to a minimum height of 4' 0" A.F.F.
3. Provide sink with hose hook up. The custodial closet sink shall be provided with hot water per OSHA.

Classrooms

1. Furnish audio-visual fabric blind systems or other acceptable window coverings, which exclude light in all exterior classrooms. The blind system shall be electrically operated.

2. Submit a sample of the blind system with the finish sample board at the 50% final CD submittal.

MARKERBOARDS AND TACKBOARDS

1. The Architect/Engineer shall schedule the sizes and locations of dry-erase marker boards and tack boards with the university project manager during planning meetings.
2. Provide at least two map hooks per eight feet of length. Set the tops of marker boards at seven feet above the floor.
3. Dry-erase marker boards shall be made of porcelain to reduce “ghosting” as much as possible. Marker boards should contain a marker tray and 1-1/2" continuous tack strip at the top. Mount tray 36" AFF to the tray. The dry-erase board should cover as much of the front wall as practical.

SIGNAGE

1. Any donor signage will be worked out with University Foundation.
2. Room Naming and Numbering – All room numbers will be provided and installed by the Physical Plant Department..
3. Provide marking, signage and other identification for all mechanical equipment and piping.
4. Provide clear marking in accordance with code for all fire rated wall assemblies.
5. Provide a sign at each floor level landing in accordance with NFPA 101 (Life Safety Code), Chapter 5. The sign shall indicate the floor level, the terminus of the top and bottom of the stair enclosure, and the identification of the stair. The sign shall also state the floor level of the direction to exit discharge. The sign shall be located approximately 5 ft. (152 cm) above the floor landing in a position that is readily visible when the door is in the open or closed position.
6. The Architect/Engineer shall include directional signs for direction of the public through corridors to destination together with identification of specific functions of rooms such as, MEN, WOMEN, CUSTODIAL CLOSET, MECHANICAL ROOM, DEPARTMENTAL NAMES, HIGH VOLTAGE, etc. Observe requirements of the Handicapped Codes and ADA. Particular attention should be given to placement of exit signs to ensure compliance with applicable codes and occupancy limit at designation on signs at specific areas. Design, placement, and other details will be in accordance with the Fire Marshal's requirements.

CONSTRUCTION SIGN

1. Before the ground breaking ceremony for a new facility the project construction sign shall be erected by the contractor at a site designated by the Facilities Planning Project Manager. It is the contractor's responsibility to insure that all names, project numbers, and personnel are correct and up-to-date. This requirement also includes correct spelling. The size of the sign shall be a minimum of 4'x8'. The wording on the sign shall be approved by the Facilities Planning Project Manager. Mount sign on 2 – 4"x4"x12' PT wood posts. Removal shall be performed by the contractor at substantial completion.

FIRE PROTECTION SPECIALTIES

1. Unless otherwise required by Code, all fire extinguishers shall be 10 lb. units, with a 3A40BC rating. Rooms housing only HVAC systems, small electrical rooms, janitor's closets do not require fire extinguishers unless otherwise determined.
2. CO2 extinguishers – Do not use except with prior approval of the Environmental Health & Safety department.
3. Fire extinguisher cabinets – Use only UL approved pull open, non-locking keyless cabinets, with a flat, shelf bottom without interior hanger and sized for a minimum 10 lb ABC extinguisher. All cabinets shall be fully or partially recessed and shall not extend greater than 4 inches from finish wall surface. Do not use break glass or plastic bubble front units. Extinguisher cabinets shall be installed to maintain the integrity and fire rating of the partition system it is installed in. The words 'FIRE EXTINGUISHER' shall be clearly visible on the exterior face of the cabinet. Additional signage will be provided to guide occupants to a fire extinguishers location if hidden by columns or other building components.
4. Use K – Type extinguishers in commercial kitchens.

WALL AND CORNER GUARDS

1. High impact vinyl and stainless steel may be used with approval of the type and location by the Facilities Planning Project Manager. Provide 3/16" or a heavier gauge PVC to prevent warping. Minimum height: 4'-0" A.F.F.
2. Light gauge aluminum is not satisfactory.

(END OF DIVISION 10)

DIVISION 11 - EQUIPMENT

PROJECTION SCREENS

1. The type, material, power requirements, location(s) within a classroom and the size of such projection screens shall be verified with FGCU's Academic Event Technology Department prior to completion of the Design Development phase of the project design. Please contact: John Wilson at: 239.590.7104, or jwilson@fgcu.edu.
2. The contractor will furnish and install the proposed projection screens.
3. Front-Projection screens shall be operated electrically unless noted otherwise.
4. The Front-Projection screens shall be designed to recess into the adjacent ceiling when not in use.
5. The installation of the projection screens shall comply with the screen manufacturer's written instructions.

OVERHEAD PROJECTORS

General:

1. Each podium shall be linked to an adjacent overhead projector, furnished by the University. The CM shall be responsible to install a 120V duplex electrical outlet mounted approximately 15' from the projector screen to a fixed location above the ceiling. Such electrical power location and mounting requirements shall be verified with the AET Department.
2. Care shall be taken in the design of the projector locations to avoid mounting the projector any closer than 6' from any HVAC supply diffuser. Again, verify all mounting locations with AET.

TEACHER PODIUMS

General:

1. The teacher podiums shall be furnished by the University, however the locations of the podiums in classrooms and other teaching areas shall be verified with the Academic Event Technology Department (AET).
2. Each podium shall require a 2" conduit from a floor box below the podium location, under the floor, and run up a nearby wall to a point 12" above the ceiling line. This conduit will house communication/data lines between the podium and related overhead projector. The University will install such communication/data lines.
3. Each podium floor box shall be designed to be flush in the floor below the podium. The AET Department shall verify the type and size of the floor box required.
4. Each podium shall require 120V electrical power, which will be the responsibility of the Construction Manager to provide in a separate conduit.

5. Each podium floor box shall have the appropriate communication/data connections. Verify type with AET.

(END OF DIVISION 11)

DIVISION 12 - FURNISHINGS

GENERAL GUIDELINES

1. The University prefers standard items to reduce costs and maintenance or replacement problems, in preference to special items.
2. Free standing trash receptacles will be provided by Physical Plant.
3. Building directories shall be provided in all main lobbies. The type, size and location to be approved by Facilities Planning Project Manager.
4. All shelving shall be adjustable except when a specific installation is impractical.
5. Bulletin boards and display cases shall be provided as designated by the user. The architect shall verify the type, size and location with the Facilities Planning Project Manager.
6. White boards and bulletin boards are to be mounted with mounting hardware/brackets supplied. No liquid nails or glue to be used.
7. For classroom areas, dry-erase boards in long sheets with track railing provided on top of the board. The architect shall verify the type, size, location and quality with the Facilities Planning Project Director.
8. Entrance floor mats will be provided and installed by Physical Plant.
9. Stored pressure dry chemical, refillable, multipurpose ABC type fire extinguisher shall be provided in locations as required by the NFPA.
10. Fire extinguisher cabinets are to be recessed mounted.
11. In rooms designed for frequently moved furniture or equipment provide a chair rail or guard around room perimeter to protect wall finishes (Materials to be determined by Project Team). Coordinate design and location with the Facilities Planning Project Manager.
12. Interior signage system meeting ADA requirements will be provided and installed by the Physical Plant Department.
13. Exterior building signage meeting ADA requirements as appropriate will be provided and installed by the Physical Plant Department.

WINDOW TREATMENT

1. All exterior classrooms with exterior openings are to be furnished with audiovisual blind systems, which exclude light. Verify type and location with the Facilities Planning Project Manager.

FIXED SEATING SYSTEMS

1. The A/E shall request and receive shop drawings for the installation of fixed seating in auditoriums, theaters and lecture halls. He shall request that a sample installation be done for testing and the

Project Manager and University representatives shall approve the test installation before approving shop drawings for the complete installation.

LABORATORY CASEWORK

1. The A/E is required to obtain sign-off from University personnel for the selection of acceptable laboratory casework construction, materials and manufacturers.
2. Select working surfaces for the intended use. Plastic Laminate tops are satisfactory for many labs but epoxy or solid surface countertops must be specified where top is exposed to heavy usage, strong chemicals, heat, etc.
3. In order to obtain full information directly from lab users, the Facilities Planning Project Manager shall arrange conferences with the appropriate University personnel and the A/E to discuss laboratory design and specialty construction such as environmental rooms, diagnostic labs, coolers, sound proof rooms, etc.
4. Select working surfaces for the intended use. Plastic laminate tops may be satisfactory for some laboratory activities, but epoxy or solid surface countertops are recommended for all laboratory benches and must be specified where the top is exposed to heavy usage, strong chemicals, heat, etc.

(END OF DIVISION 12)

DIVISION 14 – HYDRAULIC ELEVATORS

HANDICAP REQUIREMENTS

1. Elevators and Chairlifts shall be handicapped barrier free in accordance with design standards of the National Elevator Industry, Inc. ANSI A- 117.1 and ADA Standards.
2. The height of the center of the operating buttons shall comply with all codes enforced at the time of installation of the equipment.

ELEVATOR MANUFACTURER AND CONTRACTOR REQUIREMENTS AND QUALIFICATIONS

1. An approved manufacturer regularly engaged in manufacturing elevator equipment of the type required for this project
2. The manufacturer or authorized agent of an elevator equipment manufacturer with not less than ten (10) years of satisfactory experience installing and servicing elevator equipment equal in character and performance to the project elevator. Any welding on the site must be performed by personnel who have successfully passed an American Welding Society authorized test and whose welding work has been judged by a natural person who is fully authorized to do so by the American Welding Society. The authorized person who evaluates the welding must sign the certificate signifying applicant has passed required tests. No substitutions will be permitted.
3. The Installation Contractor must submit catalogs and show evidence that all required parts are kept in inventory within ten (10) miles of the elevator installation. The Installation Contractor must certify that he/she has a Service Office with full time employees within ten (10) miles of the project site.
4. The Elevator Contractor must pay the expenses of a “QEI” Certified Elevator Inspector not employed by the installing Contractor to witness all testing of the equipment again immediately prior to expiration of the twelve (12) months warranty period. A Copy of the testing report must be turned over to the Owner and to the Elevator Contract Administrator for the University.
5. The cost of all elevator inspections and certificates are to be paid for by the Contractors through substantial completion acceptance.
6. FGCU Facilities Planning Department and Physical Plant Department will review product data submittals of the hydraulic elevator before approving such an installation(s) in a project. In particular, submittals need to include weight capacities, overall height, width and depth dimensions of the inside of the elevator cab, performance and operations specs, safety features, finishes and similar information.
7. The warranty period for the elevator shall be one year after substantial completion of the project and include the repair, restoration or replacement of defective elevator materials. The initial one year of the warranty period shall include monthly preventive maintenance, repair of worn or defective parts, proper lubrication, cleanings and adjustments as needed to provide the proper operation of the elevator.

8. The elevator installer shall provide a continuing maintenance proposal to the Physical Plant Department in the form of a standard yearly maintenance agreement after the warranty period expires. Such agreement shall clearly state the services, obligations and terms of the agreement and the basis for future renewal options.
9. The following hydraulic elevators are acceptable to the University, but are not limited to:
 - Montgomery KONE, Inc.
 - Schindler Elevator Corp.
 - Thyssen Elevator Group North America. Continental 50 shall be the basis of design.

