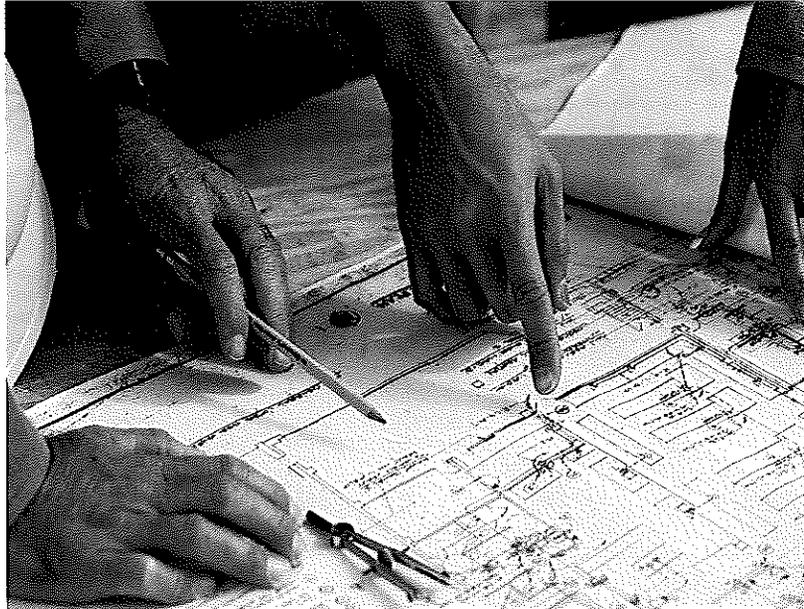


# LEON COUNTY FACILITIES MANAGEMENT



## PROFESSIONAL SERVICES GUIDELINES



DEPARTMENT OF MANAGEMENT SERVICES  
DIVISION OF FACILITIES MANAGEMENT & CONSTRUCTION

February 2007

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**Appendix A – Guidelines for Telecommunications Systems Infrastructure for Leon County, Florida**

# 1.00 DESIGN SERVICES

## 1.01 GENERAL INFORMATION

Facilities Management recognizes the basic design phases of schematics, design development and Construction Documents. During your negotiations, the design phase submittals will be discussed and agreed upon. Some projects are small and may not require all the standard phases of submittals. Some projects may be large enough to require additional submittals, such as conceptual schematics, advanced schematics and 50% Construction Documents. Your contract will reflect the agreed upon phases and their scheduled submittal times.

The quantity and distribution of documents should also be discussed at contract negotiations. In addition to other entities, may require multiple submissions or multiple copies for review. Send document submittals directly to the recipients required by your Agreement and provide a copy of the transmittal to the Project Manager.

### *A. General Design Requirements*

The Project Manager will furnish the Design Professional with any available information relative to existing conditions at the site. The Design Professional should exercise due caution with these materials, including original Construction Documents, as-built drawings and shop drawings, and be satisfied by actual site investigation as to their validity before utilizing the data. If authorized as an additional service, the Design Professional shall prepare measured drawings, and conduct an investigation of hidden conditions. When removal is necessary, contact the Project Manager about making arrangements for the removal. When the project requires more site information than is provided (such as, surveys and subsurface investigations), the Design Professional shall make arrangements and submit a proposal to obtain the additional information as an additional service. See Section 1.07.

Facilities Management delivers a large variety of building types, therefore we do not have a published design guide, but we encourage the design consultant to utilize the National Institute of Building Sciences "Whole Building Design Approach" listed on their website [www.wbdg.org](http://www.wbdg.org) to achieve "high performance" buildings within available funding.

The Design Professional shall focus special attention to integral building envelopes and advanced HVAC systems that provide quality indoor air environments. The building design should work in every way to enhance the user's mission that it is housing while being secure, energy efficient, easy to maintain and constructed of long life cycle building components.

Leon County strongly encourages the use of energy conservation measures, the use of recycled and recyclable materials, and the development of projects in such a way that the impact on the environment is minimized and critical environmental features are protected. The Design Professional shall seek to conform to these concepts on all projects, large or small. Certain projects may be designated as green building pilot projects in which case the Design Professional shall conform to the requirements for the designated level of certification by the Florida Green Building Council (FGBC) or the U.S. Green Building Council (USGBC), in addition to the requirements contained in this guide.

Facilities Management encourages the use of quality building materials. In general, materials should be selected to provide optimum service and lowest maintenance for the dollars spent.