ELEVATOR MAINTENANCE:

1. Elevator maintenance and warranty on new and/or up-graded elevators shall be for a period of 12 months after acceptance. The Certified Mechanic must spend a minimum of two (2) hours per month per traction, one (1) hour per month per hydraulic, one (1) hour per month per dumbwaiter and/or one (1) hour per month per chairlift regularly and systematically cleaning, examining, adjusting lubricating per Manufactures Recommendations. The approved elevator maintenance Technicians must be certified with a "Certificate Of Competency" from the State of Florida. The Contractor shall be responsible for providing additional maintenance, repairs, service, call-backs and other work on a 24 hour, 7 days per week basis as part of the installation or modernization contract Response time for any problem calls must be with in one (1) hour after notification of the problem.

ELEVATOR PIT AND HOISTWAYS:

1. The elevator pit area, which includes the floor and walls up to the lowest landing threshold area must be water sealed and painted with two (2) coats of high gloss acrylic latex floor enamel.
2. Pit ladders are to be installed according to all codes enforced at time of installation. Location of ladder is to be determined by the Elevator Contractor and Designing Firm.
3. Sump holes to be installed in Pit, covered by grate. If Sump is to be used, installation of Sump Pump must be installed according to all codes enforced at time of installation.
4. Conduit and Lighting Fixtures in Pit are to be installed for WET conditions. All codes governing this type of lighting system at the time of installation must be followed.
5. All voids, holes, slots, etc., in the hoistway shall be grouted or pointed up to obtain fire rating. All nails, snap-ties, form straps and wood shall be removed from hoistway.
6. Where needed, grating shall be provided in shafts to permit safe lubrication of sheaves and equipment.

ELEVATOR MECHANICAL ROOM:

1. The elevator machine room shall be no larger than necessary to house and repair machinery. The elevator machine room walls and ceiling must be primed and completely painted with two (2) coats of semi-gloss acrylic latex paint. The machine room floors shall be smooth and level. The elevator machine room floors must be painted with two (2) coats of highest quality oil based light gray color gloss floor and deck enamel.

2. The elevator machine room shall not to be used for storage of any kind. No foreign piping, ductwork or conduit shall pass through hoistway and/or machine room. With the use of Microprocessor based elevator control system, the Elevator Mechanical Room must be environmentally controlled. All nails, snap-ties, form straps and wood shall be removed from machine room walls and ceiling.
3. All elevator machine room doors must be self-closing, self-locking, requiring a key to open. Door must also have a sign stating "Danger- Elevator Equipment". Machine Room Doors shall be not less than one and one-half hour fire rating B label, not less the 3' 4" in width and not less than 6' in height. Doors shall be provided with a spring type lock arranged for opening from the inside without a key. A key is required to open the door from the outside.
4. Elevator machinery rooms must be well lighted in order to provide a safe environment for the elevator technicians to work. Lighting must be at least 19 foot candles, measured at the floor, in all portions of the room. Lighting must have guards to protect lamps. Light switch shall be located on the lock-jamb side of the access door. Elevator machine rooms shall have a head room of not less than 7'0", (Head room is determined by measuring from the floor to overhead items such as wire duct, beams, lights, etc.
5. Stairways for access to elevator machine rooms shall be of metal and shall conform to the following:
 - 1) Maximum angle of sixty (60) degrees from the horizontal.
 - 2) Stair treads shall not be less the 28 inches in height.
 - 3) Stair treads shall be level and not less the 6 inches in width with slip-resistive surface.
 - 4) The rise shall not be less than 8 inches or more the 10 inches.
 - 5) The headroom from the top any tread shall be not less than 7 foot vertical clearance, measured in line with the face of the riser.
 - 6) There shall be no more than 14 feet in an unbroken vertical rise.
 - 7) Stairway floor opening shall be guarded by a metal railing 42 inches in height with intermediate rail and toe board.
 - 8) Open side of stairs shall be protected with a metal handrail not more the 34 inches in height from the upper surface of top rail to surface of tread in line with face of riser at forward edge of tread, and with intermediate rail.
 - 9) Access to elevator mechanical rooms across roof shall have steps or ramps with metal railing built over pipes or other obstructions.
 - 10) All Electrical disconnects, fusing and receptacles shall be installed following all Codes enforced at time of installation.
 - 11) All hoist way vents shall be installed following all Codes enforced at time of installation.

- 12) Elevator machine rooms shall not be located adjacent to classrooms and other noise sensitive spaces without thorough consideration to noise transmission to these spaces.

PAINTING OF EQUIPMENT:

1. Elevator equipment must be completely painted in the field, except for the stainless steel and for the polished machined surfaces of the hydraulic buffers, guide rails and/or hydraulic plungers.

ELEVATOR SPECIFICATIONS:

General Comments

1. Elevator Contractor shall provide four (4) copies of typewritten or professionally printed, elevator serial number specific installation, adjustment and troubleshooting instructions, to be used in maintaining and repairing all new, upgraded or renovated elevators or group elevator systems. Elevator Contractor shall provide four (4) copies of the elevator serial number specific, as built, electrical wiring diagrams, designed with point to point wiring or circuit connections. Further, furnish a complete set black on white drawings, printed on high rag content paper for long life, to be used for reproduction of wiring diagrams, if needed in the future. Additionally, provide one (1) complete set of the same high quality wiring diagrams, laminated with heavy gauge clear plastic, and designed to be hung on sturdy wall bracket(s) in the elevator machine room(s). Drawings shall be designed to be easily removed from the rack for use by the elevator technicians. Elevator Contractor shall provide four (4) copies of all elevator serial number specific computer or handheld adjustment device passwords, legends, reference codes, key words, operational descriptions and related information so that a competent elevator technician can access the elevator electrical controller system(s), make adjustments to the equipment settings, determine the malfunction codes, troubleshoot the electrical system or verify correct operation of the elevator electrical controller or door operator equipment. Elevator Contractor shall provide four (4) copies of an elevator serial number specific replacement parts list for each elevator or group of elevators, located in a new building, or that which is renovated or up-graded in an existing building. Elevator Contractor shall have the right to furnish either "on board" mounted computers or hand held diagnostic devices, or similar portable computer or hand held devices that can be disconnected from the elevator electrical controller and door operator controller systems. Either design is acceptable so long as the required maintenance and adjustment information, diagnostic functions, equipment operation, equipment performance and troubleshooting activities can be performed without unnecessary delays, and the same performance results can be anticipated. Regardless of the type of computer or diagnostic equipment provided under the contract, the Elevator Contractor must provide the Owner with one (1) complete set of computer or handheld technical equipment devices that will operate each and every elevator covered by the new elevator or elevator upgrade contract. Provide a complete set of current, as built and installed, microprocessor software for each and every elevator covered by the contract. The Elevator Contractor must provide a notarized letter with his bid that states that, if he receives the contract to perform the elevator work, the Elevator Contractor shall provide all of the required installation and adjustment information, computer devices or service tools, data, instructions, diagrams, parts lists and related information at the time the project is completed. All required information, data, diagrams, instructions and related materials shall be provided in heavy duty, oversize type, three (3) ring binders, properly identified with the project name, locations, elevator serial numbers, building elevator numbers and related information.

REPLACEMENT PARTS

1. All of the major parts utilized in new or up-graded elevators must be manufactured in North America, and the elevator manufacturer must have a documented quality assurance program.
2. Only new parts or components shall be accepted. The installer shall not use rebuilt, used or reconditioned equipment or parts on any new elevators or up-graded elevators. The only used equipment allowed are existing components that are specified to be reused during an elevator up-grade contract. None of the parts or equipment removed from the project can be used elsewhere on the Florida Gulf Coast University Campus.
3. The Elevator Contractor, and Elevator Manufacturer, if not the same company, must provide a notarized letter at the time the elevator work project is bid stating that all necessary replacement parts, supplies and related equipment, necessary to maintain, repair and service the elevator equipment will be promptly sold, without delays, directly to the Owner, or to the Elevator Contractor who maintains the elevator equipment on behalf of the Owner without the necessity of the replacement parts being initially purchased by the Owner. The letter must be signed by an executive officer of the Elevator Contractor.

FASTENERS

1. All exposed screw is to be of the vandal (tamper-proof) type. Include countersunk, vandal resistant, 316 stainless steel screws for cover plates.
2. Drive pins to attach any surface mounted Braille plates.

THRESHOLDS/SILLS

1. In Cab – Nickel Silver.
2. Landings/Floors – Floors with heavy traffic Nickel Silver

DOOR OPERATORS

1. Elevator Door Operators must be highest quality, heavy duty type, with “closed-loop,” type microprocessor digital control system. Door operator must have digital encoder.
2. Include the following features in door operator control system:
 - 1) Door position monitoring
 - 2) Door velocity monitoring
 - 3) Door motor current monitoring
 - 4) Door closing pressure monitoring. Doors must reopen when door pressure setting is reached in closing direction.

LANDING STATIONS

1. Push – button stations located at each landing that includes mirror finished, vandal resistant, stainless steel buttons with flush jewels in the center that indicates that the call has been registered. The call registered jewels shall light up brilliant red with the use of ultra-bright light emitting diodes.

The cover plate shall be made of no. 4 satin finished no. 316 stainless steel, minimum of 1/8 inch thickness, approximately 7 inches wide and shall be of an overall size that will contain the following:

- 1) Either single (terminal floors) or double buttons (intermediate floors) of the appropriate diameter to meet code for handicapped.

- 2) Engraving and red epoxy filling of a sign to indicate “ **IN FIRE EMERGENCY, DO NOT USE ELEVATOR – USE EXIT STAIRS.**” Use ½ inch high letters. Also, provide a flame Pictograph symbol of the appropriate size, utilizing a durable plastic insert mounted from the rear into a laser cut hole, or by engraving and filling the area with the required colors of epoxy material for long life service.

FIREMAN’S PHONE AND RECALL:

1. Fireman’s phone jack neatly incorporated. Do not provide an exposed nut on the front of the station. Shielded pair of wire to be run from each jack to junction box at a location outlined by the Owner.

2. Verify location of Fireman’s recall switch and instructions with Fire Department and Architect. Instructions should be engraved into plate and filled with red epoxy. Provide for Phase I and Phase II operation. Include suitable fireman’s insignia type jewel in station. The fireman’s jewel the designated floor station will flash in the event the smoke detector activation was in the machine room or hoist way. Switch shall be keyed to match the fire service key currently being used on the FGCU Campus, key number G-1617X. If local codes call for a different type of Fireman’s Service Key, the G-1617X key must not be used. Engrave instructions in designated landing push button station and in cab front return panel.

HYDRAULIC ELEVATORS:

NOTE: ALL HYDRAULIC ELEVATORS MUST BE INSTALLED
ACCORDING TO ALL CODES AT THE TIME OF INSTALLATION.

1. A Hydraulic Elevator can only be used when total travel is less than fifty (50) feet.

2. The Motor Starter for new or up-graded hydraulic elevators must be soft start type, adjusted to a maximum of three (3) times the full load running current.

3. Elevators not on Emergency Generator System must be place on a Battery Lowering System.

4. Provide highly accurate electronic load weighting device, overload alarm and signal light. Alarm and signal light shall function if load exceeds design capacity. Elevator shall not function if overloaded conditions exist.

5. All door frames, headers, etc., shall be grouted solid to maintain fire rating.

6. The hydraulic cylinder assembly shall include the following:
 - 1) The hydraulic jack assembly (cylinder) shall be a complete new assembly of the highest quality available, and manufactured in strict accordance with ASME A17.1-1996, Safety Code for Elevators and Escalators, including the latest published addenda as of the date of the written specifications. The total length of the cylinder must include the required over – travel at top and bottom landings

- 2) Multiple sections on the plunger and cylinder, if necessary, to permit ingress into the building and Hoistway without damage to the building or the equipment.
- 3) The hydraulic cylinder must have external, threaded type couplings for multi-section cylinders. There shall be no materials at the coupling(s) that reduce the interior clearance of the hydraulic cylinder.
- 4) The jack packing seal around the plunger must be of the molded type that does not require adjustment. The packing gland must be designed to accept the molded packing or seal that is clamped in place without the use of unusually high pressure on the attachment bolts.
- 5) The top of the cylinder shall have a ring for collecting the oil that seeps past the jack packing and/or wiper ring. Provide a new drip tube from the top of the cylinder to new five (5) gallon collection container that has a small entry hole for the drip line. Leakage of more than one 1/2 gallon per month will not be accepted.
- 6) The jack assembly shall be supported on a pair of new steel channels of adequate strength that are approximately as long as the distance between the elevator guide rails. Reinforce mounting brackets shall support the weight of the fully loaded elevator and cylinder on the pit channels. The pit channels must be at least 6" in height, and weighing at least 16.3 pounds per foot. The pit channels shall be capable of supporting the vertical reaction on the hydraulic cylinder and the full loaded car without deflection.
- 7) The pit channels must receive a rust inhibitive primer and two (2) finish coats of paint before installation.

ADDITIONAL PROTECTION AGAINST ELECTROLYSIS

1. The entire hydraulic jack assembly shall be completely electrically isolated from the entire building, elevator car/platform, pumping unit, pit mounting channels and all other components of the elevator by using the following insulating techniques:
 - 1) The jack plunger shall be isolated from the elevator car/platform assembly through the use of specifically designed rubber isolated platen plate that will no allow metal to metal contact and absorb pulsations from the hydraulic pump. The minimum thickness of the rubber under compression from a fully loaded car shall be at least 3/4 inch.
 - 2) The hydraulic cylinder assembly must be isolated from the jack support channels and the pit floor. The material to be used between the cylinder mounting brackets and the top of the support channels is Micarta or any high quality high pressure plastic laminate material of at least 3/8 " thickness. The backs of the channels must be isolated from the top of the cylinder with a double wrapping of high quality rubber sheeting material, which is wrapped around the top area of the cylinder (behind the pit support channels) and secured with an oil resistant cement. The pit support channels must not make metal-to-metal contact with the cylinder. The bolts that attach the support brackets to the support channels must be positively insulated with high strength rubber. Micarta or schedule 40 PVC insulating material around the bolts, washers and nuts to prevent metal to metal contact between the cylinder and the cylinder support channels.

- 3) The oil pressure supply line must contain at least two (2) rubber isolated sound and vibration isolation couplings that effectively isolate the pumping unit from the cylinder. The blowout proof isolation couplings must be installed in the machine room as required by ASME A17.1. The oil pressure supply line, from the point of the isolation couplings, must be completely isolated from the building structure, pit floor and any other material in a manner that is effectively isolated to prevent a grounding effect. The use of high quality rubber materials at least 3/8" thick when fully compressed will be acceptable as an isolation material for pipe supports or hangers.
 - 4) Electrical isolation couplings without sound and vibration-absorbing properties are not acceptable.
2. The oil pressure supply line shall be insulated from the building structure, walls, supports and all other contact points. Where the piping penetrates a wall, the piping shall be insulated with rubber materials at least 3/8" thick when compressed.
 - 1) The complete isolation of the jack assembly must be checked during installation, and after the installation work has been completed to verify that there is no electrical path to ground. Elevator Contractor must use a megger and high quality ohmmeter to verify that his work complies with these work specifications, and the effectiveness of the isolation must be demonstrated in the presence of representatives of Florida Gulf Coast University. The Elevator Contractor will be required to remove or correct any work that does not fully comply with the isolation requirements.
 3. Hydraulic Oil Line: The oil line shall include the following:
 - 1) The oil line shall be schedule 80 thickness, with threaded forged steel fittings at all locations where the oil line must change directions or be coupled. Victaulic or similar brand clamp type fittings are not permitted except that one (1) Victaulic fitting may be utilized where the oil line connects to the hydraulic control valve at the pumping unit so long as it is correctly installed and not used to correct for alignment deficiencies in the oil line. All threaded fittings must be sealed with Expando brand thread sealer. Install a high quality ground joint union near the hydraulic cylinder. Flexible hoses shall not be used under pressure in this installation.
 - 2) Install the pipe rupture valve adjacent to the hydraulic cylinders. The valve must be adjusted to properly stop the descent of the elevator car in the event of pipe or valve rupture; however, the passengers should not be burdened by unnecessary closure of the valve when no emergency exists.
 - 3) Two (2) oil shut-off valves must be installed in the oil line. One (1) shut-off valve shall be installed adjacent to the pumping unit, and is to be provided for purpose of being used when the relief pressure is tested on an annual basis. One (1) line shut-off valve is to be installed near the hydraulic jack cylinder and is to be used only when the packing is replaced in the jack.
 - 4) Elevator Contractor shall attach a laminated plastic tag on the valve handle stating that the valve is to be used for packing replacement purposes only. The lettering on the tag shall be with 3/8 inch high letters stating the following: "Caution!! This valve is to be used when

serving the cylinder only. Do not use for hydraulic system pressure tests.” tag lettering must be a contrasting color to the surface.

- 5) The bursting strength of both valves shall comply with the requirements of ASME A17.1, Section 1302, Safety Code for Elevators.
- 6) Perform all the necessary cutting as may be required to run or install the oil supply line from the machine room to the hoist way, including the work necessary to completely isolate the oil line from the building or other building systems. Isolation of the oil supply line must be neatly installed, and be rubber at least 3/8 inch thick while under compression.

4. Hydraulic Muffler Device

The Oil line must be equipped with an effective muffler device that removes the hydraulic pump pulsations and noise before being transmitted to the hydraulic cylinder through the oil supply line. The muffler must have rubber absorbing materials that can be replaced on a regularly scheduled basis. The muffler device shall be held together with high strength bolts and designed to be serviceable without removal from the oil supply line. Connections must be threaded. Include a metal tag on the muffler to indicate the required service by replacing the rubber pads every two (2) years. Locate muffler device in the elevator machine room area in a manner that will not inhibit the service work.

5. Hydraulic Oil

- 1) The hydraulic fluid for all new or up-graded hydraulic elevators must be manufactured by Hydro-Safe Oil Division, grade VG-32, biodegradable type vegetable oil. Install a large data plate on the power unit identifying the oil that has been installed in the system.

6. Pumping Unit

- 1) When the motor of the pumping unit is 40 horsepower or less, the pumping unit shall be of the type with the pump and electrical motor submerged in the oil supply in reservoir. Oil reservoir shall be capable of holding at least 25 gallons of additional fluid above the amount required moving the elevator safely to the upper floor. The motor must be insulated to withstand up to 120 starts per hour without burnout from overheating. The valve shall be installed inside the reservoir and under the reservoir cover. The valve must be mounted above the oil level. Provide a drain connection fitting near the bottom of the oil reservoir. A heater must be installed in the Oil reservoir to maintain constant hydraulic oil temperature.

7. Hydraulic Cylinder Installation

- 1) **All hydraulic cylinder casing for new hydraulic elevators or replacement cylinders for existing elevators must be installed in a completely plumb condition with a variation of not more than 1/8- inch variation from absolute vertical plumb condition from bottom to top of the cylinder. The plumb condition must be demonstrated to representatives of Florida Gulf Coast University and/or his/hers designee prior to installation of the back fill sand, and prior to installation of the guide bearing and plunger assembly in the cylinder. A weighted “spider” shall be hung from a plumb line for checking the plumb condition at least every 12 inches from bottom to top of cylinder.**

- 2) The back-fill material for the hole surrounding the hydraulic cylinder must be washed masonry sand only. Building rubble, wood, steel, concrete, rocks or any other debris will not be permitted to be dumped into the hole surrounding the cylinder.
- 3) All hydraulic cylinders for new hydraulic elevators or replacement cylinders for existing elevators must be fully protected by schedule 40 PVC piping and 100% isolated from all other portions of the elevator, building, pumping unit and the pit floor.
- 4) Copper tubing (2 tubes, ¼ inch interior diameter) must be installed to be used for checking for liquid presence in the space between the PVC pipe and the pressurized cylinder one (1) copper tube shall be approximately 30 inches long and equipped with a quick-connect fitting to allow low-pressure air hose to be attached. Air pressure will be applied to the PVC pipe for purposes of determining if the liner contains either water or oil. Install a cap on the fitting to prevent dirt, debris, oil or water from entering the PVC liner. One (1) copper tube shall be long enough to run from the pit area to within ½ inch of the bottom of the PVC liner. Extend the tubing so that it does not interfere with any of the pit mounted equipment or elevator car but to a point that it could be used later to check for any liquid that may have accumulated in the bottom of the PVC liner. Install a screw type cap on the upper end of the tubing to prevent dirt, debris, oil or water from entering the PVC liner.
- 5) Seal the space between the pressurized cylinder and PVC pipe, at least six (6) inches deep, with oil resistant RTV (Room Temperature Vulcanizing) Silicone Sealant. The cylinder must be electrically isolated from all other components that would permit an electrical path to ground. Cylinder must be primed and receive two (2) coats of machinery enamel prior to installation inside the PVC pipe.

TRACTION ELEVATOR

NOTE: ALL TRACTION ELEVATORS MUST BE INSTALLED

ACCORDING ALL CODES AT THE TIME OF INSTALLATION.

1. All elevator driving machines and elevator controller equipment must be installed in a machinery room separate from the hoist way area.
2. All new or up-graded geared traction driving machines must have full synthetic gear oil of the proper viscosity according to the machine manufacturer's recommendation.
3. Traction elevators must have VVVF AC controllers with digitally controlled "closed-loop" type vector controlled micro-processor systems such as Megnetek. The motor control system shall be quiet in operation with no objectionable air-borne or electrical noise.
4. All traction elevators must be equipped with an ascending elevator-braking system. The system shall be or equal to a Hollister-Whitney rope gripper system, a counterweight safety device with over-speed governor or a bi-directional undercar safety device/over-speed governor.
5. Provide access door leading to metal gratings that shall be provided in shafts, where required by code, to permit access for lubrication of sheaves and equipment.

6. Provide highly accurate electronic load weighting device, overload alarm and signal light. Alarm and signal light shall function if load exceeds design capacity. Elevator shall not function if overloaded conditions exist.
7. All door frames, headers, etc., shall be grouted solid to maintain fire rating.