Products and materials manufactured in the U.S.A. and Florida should be specified when possible.

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

Drawings and specifications must clearly establish a standard of quality for all materials and equipment. Restrictive requirements should not be used if possible. The drawings and specifications should permit competition consistent with the work involved. WHEN IT IS NECESSARY TO DESIGNATE EQUIPMENT AND MATERIALS BY PRODUCT NAME, THREE EQUIVALENT PRODUCTS SHOULD BE NAMED AND THE OPPORTUNITY PROVIDED FOR OTHER PRODUCTS TO QUALIFY BEFORE AND AFTER THE BID DATE. SUBSTITUTIONS AFTER THE BID ARE GENERALLY NOT ACCEPTED UNLESS QUALITY CAN BE PROVEN EQUAL AND IF A PROPER CREDIT IS GIVEN. PROPRIETARY, OR SOLE SOURCE SPECIFICATIONS ARE NOT ALLOWED UNLESS PRIOR APPROVAL IS OBTAINED FROM THE PROJECT MANAGER.

The use of asbestos or asbestos-based materials (including vinyl asbestos tile) is prohibited in buildings being renovated, remodeled or constructed for ownership or lease by Leon County. Both the Design Professional and the Contractor will be required to complete affidavits stating that no asbestos containing materials have been specified or installed in the project.

*It is anticipated that the design consultant will have to shift emphasis from building design geometry issues, to building systems issues, to deliver an affordable and approvable design.*

#### **B. Project Budget**

The Design Professional is required to submit a Cost Analysis correlated against the project budget with each design submittal, unless this work is being performed by a Construction Manager. Should the Design Professional encounter a budget shortfall during design, he is expected to resolve it with the Project Manager immediately before proceeding. Therefore, it is expected that cost analyses provided with phase submittals will demonstrate how the design conforms to the budget since any cost overruns will have already been resolved before the phase submitted is provided. Gross square foot or gross cubic foot area take-offs are acceptable for schematic design. However, as design progresses and more detailed information is available, the Design Professional shall provide more detailed unit take-off estimates with each phase. Final contract document submittals shall include a thorough Statement of Probable Construction Cost, based on detailed unit take-offs and supported by supplier documentation of the cost of specialty items. Costs per unit shall be localized to the project area and based on recent experience by local contractors wherever possible.

#### **C. Project Schedule**

The Design Professional shall submit a general schedule with projected calendar dates indicating the key steps leading to completion of design and construction, allowing adequate time for plan, review and approval by County staff. On large or complex projects, the schedule must be sufficiently detailed to show all interrelated activities, such as DRI activities, concurrency application and approval, programming, space planning, permitting, etc. It should show the sequence of events with projected calendar dates for start and finish of planning, design, bid, construction and occupancy. It should show all tasks necessary to complete each phase of the project, show intervals for review between phases and indicate all permits, licenses and approvals

by agencies having jurisdiction, whether application is made by the Owner, Design Professional or Contractor.

A project schedule update is also required with each phase submitted, tracking actual vs. planned schedule performance. The planned schedule shall duplicate that contained in the Agreement and shall remain unchanged for the duration of the project, unless modified by contract amendment. The actual schedule for each phase shall show actual submittal dates up to that phase of the project. Commentary shall explain variance in actual vs. planned schedule performance, if any.

#### ***D. Project Status Reports***

The contract for professional services requires the Design Professional to prepare MONTHLY Planning and Design Reports to be submitted by the first of each month during design, and MONTHLY Construction Reports to be submitted by the first of each month during construction. These reports must cover all work through the end of the previous month, with special emphasis on items that are of critical importance to the extent that they may cause future delays or problems. Information provided shall be in sufficient detail to give a concise overview of the project. The Design Professional shall submit these to the Project Manager with copies to the User and to the Regional Manager. Do not make entries that require reference to earlier reports. Formats/examples can be obtained from the Project Manager.

#### ***E. Project Area Report***

At the end of each phase of design, calculate the area of the project using the standard BOMA or A.I.A. method as applicable. Compare this to the area referenced in the program, and report on the status of actual project area vs. program requirements.