HOLE LESS EQUIPMENT

1. If Hole less type of equipment is to be installed, isolation from the building is a must. Place the piston that will be installed in the pit on Non-Conductive and Non-Compressive material. If guide shoes are used, the guide shoes must be of the Non-Metallic type. Isolation material must be used to ensure that all hydraulic piping does not come in contact with the building.

CABS

1. If applied Wall Panels are used, place the Wall Panels on the sides and/or rear of the Elevator Cab; the panels must be constructed of 3/4" thick quality A/B grade plywood. The panels shall be backed with plastic laminate material to reduce warping and moisture intrusion. The face of the new panels shall be covered with a high quality plastic laminate (.50 thickness, minimum) in color and texture as selected by the Owner. Apply type no. 316 L, No. 4 satin finished stainless steel angle edges on the panels with mitered and welded corners. The stainless steel panel binders shall be formed of 10 gauge angles with screw attachments on the rear of the panels. The distance between the panels shall be reduced to approximately 1". Attach the new panels in a manner that requires a workman on top of the car to remove fasteners to prevent easy removal by unauthorized personnel.
2. Cover the area surrounding and between the panels, as well as the base area, with Type 316 L, 16 gauge satin finished stainless steel glued to the cab's backing panel.
3. Over-lap the spaces by a least 2" on each side to prevent the stainless steel from becoming dislodged once the panels are in place. Use the highest quality industrial contact cement for attaching the stainless steel to the reveal areas.
4. Provide a complete set of protection pads and stainless steel protection pad buttons on each panel and on front return panel. Install the pad buttons with "locktite" to prevent easy removal.
5. Elevator Cab's floor shall be of resilient floor tile or vinyl sheeting. Carpeting shall not be used. Diamond plate of Stain-less steel material shall be used in special areas.
6. The Elevator Cab's for new or up-graded elevators must have hinged, swing type front return panels to contain all of the operating devices, stainless steel vandal resistant buttons, indicators, standard size certificate holder, emergency phone (furnished by OTC), handicapped markings and other devices. NO SEPARATE COVER PLATES FOR CAR OPERATING STATION WILL BE ALLOWED. All mounting must be from the rear to provide neat and vandal resistant panel. All information is to be engraved into panel. No plates or covers shall be attached from the front of the panel.
7. Front return panels must have heavy hinges, and vandal resistant locking devices.
8. The car operating panel shall contain all buttons and operating devices require by A17.1. Any other switches such as car lights, exhaust blower, Independent service, etc. shall be located in a separate cabinet with a locked, hinged door.

9. All stainless steel in elevator cabs for dormitories shall be 14 gauge, Type 316L stainless steel, except when heavier gauges are required for the application.
10. Cab ceilings for passenger elevators must contain either “down-light” type lighting with vandal resistant security rings and electronic dimmers, or suspended ceiling with Lexan “Thermoclear” panels in 11 gauge stainless steel frame. Cab lighting must measure at least 35-foot candles at the elevator floor near the cab entrance threshold with the door open.
11. All elevators must have cab emergency lights and alarm System that is at least equal to Elevator Product Corporation “Flexilite” - EFP1 system that will illuminate a portion of the normal cab lighting fixtures for at least four (4) hours. System must have four (4) gel cell six (6) volt batteries and a charger-inverter unit, all for mounting on the car top.
12. The passenger or service elevator door protection must be Janus Pana 40 Plus, with 3-Dimensional-protection feature.
13. Install a top emergency exit as required by ASME A17.1 Safety Code for all Elevators. Include electrical contact arrangement to prevent the elevator from being operated unless the top emergency exit is in the closed and locked position.

ELEVATOR PHONE

1. A one (1) inch home-run conduit shall be provided from the elevator phone to the telephone equipment room.
2. Elevator Contractor shall provide and install phone that meets the requirements of the FSU Office of Telecommunications (OTC). The phone shall be rear mount in a swing type return panel; provide a punched or drilled grille work for the speaker and microphone. Each elevator shall have an emergency telephone. **Programming and Wiring connections shall be accomplished by OTC.**

CAB DOORS

1. In Dorms, all Hoistway Door emergency release escutcheons shall be equipped with Barrel Key locks as manufactured by Tri-lock Mfg. And Maint. Corp. using Barrel Key #6950.

FREIGHT ELEVATORS:

NOTE: ALL FREIGHT ELEVATORS MUST BE INSTALLED

ACCORDING ALL CODES AT THE TIME OF INSTALLATION.

1. Freight elevators shall be located in close proximity to docks and service area. They shall go to each floor and be of sufficient size to accommodate large equipment.
2. In the event a freight elevator is installed in a corrosive environment or installed in conditions that require sanitary environment, the equipment shall be fabricated from extremely corrosion resistant and/or materials that are easily sanitized.
3. If power assisted car gate(s) is used, provide electronic screen across gate opening.
4. Provide highly accurate electronic load weighting device, overload alarm and signal light. Alarm and signal light shall function if load exceeds design capacity. Elevator shall not function if overloaded conditions exist.

5. All door frames, headers, etc., shall be grouted solid to maintain fire rating.

APPROVED MANUFACTURERS

1. Approved Elevator Manufacturers:
 - ThyssenKrupp Elevator Corporation
 - Otis Elevator Company
 - *Kone Company*

APPROVED SUBSTITUTIONS

1. Where noted in Section XXIII, the Elevator Contractor may request approval of substitutions. Substitutions must, in the opinion of the Owner, Architect and Elevator Consultant, equal to, or exceed, the quality of the specified product.
2. Where noted above, products manufactured by the list of Approved Elevator Manufacturers will be acceptable subject to complete compliance with the technical specifications written based on these guidelines.
3. Elevator Contractor may only substitute other manufacturers of Elevators Cabs and Elevator Hoistway entrance materials, subject to the following:
 - 1) The Elevator Contractor must agree to an inspection by the Owner's Representative(s), Architect and Elevator Consultant (if used on project) of the Elevator Cabs and/or Elevator Hoistway Entrance materials at the factory after shop assembly, but prior to shipment to the project site. Any deficiencies found after assembly at the factory shop must be corrected prior to shipment to the installation site. The Elevator Contractor shall schedule the shop inspection at least 20 days in advance of the physical inspection date to allow suitable arrangements to be made for inspection of the materials.
 - 2) The substitution(s) must fully comply with the specifications contained herein, including design, quality of fabrication and fit, quality of materials and every other aspect of the specified products.
 - 3) The Elevator Contractor shall be responsible for all costs associated with correcting any deficiencies, or deviations from the specifications, caused by substitutions of material that is specified herein. Further, the Elevator Contractor shall be responsible for arranging for all travel time and costs of Architect and Elevator Consultant (if used on project) associated with visiting, or revisiting, the manufactures facilities to examine the work of any firm not on the approved bidders list.
 - 4) No extension of time in the completion schedule for the work will be granted as a result of the need to correct defects or deficiencies associated with the use of material substitutions.

(END OF DIVISION 14)

DIVISION 15 - MECHANICAL UTILITIES AND EQUIPMENT

GENERAL MECHANICAL GUIDELINES

Utility work and connections to University utility systems must be properly planned to prevent disruption of classes and/or research efforts. All utility work shall be coordinated with the University Physical Plant Department. Each drawing that shows a connection to existing utilities must have a note that states that the Contractor shall request permission for all outages as far as possible in advance. This shall be a minimum of 14 days except in case of emergency. It shall be noted that even with the advance notice, it will not always be possible to grant the requested time and date, as classes and research must have precedence. Permission must be obtained, through the Director of Physical Plant or designee. Explicit details must be shown for all connections to existing utilities.

1. It shall be the responsibility of the A/E to investigate and determine the actual location of all underground utilities including mechanical, electrical and plumbing or obstructions at the building site before beginning design work and while carrying out renovations. The University will provide all available information as appropriate.
2. The contractor shall pay for utilities during construction. The contractor shall contract with Lee County Utilities whenever possible. If it is necessary to have construction utilities supplied from the University, the contractor shall install temporary services in accordance with local codes. The University will bill the contractor monthly for utilities used. Shall the University wish to make an exception the A/E will be so informed.
3. Heat, air conditioning, humidity control and any other environmental factors shall be the responsibility of the contractor throughout the construction period.
4. All utilities are to be metered for each building, including water and chilled water. All utility metering must be coordinated with the University Physical Plant Department prior to construction. All metering devices must have the capability to report to the Campus Energy Management System. If the building contains Auxiliary occupants in addition to E&G occupants, separate metering must be provided for each Auxiliary occupant.
5. Provide separation of mechanical equipment and other noisy areas from academic and office areas.
6. Care shall be taken in the placement of all outdoor air inlets to ensure that odors and other pollutants (automobile exhaust, generator exhaust, fume hood exhaust, etc.) do not enter the building.
7. Mechanical rooms must have adequate openings to facilitate the removal and replacement of major pieces of equipment. Provide double 3'-0" doors which swing outward, with active/inactive leaves.
8. There must be adequate space in mechanical rooms to provide ample access space around all equipment for routine maintenance items and procedures, such as filter replacement, lubrication, and so on.
9. Pipe insulation thickness to be per latest energy efficiency standards.

10. Access to electrical rooms, mechanical rooms, elevator machine rooms, fan rooms, pump rooms, etc., shall not be through other rooms. It is preferred that access to these spaces be achieved from a main corridor and/or exterior space. Access shall not be by ladders. Where possible, penthouse rooms shall have elevator access.
11. Mechanical Rooms and similar spaces are not to contain storage areas. All power disconnects to equipment shall be so located as to be easily accessed per code.
12. All piping shall be color coded and labeled as to use. Verify requested colors with the Director of Physical Plant or designee.
13. All (building exhaust, lab, etc.) fans shall be labeled as to use, area served and power source.
14. All HVAC controls shall be of the direct digital type/NAE via BACNET. See Appendix P.
15. All hydronic systems shall have adequate air eliminators installed.
16. Provide MERV 9 air filtration on all central-station air handling units.
17. Manhole and valve box design shall be carefully coordinated with the University Physical Plant Director or designee.
18. All piping utilized for underground piping are required to have the ends sealed prior to storage or use on site. No end seals shall be removed until the end in question is actually ready for welding or otherwise connecting. In no event shall any piping be left in a trench with an open end at any time. This requirement shall be strictly enforced.
19. Systems Test & Balance will be provided through the Physical Plant Department as an additional service but shall be paid from the project budget. The specifications will require the contractor to participate in the testing, make any changes necessary and pay for any re-testing that may be required to make the systems meet specifications.
20. All air handling unit condensate drain pans must drain to the storm sewer system, with a by-pass to the floor drains when using chemicals to clean coils. Contact the Director of the Physical Plant Department.
21. Mechanical rooms shall not be utilized as return air plenums.
22. Mechanical rooms that generate heat such as pump rooms shall be cooled using a thermostatically controlled forced air ventilation system utilizing outdoor air. Wherever possible, intake air shall be directed into the pump room and removed from the steam room. Approval of an alternative cooling scheme shall be approved by the Director of the Physical Plant Department.
23. All mechanical equipment such as air handlers, pumps, exhaust fans, etc., shall be referred to and labeled by building then floor, i.e., EF5-1 would be Academic Building 5 exhaust fan number one.
24. Identification signage systems and markings for all mechanical equipment and piping shall be required.