#### ***F. Public Information Release***

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

#### ***G. Minutes of Meetings, Conferences and Calls***

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

#### ***H. Formal Design Presentations***

During the course of the negotiation, the required phase submittals and the manner of submittals will be discussed. Some submittals will be by mail. Others may require design review meetings that may be "working sessions." Larger projects may require formal presentations to Agency heads or other dignitaries. For these, the Design Professional should prepare adequate copies of 8 1/2 x 11 materials for all attendees. Large boards, slides and models may be necessary for review and approval in a large conference setting. Reduced scale copies of these should be included in any handouts. The Design Professional may be asked to give a "sneak preview" of his presentation material to Facilities Management prior to the formal design presentation to the

User. The location and cost of these formal design presentations should be discussed and agreed upon at negotiation.

***I. Document Review and Coordination***

The Design Professional shall thoroughly review, check and coordinate all elements of each and every submittal including those of consultants to avoid omissions and conflict. These checks should be made by persons other than those preparing the material. The name of the checker shall be indicated on all drawings, computations, and other submittal. Upon review of submitted materials, if the Project Manager determines that it has not been reviewed, checked and fully coordinated, the submittal may be rejected and returned to the Design Professional for satisfactory completion.

***J. Jurisdiction of Other Agencies***

Many State and local agencies have specialized knowledge or jurisdiction over certain aspects of building projects. They should be contacted early in the design process for consultation and coordination to ensure timely inputs and approvals. The Design Professional shall review his project with the Project Manager to determine which agencies may be involved. The County and hence the Design Professional, must follow all local or other zoning, building and permitting requirements. This includes storm-water management, tree-removal, landscaping, regional planning councils, concurrency, etc.

***K. Utility Services and Connection***

It is the responsibility of the Design Professional to investigate any utilities that are available, or are being made available, their characteristics and capacities, and the application and permitting requirements for connections. The Design Professional shall ensure that the Construction Documents are fully coordinated with the utilities to be connected, that service and capacity is available, and that permits can be obtained for each.

***L. Codes, Rules, Regulations and Permits***

The Design Professional shall provide with each design submittal a listing of all codes and regulations that are followed in the design of the project. The Design Professional shall further certify by signature that the design documents comply to the best of their knowledge and ability with those codes and regulations. The design, construction, erection, alteration, modification, repair, and demolition of all public and private buildings are governed by the Florida Building Code, and are enforced by local jurisdictions.

***M. Life Safety and Protection***

It shall be the responsibility of the Design Professional to ensure that the design provides optimum measures for life safety and fire protection. The Design Professional shall abide by the governing codes and regulations. In the continuation of decision-making, the following order of precedence shall be observed:

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

## 1.02 SCHEMATIC DESIGN PHASE

The Design Professional shall utilize this phase to gather a complete understanding of the project's basic requirements. Conferences may be needed with the User, Project Manager or others having jurisdiction, either in the office or on site, to gather more project information. These are to be coordinated with the Project Manager. Should soil borings, surveys, or other information be required, the Design Professional shall promptly request authorization (via a proposal) to purchase such services.

All design submittals will be presented and discussed at a review meeting and will be mailed an electronically submitted to the Project Manager.

The Design Professional, attended by the Project Manager, the Design Review Team and the User, will arrange a review meeting, as necessary. A copy of all required materials should be sent to all participants by, the Design Professional, a week prior to the meeting. At the meeting, the Design Professional will explain the design and the influences that led to the proposed solution. The Design Professional will show that the design meets all of the requirements of the program with particular emphasis on space allocation, function, site adaptation, codes, and local zoning requirements. THE DESIGN PROFESSIONAL SHALL MAKE MINUTES OF THE MEETING AND ADDRESS THEM TO THE PROJECT MANAGER WITH COPIES TO ALL OTHER ATTENDEES.

### *A. General Submission Requirements*

The Design Professional shall present enough documentation to ensure a full understanding of the proposed design. Exterior and interior perspective sketches and mass models may be necessary to fully present the concept, in which case the Design Professional is required to provide them. Such sketches and models are considered basic design tools and are inherently a part of basic services. Detailed models and perspective renderings are not expected, unless they are requested as an additional service by the Project Manager.

Schematic design documents shall include fundamental design decisions such as: functional organization; building and site circulation; massing; scale; conceptual appearance; neighborhood context; basic exterior and interior finish material and product concepts; conceptual structural, mechanical, and electrical systems; and circulation/conveying systems.

On large projects (\$1,000,000 and above), the schematic phase may be divided by contract, into a conceptual and an advanced submittal. On smaller projects only one schematic submittal may be required. Regardless, the Design Professional is responsible for ensuring that all the following requirements are included in his schematic submittal(s).

### *B. Conceptual Schematic Requirements*

Shall include, but not be limited to the following:

1. A study of the existing master plan (if one exists, or a statement that the project does not have a master plan).
2. The soil and ground water conditions, contours, accessibility, utilities, flora, zoning and governing codes, etc., should be described as they relate to the project.
3. Topographic studies of terrain shall emphasize features that contribute to the solution or require significant alteration in the solution. Include a flood hazard evaluation. The design consultant should determine whether or not the building site is in a 100-year flood plain. This information, including the 100-year flood elevation, must be shown on the

building site plan and lowest (ground level) finished floor elevation set one (1) foot above the 100-year flood elevation. The probability of water over running site shall be investigated. The 100-year flood elevation and contour shall be indicated.

4. A site plan indicating orientation, site use, demolition, placement of structures, circulation and parking. Indicate utility systems showing existing utilities with different tonal qualities or line types from new. Indicate different landscape and hardscape concepts and forms.
5. Illustrate views to and from the facility and describe the conceptual design response with site, program and public perception.
6. Block diagrams (floor plans) for each proposed floor level. Repetitive levels may be grouped.
7. At least two sections, perpendicular to each other at same scale as plan/block diagrams and establish vertical control.
8. Exterior elevations, blocking out to illustrate massing and context while avoiding detail.
9. Larger scale (1/4"=1'-0") drawing of repetitive modules such as individual offices, medical exam rooms, or dormitories are part of the project should be included, if applicable. Provide larger scale drawing of complicated rooms such as kitchens.
10. In the case of additions or renovations to existing buildings, plans showing existing and proposed facilities in their relative arrangement and relationship. Provide a brief description of the existing construction and systems and indicate the present and former uses of the facility.
11. Proposed accommodations for the handicapped, as regards both program needs and code requirements.
12. A general description of architectural, engineering, and construction concepts, and the architectural, structural, plumbing, fire protection, mechanical (HVAC), communications, electronics and electrical systems to be used.
13. A listing of codes to which the projects design complies.
14. A fact sheet indicating names, addresses and phone numbers of the Owner, User Representative, Architect and consultants.
15. A statement that the Department of State has been contacted and that any conflicts between the project and conservation or historical interests of the Department have been or are being resolved. This contact should be made with the Compliance Review Staff, Historic Preservation Section, Division of Historic Resources, Department of State, R.A. Gray Building, 500 South Bronough Street, Tallahassee, Florida 32399-0250.
16. 17. Provide Cost Analysis.
17. Provide Schedule Updates.

### ***C. Advanced Schematic Phase Requirements***

Shall include, but not be limited to the following:

1. For complex projects over \$2,500,000, provide a Basis of Design Booklet (or binder) explains the basis of design and demonstrates the design solution satisfies the program. The basis of design shall summarize the opportunities and constraints influencing the

design and the rationale behind design. The booklet will also serve as a vehicle to acquaint interested upper management and lay persons with the particulars of the project.

Following is a suggested outline for the Basis of Design Booklet:

- a. Introduction - Provide a brief description of the project scope, purposes, data sources and contents. Provide a fact sheet indicating names, addresses and phone numbers of Owner, Client, Agency Representative, Architects and consultants.
  - b. Goals - Provide a statement of the architect's understanding of the owner's primary project objectives stated in terms of function, form, quantity, quality, economy, and time.
  - c. Facts - Identify pertinent data, amenities, configuration and operations including general site planning, functional organization, design, site use and development. Identify existing facility's structural, mechanical, and electrical systems. Describe existing zoning and its restrictions, any other site factors controlling development, and recommendations for resolving them. Identify and present code requirements and local authorities and other state agencies that have jurisdiction. Report specific problems encountered in conforming to these codes or any problems, which may arise in satisfying these permitting agencies, as well as solutions, waivers or variances if any being pursued.
  - d. Needs - Provide space and functional program requirements, schedule requirements, and compatibility with established budget requirements.
  - e. Problem Statement - Provide summary statements identifying unique and essential project design and construction criteria and which of these criteria the Design Professional perceives as key design determinants.
  - f. Provide a preliminary project description. Describe major site, architectural, structural, and mechanical, clearly illustrating the Design Professionals response to the key design determinants identified above, plumbing, fire protection, and electrical systems with proposed construction products and materials. Include off-site improvements if applicable. Provide a description of the features and provisions provided in the facility for use by disabled persons. Provide a description of life safety circulation, existing areas of refuge, and smoke and fire zones.
  - g. Provide cost analysis and project schedule.
  - h. Appendix - Provide relevant information such as owner's directives, relevant correspondence, and graphical data referenced in document, functional diagrams, space planning tables, and reduced drawings.
3. A plan showing that the project fits into the master plan for total facility development, if applicable.
  4. Site plans showing existing and proposed roads, walks, circulation elements, onsite and off-site utility systems, accessible route(s), plantings and special site features. Include flood plain considerations.
  5. Studies and reports relative to site and its topographical, ecological, botanical and other features contributing to the solution or requiring significant alteration of the existing site.