PLUMBING GUIDELINES

1. Lee County Utilities (LCU) will furnish water meters and taps for domestic and fire water. All tap fees and system charges shall be paid for by the Contractor. Install water meters and domestic water backflow preventer above grade and provide insulated cover. Install backflow preventers in accordance with LCU. Contact LCU for their requirements and information. LCU's approval for all proposed connections must be received prior to completion of the 100% documents. Written proof of LCU's approval must be provided to the Utilities Section prior to bidding the project.
2. Below grade, all domestic cold water piping exterior to building shall be ductile iron or PVC. Underneath buildings, piping shall be type K copper or ductile iron. All domestic water piping inside the building and above grade shall be type L copper, except for high purity water. Materials for high purity water systems shall be coordinated with the University Project Manager. No CPVC.
3. Fire water system connections shall be compatible with the San Carlos Fire Department fittings. Contact them for information.
4. Provide shut off valves at least at each floor level for all utilities. Toilets, urinals, sinks and water coolers shall have individual shut-off valves. Provide access panels (minimum 36" x 36") with the appropriate fire ratings for maintenance and repair activities.
5. Floor drains are to be provided in all toilet rooms, custodial closets and mechanical rooms.
6. All piping, chilled water and air handler unit system strainers shall be equipped with valves for blow down cleaning.
7. Hose bibs shall be provided in toilet rooms located underneath the sink, machinery rooms and at 100- foot intervals in exterior areas for maintenance use.
8. Teflon containing joint sealer shall be utilized in all screwed piping installations.
9. All piping shall be color coded and labeled as to use and flow direction.
10. All exterior chilled water valves shall be fitted with a complete one-piece valve box unit constructed of concrete, steel or fiberglass. The box shall have a hinged cover and be set in concrete. The installation shall be such to support small vehicle and lawn maintenance equipment.
11. Fire suppression systems shall be installed, tested and certified per appropriate NFPA and State Fire Marshal requirements.
12. Urinals shall be of the flooded open throat type to avoid stoppages and odor problems. Urinals shall be provided with automatic flushing sensors. Urinals shall be designed for 1/8 gallon per flush (LEED).
13. Floor drains, where necessary, are to be placed at the lowest point in the area and shall be provided in all restrooms, custodial closets, mechanical rooms, storage rooms, etc.
14. Lavatory faucets shall be the types that will not flow over .5 GPM and provided with manual sensors. Timed shut off valves shall be used.

15. Standard type washbasin shall have strainer type drain, lever handles equipped for handicapped use, cold water faucets, no hot water faucets (except in dormitories and service buildings) and soap dispensers.
16. Water Closets shall be wall mounted and designed for a maximum of 0.8 gallons per flush. (LEED)
17. Custodial closet faucets shall be single delivery mixing type with hot and cold water and have threaded spout equipped with a vacuum breaker and a three-foot hose. Place faucets 30" - 36" above sink rim. No tempered water.
18. Emergency eyewash equipment shall be plumbed to a drain.
19. No cleanouts in ceiling.

WATER BASED FIRE EXTINGUISHING SYSTEMS

1. The contractor shall furnish all labor and equipment for the complete installation of a water based fire-extinguishing system and shall be the installing contractor or site representative with the required license. No subcontracting will be allowed. The contractor must be NICET level III certified and must possess the appropriate class I or class II fire sprinkler license as required by the State of Florida.
2. Fire water based systems shall be installed, inspected, tested and certified per appropriate NFPA 13, 14, 20, 24, 25, including NFPA 101. Any applicable codes shall apply to meet State of Florida and Fire Marshal requirements, local and state jurisdiction.
3. The fire system contractor shall be responsible for equipment, materials and workmanship of the system for one year. The warranty shall be enforced 24 hours a day, seven days a week including weekends and holidays during this period of time. The contractor will also respond after being advised of his responsibility and the nature and/or condition of the equipment that has failed by the FGCU Fire Systems on-call technician. After notification has been made to the responsible equipment contractor, a minimum of one hour will be allowed to respond and arrive on site. When the problem has been secured or corrected to the satisfaction of the technician or the FGCU Police Department will be notified.
4. The installation of fire water mains shall include backflow preventers in accordance with NFPA requirements including City Ordinance. Contact them for their requirements and information. All fire mains and/or valves shall be painted and labeled to indicate the proper building name controls. The City must approve all connections to the City water mains. The City's approval must be received prior to completion of the 100% documents. Written proof of the City's approval must be provided to the Utilities Section prior to bidding the project.
5. Fire water system connections and fittings shall be compatible with the San Carlos Fire Department fittings. Contact them for information.
6. Provide six extra Escutcheon Plates of each type installed on any system, installer will provide manufacturer name and address, supplier name and address and parts number.

7. The main drains and inspectors test drains be pipe to an adequate drain or outside the building. When piped outside the drain shall not affect the architectural design and landscaping of the building. When piped outside the building, the water flow shall not pose a threat to persons on sidewalks or streets adjacent to the building.
8. Provide 3-1/2" gauges with a connection not smaller than 1/4", and each gauge connection equipped with a shutoff valve and provisions for draining.
9. All control, drain and test connection valves shall be provided with permanently marked weatherproof metal or rigid plastic identification signs. The sign shall be secured with corrosion resistant wire, chain or other approved means.
10. All control valves will have proper signage to indicate the areas of coverage. This will start from the feed supply into the building through all branch lines.
11. On any fire pump installation, the use of PVC and/or plastic pipe, fittings, or components will not be acceptable.

CENTRAL ENERGY PLANT (CEP) CENTRAL CHILLED WATER SYSTEM/BUILDING INTERFACES

1. The following are requirements for new building designs in order to best produce the most efficient utilization of the CEP system, utility distribution system, and the building.
2. The CEP was designed as a variable flow/tertiary system to achieve maximum energy economics. The design of the building shall be such as to operate over a varying pressure range.
3. The interface between the building and the Central Chilled Water Distribution System will insure the chilled water temperature difference will equal to or exceed 14 degrees while satisfying the building design criteria. The interface will also insure that the building pump(s) and the distribution pump(s) will be completely decoupled. The Utilities Section will provide design and material requirements for the interface.
4. The CEP is operated to produce 42 to 48 degrees F. chilled water depending on overall system needs and energy conservation measures being utilized. The design professional shall verify this strategy with the project manager before design begins.
5. Existing pressures leaving the CEP vary from 35 to 85 psig. Be aware that the maximum operating pressure for the existing chilled water underground piping is 100 psig. Any additions to this system shall be designed for 150 psig.
6. All major air handling unit coils shall be designed for not less than 12 degrees Fahrenheit temperature rise, and be provided with two way control valving.

AIR CONDITIONING

1. Utilize the campus chilled water system for cooling if at all possible. The interface between the system and building is discussed later. A fine mesh monel or stainless steel strainer shall be installed in the chilled water supply line of each building to prevent contamination of the building chilled

water system. All chilled water strainers shall have a pressure gauge installed across the strainer so as to quickly determine when strainers are dirty.

2. When the air conditioning system cannot be connected to the Central Chilled Water System, consider the use of water cooled condenser(s) utilizing a deep well water supply with injection return. Utilize existing wells as practical. New well pumps shall be mounted above ground with a suitable enclosure. Provide water lubrication. Cooling towers are not desired by the University. The existing Northwest Florida Water Management District Consumptive Use Permit will have to be amended if a new well is to be installed. Be aware that Leon County has a Wellhead Protective Ordinance that also will have to be complied with. All cooling well design and permitting must be coordinated with the Utilities Section.
3. All air conditioning condensate lines shall be of insulated type "L" copper or approved equal. Provide insulation details to insure vapor proof covering.
4. If condensation occurs on the outside of insulated ducts, HVAC equipment, VAV boxes, flex ducts, piping, etc. during the construction period, the Project Team shall take immediate action to determine the reasons, and initiate corrective action. Substantial Completion shall not be approved until corrections are agreed to in writing. The contractor shall be required to rework the insulation until satisfactory if condensation occurs on any cold surface at any time during the warranty period.
5. All chilled water taps into the Central Chilled Water System shall be made without system interruption, where feasible. Each juncture shall be provided with a shut off valve and valve box for easy access. Note that most of the Central Chilled Water System piping is constructed of asbestos bearing material, i.e. Transite. "Hot tapping" details will be provided by the University. All chilled water connections, whether external or internal, must be coordinated with and approved by the Utilities Section. Initial coordination concerning the approved location of new connections must be done prior to completion of the Schematic Design Phase.
6. Exterior steel piping shall be schedule 40 black steel with welded joints. The use of pre-insulated black steel pipe is permissible. Contact Director of the Physical Plant Department for currently approved types and manufacturers.
7. Insulation for chilled water piping above grade shall consist of foamglas that is covered with a .016 inch thick aluminum weatherproof jacket that has a factory applied integral vapor barrier. The foamglas shall be glued to the piping. Fasten with aluminum bands located not more than 12 inches apart. Insulation below grade shall be foamglas with Pittwrap cover.
8. All building chilled water systems served from central chilled water shall be designed to have variable flow characteristics compatible with the central system.
9. All chilled water piping shall be installed with shut-off valves at each floor and at each AHU.
10. All major air handling unit coils shall be designed for not less than 15 degrees Fahrenheit temperature rise, and be provided with two way control valving.

11. The use of fan coil units is discouraged; however, if utilized, it is recommended that they not be installed above the ceilings. Insure that adequate ventilation is provided per ASHRAE Standard 62-1981R.
12. A/C Air Handling Units shall be double wall construction with a solid inner liner (no insulation exposed to airstream).
13. Air Handling Units shall have fans mounted on internal vibration isolators (2" static deflection).
14. Air Handling Units shall have double wall insulated drain pan.
15. Air handling units installed in spaces exposed to outdoor air conditions (such as attics) must be sufficiently insulated to prevent surface condensation.
16. In classrooms, the HVAC system shall provide an adequate rate of "fresh air" to each student seat (18 cfm per student seat).

FUME HOODS & LAB CONTROL SYSTEMS

1. At the time these Design Guidelines were issued, the University was in the process of developing new fume hood standards. Therefore, the design professional shall contact the Project Manager to obtain the fume hood standards currently in effect.
2. However, in general, fume hoods shall meet the following performance requirements: Supplier to provide factory ANSI/ASHRAE 110-1995 TEST OF HOOD. Hood to have a rating of 8.0 AM 0.05 using the above test. Hood to be tested using ANSI/ASHRAE 110-1995 after installation in lab (testing to be provided and paid for by the hood supplier) and shall achieve a rating of 8.0 AI 0.05. If the hood does not achieve the rating, and the CFM and static pressure meet the supplier performance data, the fume hood supplier shall be responsible for any system changes and upgrades needed to achieve the "as-installed" rating.
3. Laboratory fume hoods, unless otherwise specified by the users shall be set with an average face velocity between 80 – 100 fpm with the sash raised to 18". New hoods shall be certified in accordance with the current version of ASHRAE 110.
4. Lab control system as designed by Tek-Air Systems.