6. Floor plans indicating accessible route(s). Provide a plan for each proposed level. Repetitive levels need not be shown separately but may be grouped. Horizontal control dimensions should be indicated.
7. If the project is an addition, or is otherwise related to existing buildings on the site, the plans shall show such facilities and their general arrangement and relationships, and clearly indicating existing, new and existing to be removed elements.
8. A life safety plan indicating class of construction, occupancy, exiting patterns, exit width calculations, smoke compartments (if applicable), and fire ratings for walls, doors and other openings. If smoke control systems are planned, so indicate. Provide plan at same scale as floor plan.
9. Provide enlarged floor plans and interior elevation studies of typical repetitive modules such as individual offices, medical exam rooms or dormitories, if applicable. Complex areas such as kitchens should also be enlarged at 1/4"=1'-0" scale or larger, if applicable. The footprint, volume and organization of repetitive components should be established along with plumbing, HVAC, and electrical services.
10. Furniture and movable equipment layouts shall be shown for all spaces where they are located.
11. Building sections at least two perpendiculars to each other and at the same scale as the floor plans. Provide dimensions to establish vertical control.
12. Exterior elevations the same scale as the floor plans.
13. Structural framing plans at the same scale as floor plans and indicate primary vertical and horizontal structure.
14. HVAC plans at the same scale as the floor plans showing proposed distribution for primary vertical and horizontal HVAC systems, including shafts and schematic arrangement of primary equipment.
15. Plumbing plans at same scale as floor plans and indicate primary plumbing risers, chases, fire service risers, roof drains and overflows with storm-water leaders and proposed primary horizontal distribution, including location and schematic arrangement of primary equipment.
16. Electrical plans at the same scale as floor plans. Indicate vertical and horizontal electrical primary and stand-by power and communication distribution, including locations and schematic arrangement of primary equipment, switchboards and panel boards.
17. Details of non-typical construction, materials and building components.
18. Provide project product material binder and specification notebook based on design decisions reflected by the schematics arranged in C.S.I. format.
19. When required by your contract, provide presentation materials including study sketches, perspectives, and other drawings as appropriate to convey design intent; provide study model(s) when appropriate.
20. Provide Cost Analysis.
21. Provide Schedule Update.

#### ***D. Comment And Approval***

After the presentation meeting, or upon receipt of the submittal, the Project Manager will coordinate the review and, if appropriate, approve the schematics. Approval of schematics by the Project Manager is required before proceeding to Design Development.

A schematic phase approval is given with the explicit understanding that all expectations of the program, codes, rules, regulations, and laws will be capable of satisfactory evolution in later phases and the economic constraints of the budget will not be exceeded.

#### ***E. Response To Facilities Management Review Comments***

The Design Professional shall respond in writing to FACILITIES MANAGEMENT review comments using the format provided or specified by the Project Manager. The response shall be submitted to the Project Manager. Any other changes in the design contemplated by the Design Professional as a result of the review comments shall be noted in the response.

### **1.03 LIFE-CYCLE COST ANALYSIS SUBMITTAL**

This submittal is required for energy consuming or HVAC equipment in buildings over 50,000 gross square feet. After schematic approval, but prior to submittal of Design Development, the Design Professional shall submit at least three HVAC or equipment schemes and life-cycle analysis results for review and approval. (ref. FS 255.251 - 255.254) The analysis shall comply with the Florida Energy Modeling Program (FEMP) procedures. The submittal shall be bound and include the project number, project name and relevant data, results, FEMP summary sheets, the engineer's recommendation concerning the scheme with the lowest life-cycle cost, and the engineer's signature and seal.

This submittal is considered additional services only when complex/multiple systems are evaluated. Otherwise, it is considered a necessary part of basic design services required to arrive at a comprehensive design solution. To minimize the cost impact, the engineer should utilize the same FEMP approved software for calculating the building heating and cooling loads for the lifecycle cost analysis.

### **1.04 DESIGN DEVELOPMENT**

All design decisions shall be documented in design development, as these documents when approved will provide the basis for Construction Documents. At the completion of Design Development, it is expected that all design, technical, administrative and cost challenges will have been resolved and that there will be no carry over of design or basic research to the next phase. The Design Professional shall present enough documentation to fully explain the quality level decisions and solutions that have been reached. This documentation shall consist of drawings, specifications, perspectives, models, cost estimates, material samples, color boards and a booklet of design criteria such as sketches, calculation, notes and economic or engineering analysis. Specification cut sheets for lighting, plumbing, hardware, HVAC equipment, architectural specialties, special equipment, and other key elements are to be included.

Any conferences needed with the User or other agencies having jurisdiction, either in the office or on site, shall be coordinated with the Project Manager. The Design Professional will provide minutes of each meeting to the Project Manager, with copies to all attendees.

The Design Professional may arrange a formal review meeting. The meeting may be attended by the Project Manager, the User, and other assigned review staffs. The Design Professional a week prior to the meeting shall send the contracted number of copies of review materials to the invitees. At the meeting, the Design Professional will explain the design and the decisions that have led to it. The Design Professional will explain how the design meets the requirements of the program, with particular emphasis on space allocation, function, budget, codes, engineering concepts, and local building requirements. The Design Professional shall complete and provide minutes of the meeting to the Project Manager with copies to other attendees.

**A. *Site Submittal Requirements***

- a. The information pertaining to the site and its development should be presented as an entity passing across professional disciplines.
- b. Informational data - Location plots, property and topographical surveys, subsurface boring logs and plans, ecological and botanical surveys, easements, zoning and other appropriate information.
- c. Master Plan - A copy of the master plan, indicating the location of the project and total scheme, if applicable.
- d. Flood Hazards - In accordance with Section 255.25(6) show that the proposed construction is in compliance with the flood plain management criteria for mitigation of flood hazards, as prescribed in the rules and regulations of the Federal Emergency Management Agency or what is to be designed and constructed to bring the proposed construction into compliance therewith.
- e. Environmental consideration - Necessary design data, specifications, and cost estimates for preservation, dust, erosion, sedimentation and run-off control, where applicable, as an integral part of the design and construction project. Such controls will be limited to the area involved in the construction operation and those required by applicable ordinances, rules laws, etc. Environmental control is not to be confused with landscaping. The information provided will include statements regarding the type of treatments selected, the affected areas, and the reasons for the selection of the type of controls chosen.
- f. Grading and Site Development - The data provided, in addition to the proposed development, should include a statement of the general soil conditions with a brief outline of the soil exploration and testing performed.
- g. Site Construction - All permanent features to be constructed on the site. Indicate on plans footprint of buildings and different design disciplines.
- h. Roads, Walks, Parking, and Handicapped Accessibility - Indicate the type and volume of traffic, speed limit on roadways, controlling wheel loads, and classes of surfacing under consideration, with justification for same, any deviation from criteria for those classes. Parking requirements per code, program, occupant load, etc. Provide for handicapped accessibility in the site elements and to the building in accordance with applicable codes.
- i. Utility Services - All existing and proposed utility services including runs, locations, capacities, sources, characteristics, materials and installation methods should be fully described. The energy sources (gas vs. electrical vs. solar, etc.) should be evaluated for the equipment to be installed. Indicate on site utilities plan above and below ground utilities, points of connection to off-site services, buildings and facilities. Distinguish between existing and new work with different line types or tonal qualities.

- (1) Electrical: A statement relative to the adequacy of the primary supply at the point of takeoff. If the source is inadequate, state measures proposed to correct the deficiency. Design Professional should determine electrical demands and the consumption profile of the proposed electric utility (and possibly with competing companies) for the most advantageous rates, including off peak loading, reducing demand charges etc. Address grounding and lightning protection requirements and solutions. Electrical site plan should show lighting and site power locations, service locations and sizes.
- (2) Fuel distribution and storage information shall include the following:
  - (a) Fuel Gas; including a statement of type, location and size of take off from supply, and available pressure; statement of type and material for pipes and valves; and list applicable codes for installation, permitting, licensing, maintenance and future replacement and a statement indicating compliance and impact Including DEP/Fire Marshal/Etc. certifications and compliance requirements.
  - (b) Liquid Petroleum Products; including statement of type, location and size of takeoff from supply, and available pressure; description of the type of system and proposed features; statement of the basis for storage capacity, rate of pumping, and number of dispensing outlets; description of power supplies and power requirements; selection of type of materials for pipe, tanks and valves; list applicable codes for installation, permitting, licensing, maintenance and future replacement, and a statement indicating compliance and impact; and list applicable codes for installation, permitting, licensing, maintenance and future replacement and a statement indicating compliance and impact including DEP tank certifications and compliance requirements.