MECHANICAL & PLUMBING EQUIPMENT MANUFACTURER SUGGESTIONS

Mechanical Equipment:

Motors: Siemens, U.S. Motors, Lincoln, Marathon, Balder

Variable Frequency Drive Systems: ABB model ACH550-VCR+F267 (factory mounted and brand labeled VFD's are not acceptable).

Mechanical Systems Insulation: Owens Corning, Johns Manville, Knauf or Certain Teed

Mechanical Systems Identification: Brady USA, Marketing Services Inc. or Seton

Cleanouts: Josam, Smith, Wade or Zurn

Floor Drains: Josam, Smith, Wade or Zurn

Roof Drains/Overflow Drains: Josam, Smith, Wade or Zurn

Air Gap Fittings: Josam, Smith, Wade or Zurn. Equal to Smith 3950 or 3951

Downspout Nozzles: Josam, Smith, Wad or Zurn

Ball Valves: Milwaukee (basis of design), Nibco

Butterfly Valves: Milwaukee (basis of design), Crane or Nibco

Gate Valves: Milwaukee (basis of design), Crane or Nibco

Balancing Valves: Armstrong or Bell & Gossett

Water Hammer Arrestor: Watts (basis of design), Sioux-Chief and PPP

In-Line Centrifugal Pumps: Bell & Gossett (basis of design), Aurora and Ingersoll-Rand

Domestic Water Booster Pumps: Quantum Flo (basis of design), Metropolitan, FLO Fab or approved equal

Thermometers: Taylor, Terice and Weiss

Pressure Gauges: Marsh, Ashcroft, Marshalltown, Taylor, Terice, U.S. Gauge or Weiss

Pressure Reducing Valves: Watts or Wilkins

Backflow Preventer (Reduce Pressure): Apollo or Watts

Backflow Preventer (Double Check Valve): Apollo or Watts

Trap Primers: Precision Plumbing Products

In-Line Check Valves: Circle Seal Control, Durabla, Apollo or Conbraco

Manual Air Vents: Bell & Gossett

Plumbing Fixtures:

- Water closets, urinals and lavatories: Kohler, American Standard or Eljer/ Ecotech Toilets 0.8 gpf (basis of design), Zurn H.E.V. High Efficiency Urinals 1/8 gpf (basis of design).
*NOTE: No waterless urinals.
- Water closet seats: Bemis, Beneke, Centoco or Olsonite
- Flush Valves: Sloan or Zurn

- Stainless Steel Sinks: Elkay or equal
- Electric Water Coolers: Elkay (basis of design), Halsey-Taylor, Haws, Oasis or Sunroc
- Mop Basin: Fiat, Mustee or Stern-Williams
- Emergency Eyewash and Showers: Bradley, Encon, Guardian or Haws
- Manual Faucets: Chicago (basis of design)
- Fixture Traps: Engineered Brass, Kohler or McGuire
- Insulated Traps and Supplies: McGuire, Plumberex or True-Bro
- Supplies & Stops: Chicago, Brasscraft or MaGuire
- Showers: Bradley, Zurn or Symmons
- ADA Wrap: McGuire MFG PW2125WC/PW2150WC Prewrapped cast P-trap insulation kit
- Supply: Chicago Faucets 1017
- Faucets: ADA Chicago Faucet 844-665PSH
- Lavatory Drains: McGuire MFG 155A open grid P.O. plug
- Service Basin/Custodial Sink: Fiat Products SB-3000/TSB-3000; Fiat Products 832-AA hose and hose bracket.
- Basin Faucet: Chicago Faucets 897 Plexiglass 2'w X 8'h X ¼ " to be installed on both walls associated with service/custodial sinks to prevent wall material from damage.
- Wall Hydrants: Zurn Z1320, Chicago 387, Plumbmaster 97315, Plumbmaster 97275
- Water Coolers: Elkay ERP2-8-C
- Safety Eye Shower Station: Hams 8200 WC
- Water Heaters: A.O. Smith DSE series
- Carriers and Support: Josam, Smith, Wade or Zurn
- Electronic Storage-Tank Water Heaters: A.O. Smith, Rheem, Ruud, State or Lochinvar
- Water Conditioning Equipment: Culligan, Hellenbrand or U.S. Filter

Automatic Fire Sprinkler System:

- Gate Valves: Kennedy, Milwaukee, Mueller, Nibco or Stockham
- Check Valves: Tyco, Reliable or Viking
- Ball Valves: Nibco, Milwaukee (*basis of design*) or Mueller
- Butterfly Valves: Kennedy, Nibco, Milwaukee (*basis of design*) or Mueller
- Test & Drain Valves: AGF, Kennedy, Nibco or equal
- Drain Valves: Victaulic or equal
- Pressure Regulating Valves: Croker, Elkhart or Potter-Roemer
- Fire Department Valves: Croker, Elkhart or Potter-Roemer
- Tamper Switch: Potter, System Sensor or equal
- Flow Switch: Potter, System Sensor or equal
- Sprinkler Head: Reliable, Tyco (*basis of design*) or Viking
- Fire Department Connection: Badger-Powhatan, Elkhart, Croker, Potter-Roemer, Tyco or equal
- Ball Drip: Potter-Roemer, Reliable, Tyco or equal
- Fire Pump: Aurora, A-C Fire Pump, Fairbanks Morse, Patterson (*basis of design*) or Peerless
- Control Equipment for Electric Drive: Joslyn Clark (*preferred*), Eaton, Firetrol or Metron
- Jockey Pump: Aurora, Fairbanks Morse, Peerless or Grunfoss (*basis of design*)
- Jockey Pump Controller: Joslyn Clark (*basis of design*), Firetrol, Metron or Eaton/Cutler-Hammer
- Pressure Guages: Potter-Roemer, Viking or equal
- Dielectric Fittings: Epco, Lochinvar, Watts, Wilkins or equal

Louvers & Vents:

- Greenheck (*basis of design*) or Ruskin.
- Shall be refer to fixed, extruded aluminum louvers and control dampers.
- Shall be designed to withstand current wind load code requirements without permanent deformation of the louver components.

- Provide louvers that allow for thermal movements resulting from the following maximum range or change in ambient and surface temperatures by preventing buckling, opening of joints, over-stressing of components and failure of connections.
- All louvers to be factory assembled, with equal blade spacing for a uniform appearance.
- Provide bird screening: Aluminum, ½" square mesh, 0.063 inch wire: and insect screening: Aluminum, 18x16 mesh, 0.102 inch wire.
- Finishes to comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products".

Packaged Air Handling Units: York (Basis of Design) or Trane

Heating & Cooling Terminal Devices:

- Fan Coil Units: Trane or York
- Electric Reheat Coils: Indeeco, Singer, Brasch, Warren or Titus

Fans:

- Centrifugal Fans: Greenheck (basis of design), Cook, York or Trane
- Plenum Fans: Greenheck (basis of design), Cook, York, Trane or Twin City
- Fiberglass Reinforced Plastic Centrifugal Fans: MK Plastic (basis of design), Chicago Blower or Horrington
- Tubular Centrifugal Fans: Greenheck (basis of design) or Cook
- Power Roof Exhausters: Greenheck (basis of design) or Cook
- Mixed Flow Induced Dilution Fans: Vektor or Greenheck (basis of design)

Filters:

- Disposable Panel Filters: Farr 30/30 or Flanders PrePleat 40
- Disposable Rigid Cartridge Type Air Filters: Farr or Flanders Precisionaire
- Bag Filters: size, capacity and efficiency as scheduled
- HEPA Filters: size, capacity and static pressure drop as scheduled
- Bag In-Bag Out Filtration and Housing Assembly: Flanders/CSC, American Air, Camfil, Farr, Barnesby-Cheney or Tri-Dim

Filter Pressure Drop Gauges: Dwyer Series 200 Magnehlic

Air Terminal Devices:

- VAV Terminal Devices: Titus (Basis of Design), Price, York, Kruger or Enviro-Tech

Diffusers, Registers and Grilles: Titus (Basis of Design) E.H. Price, Carnes or Krueger

Ductwork:

- All duct products shall conform to NFPA 90A, and shall possess flame spread rating of not over 25, and a smoke developed rating no higher than 50.
- Ductwork shall comply with Local, State and Federal requirements, and meet current ASTM standards for the type of duct being utilized.

Ductwork Specialties:

- Manual Balancing Dampers: Ruskin or Air Balance
- Backdraft Dampers: Ruskin, Air Balance or Greenheck
- Fire Dampers: Air Balance, Greenheck, Nailor, Cesco, Pottorff or Ruskin
- Combination Fire and Smoke Dampers: Ruskin, Air Balance or Greenheck
- Smoke Dampers: Air Balance, Johnson Controls, Ruskin or Greenheck
- Remote Operated Volume Control Dampers: Determined by Controls Contractor

Control System Integration:

- Currently, Johnson Controls, Inc. is the FGCU site standard contractor.
- The control system shall be 100% Direct Digital Control unless otherwise specified.
- Damper and valve actuators shall be electronic type unless otherwise specified.
- The contractor shall provide BAS architecture consisting of communication network, operator workstations, modular designed DDCP's with points addressable and modifiable from operator work stations or from master DDCP using laptop computer. BAS shall be fully expandable with addition of hardware and/or software. Such expansion shall not require the removal of existing DDCP's, sensors, actuators or communication networks.
- The system shall support operator workstations as specified and shall be capable of supporting additional workstations, limited only by systems maximum node capacity.
- System Intelligence shall be that operator workstation(s) can be used for programming controls, performing analysis of filed data, generating maintenance and operations reports and providing permanent storage for programs and data.
- Safety devices shall function in both VFD and bypass modes.

Control Wiring:

- Control Wiring shall be in accordance with the National Electric Code and Local Electrical codes.
- Refer to Division 16 for additional information.

- Transient Voltage Surge Suppression Devices shall be designed for 120 V. power conditioning devices for electronic equipment.
- Uninterruptable Power Supply: MGE UPS Systems, Invensys Powerware, Liebert PowerSure or approved equal.

Local Control Panels:

- Unless otherwise specified, the local control panels shall be the manufacturers standard panels.
- Construction for exterior panels shall comply with NEMA 4.
- Functioning shall be consistent with existing University systems.

Direct Digital Controllers and Networks:

- Digital equipment furnished shall comply to applicable FCC regulations.
- Functioning shall be consistent with existing University systems.

Direct Digital Control Panel:

- Shall be microprocessor based, field programmable controllers, capable of performing control and energy management functions, and shall be UL Listed as Signaling Systems.
- Functioning shall be consistent with existing University systems.

Direct Digital Control Software:

- Control strategies shall be Owner Definable from operator terminals or workstations.
- Software functions and algorithms shall be sufficient to enable implementation of control sequences as specified and shall be able to maintain continuous control as intended.
- Control functions shall be both mathematical and logical operators.
- Allow operators to assign identifiers of their choice to each connected point.
- Provide access control (user defined passwords) for system operation.
- Each DDCP shall contain self-diagnostics that continuously monitor proper operation of panel.

(END OF DIVISION 15)

DIVISION 16- ELECTRICAL

General

1. All utility work shall be coordinated with and approved by the Utilities Section through the Project Manager. Each drawing that shows a connection to existing utilities shall have a note stating the Contractor shall request permission for all outages a minimum of 14 days in advance, unless an emergency arises. Explicit details shall be shown for all connections to existing utilities. The Utilities Section must approve both the location and the method of the proposed connection.
2. The Contractor, through the Project Manager, shall pay for all electric energy consumed during construction. The Contractor shall obtain the Utilities Procurement Procedures from the Project Manager. Requirements for establishing service are as detailed. Drawings shall clearly call for the Contractor to take such action.
3. All electrical materials and equipment shall be UL or ETL listed. CSA is not considered equivalent.
4. All materials and types of construction shall meet or exceed the requirements of UL, ANSI, NEMA, IEEE, and the NEC as well as conform to manufacturer's written recommendations.
5. Record Drawings that accurately reflect the actual installed conditions must be furnished on both hard line drawings and CAD discs at the end of the project. Inaccurate, incomplete Record Drawings may be cause to reject a pay request or deter classifying the project complete.
6. An authorized representative(s) of the Owner shall witness an operational demonstration of completed systems. Representative(s) shall be completely instructed in the operation and maintenance of installed equipment. Representative(s) shall sign and date a statement that confirms they've received proper, comprehensive training.
7. Electrical Specifications
 - **ALL COPPER WIRING – NO ALUMINUM WIRING**
 - **Switchgear/Panelboards:** Square D/Siemens/General Electric
 - Dead front with bolt-in main and branch protective devices
 - Mount on 4" concrete pad with 4" extending on all sides
 - **Transformers:** Square D NLP series
 - All service transformers are to be suitable for High Harmonic Environments, rated minimum of 200% of normal harmonic content with a minimum 'K' factor of 13.
 - 'K'-factor transformers shall be Shielded isolation type and have primary surge suppression, secondary filters and electrostatic shields.
 - Mount on 3" concrete pad with 3" extending on all sides.
 - **Disconnects/Motor Starters:** Square D/Siemens/General Electric

- **TVSS:** LEA Dyna-Tech/Liebert/Leviton
 - One to be installed on main switch board and one on secondary side of transformers.
- **Identification:**
 - Nameplates shall be laminated phenolic plastic, black front and back with white core, with lettering etched through outer covering.
 - White engraved letters on black background.
 - Attach with plated self tapping screws or brass bolts.
 - The following shall be equipped with name plates: all motors, motor starters, push button stations, control panels, time switches, disconnect switches, panel boards, circuit breakers, contractors, transformers.
 - All junction boxes to be identified with panel and circuit numbers.
 - All distribution panel boards shall have typed directories identifying circuit locations such as: duplex outlet room 120 SW wall.
 - NO HAND WRITTEN OR XEROXED DIRECTORIES WILL BE ACCEPTED.
 - All devices on standby generators are to be 'RED' in color including device plates.

BASIC MATERIALS AND METHODS

Conduits

1. Schedule 40 PVC is permitted for exterior lighting, minimum 1", and buried to a depth called for by the NEC. When a junction box is installed near a pole location, a ¾" conduit may be used from the junction box to the pole. If no junction box is installed, the 1" conduit shall extend to the pole foundation.
2. PVC bends shall be made with a hot box. Flames or hairdryers are unacceptable.
3. PVC shall be converted to metallic where exposed to physical damage. Buried metallic conduit must have, minimum, two coats of bitumastic or have factory applied PVC coating.
4. All empty conduits shall have a 200-pound test pull cord. Conduit shall be manufactured in the United States.

WIRES AND CABLES

1. Conductors shall be copper. Insulation shall be Type THHN/THWN. Minimum power conductor size is #12AWG. Control conductor sizes and color-coding shall be as governed by approved wiring diagrams or schematics. Power conductors shall be sized for maximum 5% voltage drop from source to point of utilization. Wire #12 AWG and smaller shall be solid, larger-stranded.

MC Cable

1. All wire and cable shall be installed in conduit or where applicable, tray-rated cable in cable trays. In lieu of wire in conduit, MC cable may be used in areas allowed by the NEC, but only with the joint approval of the Engineer of Record, the FGCU BCA, and FGCU Plan Reviewers.

Conduit Systems Identification

1. Conduit systems shall be identified by the color code listed below. If a color code is already in use in a building, then that code will be utilized for that building. If no code is in use, then this one shall be used. If an existing building system is being modified, these requirements apply only to the new raceway system.

<u>SYSTEM</u>	<u>COLOR</u>
Fire Alarm	Red
Emergency Power (Life Safety Branch)	Yellow
Critical Branch	Orange
Equipment Branch	Green
Essential Distribution (Genset Output to Line Side of ATS)	Purple
Normal Power	Blue
Security	Brown

2. The last six inches of conduits, their junction boxes, and their covers shall be painted the appropriate color.
3. For power conduits, the circuits and panels involved shall be identified on the junction box covers using a black permanent marker.

PANELBOARDS

1. Panelboards shall be identified using permanently attached machine engraved phenolic nameplates. Standard color shall be white letters on black background. Emergency panels shall have white letters on a red background. Panelboard bus shall be copper. Lighting and receptacle panelboard neutral bus shall be rated 100%. Panelboards shall be sized for minimum 20% spare above calculated diversified demand loads.
2. Circuit breakers shall be bolt-on construction. Devices shall be rated for the calculated available bolted fault short circuit currents. Copies of the fault current calculations shall be furnished to the Project Manager for review with plans prior to construction.
3. Main Distribution panels shall have metal oxide varistor (MOV) type surge protection device (SPD). The MOV device shall have a short circuit current rating of 200 kA or greater. The MOV shall be rated for service voltage of the facility.

Switches and Receptacles

1. Switches and receptacles shall be specification grade and rated 20 amperes. Standard color shall be ivory with stainless steel plates. Devices assigned to the emergency system shall be distinctive in color: red is considered standard unless another color code has already been established in an existing facility.

2. Vending areas shall have outlets mounted no greater than 48" on center. Hallways shall have outlets mounted 50 feet on center, maximum.
3. Outlets shall be provided on the exterior of facilities located according to the geometry of their footprint and good design, so that their spacing does not exceed 100 feet on center.
4. Device mounting heights shall conform to the latest applicable edition of ADA standards. Floor outlets shall be flush with finished floor or floor covering, as applicable.
5. When required for classrooms, receptacles for overhead LCD projector shall be mounted flush with ceiling.

MOTORS AND STARTERS

1. Motors shall be high efficiency and have an operating power factor of 90% or greater. Provide reduced voltage starters or variable speed drives for all motors 15 horsepower, or larger. Variable speed drives shall be connected to the campus-wide energy management system. For detailed requirements for these connections, contact the Physical Plant Department. For a list of acceptable manufacturers of VFD's see the Mechanical section of these guidelines.

POWER GENERATION

1. Where required for life safety per NFPA-101 and/or for continuity of function in certain facilities, provide a standby rated emergency power engine generator set. The addition of battery-powered lighting, instead of providing a generator set, to meet NFPA-101 exit/egress requirements is highly discouraged.
2. Engine generator set shall be diesel fueled unless so small that diesel prime mover is not commercially available. Natural gas and LP fueled sets are unacceptable. Fuel tank shall be sized for minimum 36 hours of operation at full load. Larger tanks may be required to serve facilities where continuity of function is mandatory. The operation and fueling requirements for those types of facilities shall be handled on a project-by-project basis as design criteria through the Project Manager. Fuel tanks shall be above ground and approved by EPA. If fuel tank is of such dimension that the top of the mounting skid is 24" or greater AFG, then a substantial maintenance platform shall be constructed around all sides. Platform shall be in full accordance with all applicable OSHA safety standards for handrails, etc.
3. The set shall be started electrically using its own properly rated and sized batteries. Air start is unacceptable.
4. Engine generator set shall connect to building power distribution system through coil and contactor operated automatic transfer switches. "Walking Beam" switches are unacceptable. Transfer switch shall have an integral, field adjustable automatic exerciser clock.
5. In addition to other requirements, the generator set shall have the capacity to serve, as a minimum, one elevator, all building data gathering panels used for HVAC control and management systems, steam condensate return pumps, and sump pumps. Generators shall be sized for minimum 20% spare above calculated diversified demand loads.

6. Generator shall conform to ISO-9001; have Class H insulation, and permanent magnet excitation for production of 300% of rated full load current for ten seconds.
7. Generator set on-site acceptance testing shall be performed in accordance with NFPA-110 at 80% and 100% power factors. Generator Shop personnel shall be notified of the test schedule so that they may attend.
8. Contractor shall furnish a full tank of fuel at the completion of all acceptance testing.
9. Equipment supplier shall supply two operation and maintenance manuals. Deliver to the Director of Physical Plant.
10. There are numerous locations on campus where terrain or geometry of adjacent structures may require that the generator set be installed in a sound attenuated enclosure with a rated sound attenuating silencer. This requirement will need to be discussed during initial design meetings and the actual level of attenuation determined early in the design process.
11. Sets shall be installed on building exteriors except possibly for locations such as energy/utility plants. The location of the generator set shall be coordinated with the relative location of the fresh air intake for the building to minimize the intrusion of the generator's exhaust fumes into the building air conditioning system. Unit shall be located and physically protected in such a manner as to reduce the vulnerability to damage by severe storms or hurricanes.
12. Generator set shall be cooled with self-contained coolant and radiator system. Remote coolers are unacceptable. All systems shall have a five-year warranty, unless the project considerations dictate differently and is approved by the Physical Plant Department. Engine generator sets shall be Caterpillar or Cummins/Onan all other manufacturers are unacceptable.

SERVICE AND DISTRIBUTION

Electrical Service

1. Electric service to buildings and facilities on campus will normally be served from Florida Power and Light voltage distribution system. If a building is not served from an existing sectionalizing device, a new SF6 gas insulated vacuum fault interrupter device shall be installed. Interrupters shall have 600-ampere separable quick change bushings. G & W is the only acceptable manufacturer. A 6 lb bottle of SF6 gas shall be furnished with all new sectionalizing switch installations.
2. Service to buildings shall be supplied from pad-mounted transformers as described below. The transformers, service entrance conductors or bus, and main electrical panel or equipment shall be of adequate size for the demand expected in the facility and to allow for future growth of 25% based on calculated diversified demand.
3. Transformers shall be located as close as possible to the main electric service room. Future servicing or replacement of transformers shall be a consideration when selecting a location. The transformer shall be protected from vehicular and pedestrian traffic.
4. The location of the building electric service apparatus shall be incorporated in the landscaping as much as possible.

METERING

1. A watt-hour meter with a demand register shall be provided for each building. This shall be coordinated through the University Project Manager with the Utilities Section.
2. For buildings being served by a pad mounted transformer, the meter shall be mounted on a meter pedestal. Metering current transformers shall be installed in the secondary compartment of the transformer. A 1 ¼ "conduit shall be installed from the pad to the nearest building system control junction box.

GROUNDING

1. All grounding for building services, standby generators, and transformers shall achieve a maximum 10- ohms or less as required by specific project criteria, using the three-point test method. If necessary, multiple rods shall be driven to achieve the desired resistance to ground. All grounds shall be connected with a properly sized copper conductor. All ground busses shall be connected to ground rods by either (1) an approved exothermic welding process as manufactured by Erico or (2) a compression system as manufactured by Burndy known as 'Hyground'. Each rod shall be tested in the presence of the University's representative. A written record of the test results shall be prepared and signed by the contractor and University's representative. This record shall be submitted to the Architect/Engineer and supplied to the University with the "Record Drawings" and reports upon the completion of the project.

Circuit Coordination

1. It is the responsibility of the Architect/Engineer to insure the proper electric circuit coordination.

Facility Electrical Systems

1. The Engineer shall provide breaker settings for all new or remodeled building electrical systems. Circuit coordination parameters shall be furnished, including time-current characteristic curve plots, breaker/relay settings, and verification that all settings have been made.

Arc Flash Data

1. The Engineer shall provide arc-flash data for all electrical systems installation as required by the NEC, NFPA-70E, and all local codes.
2. Pertinent signs pertaining to arc-flash information shall be prominently displayed on all equipment involved, i.e. Panelboards, switchgear, motor controllers.

Pad-Mounted Transformers

1. Pad mounted transformers are the responsibility of Florida Power and Light.

DUCT BANK SYSTEM

1. The duct bank system will be the responsibility of Florida Power and Light.

MANHOLES

1. The manholes will be the responsibility of Florida Power and Light.

LIGHTNING PROTECTION SYSTEMS

1. All buildings/structures shall have appropriate lightning protection systems designed and installed in accordance with NFPA-780. Installer shall be LPI certified. Installed system shall bear a Master Label.

2. Expansions of existing facilities shall upgrade the existing lightning protection system as required to obtain or maintain a Master Label for the envelope.

LIGHTING SYSTEMS

General

1. All lighting designs shall comply with the current edition of the Illuminating Engineers Society (IES) standard.

Interior Lighting

1. The standard lighting system shall utilize fluorescent T5 lamps with electronic ballasts having a total harmonic distortion (THD) of less than 10%. Interior systems that are not dimmed shall employ 28W lamps where ambient temperatures and other conditions are suitable for their application. Dimmable systems shall use 32W lamps. Wherever possible, four-foot lamps are to be used. The lamp color to be: T41 – cool white. Other colors for lamps are not acceptable.
2. Light fixtures in stairways shall be above the landings and not above the steps. Automatic lighting controls shall comply with Chapter 13, ENERGY EFFICIENCY, Florida Building Code.
3. Emergency lighting shall be provided at all exits and in all stairways, hallways, mechanical rooms and elevators according to NFPA-101. Emergency lighting shall be powered from the building emergency generator system. Battery powered emergency lighting shall not be used unless there is no emergency generator associated with the project.
4. Where emergency lights are required in classrooms, a bypass switch shall be installed to permit the light to be switched off during special presentations. During actual power failures, the bypass shall be rendered inoperative.
5. No lights shall be installed that require scaffolding for relamping.
6. Exit lights shall be of the Light Emitting Diode (LED) type.

Classroom Lighting

1. Classroom lighting shall comply with DOE requirements. Lighting in classrooms and lecture halls with seating capacity greater than 25 people shall be equipped fluorescent dimming systems.
2. For detail requirements for dimming and occupancy sensor systems refer to Appendix E, Design Criteria and Requirements for Classrooms at Florida State University.

OUTDOOR LIGHTING

1. Outdoor lighting on the FGCU campus shall be attractive and in keeping with the standards set forth in this section. The lighting plan shall be energy efficient while maintaining appropriate light level(s) as prescribed in the latest edition of the NFPA codes and IES handbook for high activity facilities.
2. When outdoor lighting is associated with a building project, security lighting and parking lot lighting shall be included in the building design.
3. No lights are to be installed that require scaffolding for relamping. Pole mounted parking lot lights shall be bucket truck accessible.

4. Walkway and exterior security lighting shall be controlled by a photoelectric cell and contactor, with a manual override for maintenance.
5. Outdoor lighting shall be period style fixtures, pole mounted where possible. Poles and fixtures shall be: See Appendix R.
 - 1) Fixtures: All fixtures shall use high-pressure sodium lamps. All ballasts shall be multi-voltage tapped (120,208,240, and 277-volt taps). Globes/diffusers shall be glass. Plastic is unacceptable. Precision injection-molded, UV stabilized, acrylic lens is acceptable for parking deck fixtures.
 - Walkway type fixtures: Fixture trim shall be green. Acceptable manufacturers are:
 - King Luminare 11' poles
 - Parking Lot Fixtures: Fixtures shall be green. Acceptable manufacturers are:
 - King Luminare 30' poles
 - Roadway type fixtures: Fixture trim shall be green.
 - King Luminare 35' poles

PARKING DECK LIGHTING

1. The consultant shall evaluate the feasibility of installing lighting control systems that monitor and control the "interior" and "exterior" zones lighting according to available ambient levels. The control systems shall be field adjustable to owner's specifications.
2. A control system recommendation shall be presented to the Project Manager no later than the 50% plans submittal.

FIRE ALARM SYSTEMS

Basic Requirements for New Installation

All new buildings, and buildings undergoing major renovations, shall be equipped with a complete fire alarm system which meets Florida Building Code, Chapter 11 Accessibility Code for Building Construction (Section 11-4.28) and current code requirements. Provide all hardware necessary to tie-in with the existing campus monitoring system. Matching the existing addressable digital fire system in use in a facility is preferred.

Licensing

All work on fire alarm systems shall be performed by an individual, or firm, licensed as an "Alarm System Contractor" as required by Florida Statute 489.505(a), other parts of said Statute, and complies with all other licensing requirements of relevant codes and laws. Further, this individual or firm shall be either the prime constructor on such work or a subcontractor to the prime constructor.

Panels

1. Central Fire Control Panel: Provide programmable central fire control panel with programmable field devices. Fire control panel shall meet NFPA 72 detector sensitivity readout/printout requirements. A history of a minimum of 200 events shall be readable on the fire alarm control panel display (200 events for alarm and 200 events for trouble).
2. Annunciator Panel: Annunciator panel shall be located where the fire department will enter building. Annunciation panel shall duplicate all functions of the fire control panel.

3. Renovations: When the existing fire alarm control panel does not support the type of renovation being performed in a building, a second (or third) fire alarm control panel shall be installed. The fire alarm control panels installed for the renovation shall be of sufficient capacity to handle the entire building when the existing fire system(s) is (are) changed.
4. Simplex: Verify design with the Director of Physical Plant.

Pull Stations

Pull stations shall be single action type. Glass rods for pull stations are discouraged. In housing units pull stations shall be equipped with a protective tamper shield. The protective tamper shield shall be a clear Lexan cover that emits a loud piercing noise when disturbed. The cover shall be battery powered and shall silence itself by lowering and realigning the shield. Stopper II as manufactured by Safety Technology International, Inc. (STI), are acceptable covers. Protective shields shall only be used to protect pull stations from the elements, or in locations where vandalism is likely (such as next to exterior exits). They are not required throughout the interior of a building.

Alarm Units

Alarm units shall be combination audible alarm and strobe light. The audible alarm shall be a horn, not a bell, as a bell could be confused with a class bell. Provide separate power for horns and lights, so that lights can be checked without sounding horn.

Air Handling Unit Shutdown Relay

The Air Handling Unit shutdown relay shall be supervised.

Junction Boxes and Conduit

All junction boxes on the fire alarm system shall be painted fire-truck red and all conduit shall be spot painted red.

Campus Monitoring System Interface Relays

Trouble contacts shall be Normally Open; Alarm contacts shall be Normally Open. Provide a Keltron-Digital Alarm Communicator Transmitter (DACT) for digital, secondary reporting to the University Police.

Duct-Mounted Smoke Detectors

Duct mounted detectors shall be mounted in a readily accessible location. If duct-mounted smoke detectors are not immediately visible from inside the mechanical room, then provide a remote, labeled L.E.D indicator for each detector, mounted in a convenient, visible location. Non-radioactive smoke detectors and duct detectors are preferred (i.e. photoelectric). Provide stand-alone, duct mounted smoke detectors where no fire alarm system is present. The operation shall be to shut down the unit, and provide notification.

Maintenance Items

1. Provide a spare parts kit that shall include one of every type of field device (one pull station, one horn, one strobe).
2. Any special tools, equipment, programming devices and cables needed to maintain or repair the system shall be provided.

3. All keys or tools provided with any devices from the manufacturer shall be given to the Physical Plant Department.

Execution

1. All equipment shall be installed to provide adequate access for service and repair.
2. On retrofit projects that involve adding to existing wiring, the Constructor shall exactly match the colors of the new wiring with the existing. All new wiring shall be installed in conduit unless approved by the Physical Plant Department.
3. The Constructor shall certify and tag the system after all modifications are made and prior to

Substantial Completion

1. The installer and the EHS Fire Safety Systems Electronics Shop shall test the fire alarm system before any renovation or modification is made. Any part of the system not working properly shall be noted or repaired before any construction begins.
2. Fire alarm conductors shall be color coded as follows:
 - Horns: Red +, Black -
 - Strobes: (if separate) White + Purple -
 - Alarms: Blue + Yellow -
 - A/C Ventilation: Shut Down Brown + Orange -
 - Magnetic Doors: Pink + Grey -
 - Misc. Circuits: Violet + Tan -
3. Data line wiring shall be twisted shielded 18 gauge FPLP wire in a red jacket. All data wire shall meet current code requirements and manufacturer's specifications. Speaker wiring shall meet current code requirements and manufacturer's specifications, and have a different color jacket than the data wiring (minimum 18 gauge twisted shielded).
4. On renovations always remove existing wiring and install new, properly color coded wiring.
5. On renovations, in addition to the renovation prints and/or drawings, the existing prints are to be up-dated to include any changes.
6. Horns and lights shall be provided in machine rooms and loft/attic areas that have mechanical equipment or work areas.
7. All connections shall be made on terminal strips. No more than two conductors under one connection. Wires on these terminals shall be labeled. Programming of the fire alarm shall be as specified by the University. Consult with the Physical Plant Department concerning the requirements. Programming includes, but is not limited to: function keys, FAAP, software zones, etc.
8. All fire and smoke alarm sensors shall be re-settable. Beam detectors are discouraged and must be approved by the Physical Plant Department.
9. Provide protection from damage caused by lightning and electrical surges.

OPERATION

Air Handling Units

Actuation of any fire alarm initiating device shall cause all air handlers in the building area affected to shut down. Air handling units shall shut down only in the area where the fire is detected or the area actually alarmed (floor above and below). Other air handling equipment shall remain on line. This shall not supersede any code requirement.

Elevators

A reset procedure for resetting the elevators after an alarm shall be submitted.

Trouble Signal

Trouble signal shall sound piezoelectric alarm on the fire alarm control panel.

Stand Alone Duct Detectors

Provide an enunciator panel to provide notification of trouble alarm and reset feature. Panel to be 120 Volts.

Maintenance Items

1. Keys to the system and associated equipment shall be given to the Physical Plant Department when the system is accepted.
2. All spare parts, special tools, equipment, keys, etc. required for maintenance or operation shall be turned over to the Physical Plant Department when the system is accepted.
3. A copy of the field prints, drawings, etc. shall be given to the Physical Plant Department when the system is accepted.

(END OF DIVISION 16)