Note: Tanks over 550-gallon capacity shall comply with Florida Administrative Code Chapter 62-761 for above-ground tanks and 762 for below-ground tanks. Tanks shall be double-wall construction and not less than 550 gallons to reduce frequency of refilling. Contact Facilities Management for questions regarding tanks.

- (3) Domestic water and fire protection: Plans shall show source, minimum and maximum pressure at each building and in the system, and an explanation of the existing system covering particularly the type, capacity, present flow, condition, present water use, and unsatisfactory elements of the component parts; statement of the type of construction proposed, materials for water mains, or wells, etc; the distribution system, a statement of design, domestic and fire flow usage of well pressure, elevation differential, and the designer's preliminary estimate of tentative pipe sizes; a statement of tentative sizes, elevations, capacities, etc. as can be readily determined without long computations or design consideration for reservoirs, treatment units, plumbing plants, well pumps and such units; fire mains conforming to all applicable codes; separate fire mains from potable water supply by a listed backflow preventer; and source, availability and adequacy of fire protection water supply by obtaining test data from local authorities on flow and pressure of existing or proposed water supply systems; sewers and sewage disposal systems:
- (4) Information provided shall include an explanation of existing systems, particularly the type, capacity, condition, present flow, and unsatisfactory elements or components; the interpretation of the degree of treatment necessary by field requirement and units necessary for treatment; a statement of the design factors with present design population per various units for the sewage treatment plant; statements

of materials to be used for the sewage system, sewage collection system, and the sewage treatment plants; means of effluent disposal.

- (5) Storm water retention, detention and conveyance system shall include an explanation of the existing system covering particularly the type, capacity, condition, and unsatisfactory elements or components; a statement of the type of construction proposed, material, etc; a statement of the design requirements, calculations and tentative pipe sizes.
- (6) Chilled water supply and return with indication of connection points shall be indicated on plan.
- j. Electronics and instrumentation shall include system engineering concepts; site and location considerations; antenna requirements such as types, separation, heights, aircraft clearance, and area requirements; site communications and control linkages; electronic security considerations.
- k. Cathodic protection - In addition to the proposed design, provide results of soil resistivity measurements; variations in soil make-up; soil moisture content and normal seasonal variations; results of temporary cathodic protection tests, if any; and results of structure to soil potential measurements where protection is to be provided.
- l. Site irrigation systems - Provide tentative layouts, materials, sizes, etc. Utilize the parameters outlined in Florida Statute 373.185 and local Xeriscape ordinances.
- m. Fencing - type, height and justification for fencing.
- n. Landscaping - provide preliminary data on plant species, size and massing layout. Utilize the parameters outlined in Florida Statute 373.185, local Xeriscape ordinances. Landscape plan shall include planting lighting, landscape, hardscape, site furniture and recreational elements.
- o. Lateral and transverse sections through the site shall indicate development of the site, when it is necessary, due to substantial elevation changes or circulation at more than one level.
- p. Any other special consideration pertinent to the site and its development.

#### ***B. Building(s) Submittal Requirements***

Each building should be fully described. Drawings should be organized for subsequent use as contract document drawings. Include title sheets with zoning, building, fire, life safety, plumbing, mechanical and electrical code summaries and calculations; area and location maps; and a drawing index. The information should include, but not be limited to the following:

- a. Architectural drawings shall include:
  - (1) Abbreviations, symbols, legends, room numbers, room material code index (if used), keynotes and general notes; key Floor Plans ; a plan of each floor with dimensions, room names, room numbers, room material codes (if used), wall and partition type indications, ceiling heights, openings (i.e. window, door, and louver locations with symbols), plumbing fixture locations, casework, collateral equipment, building specialties, shafts, chases, suspended slab openings, and depressed slab locations; large scale (1/4" to 1/2" per foot) floor plans, reflected ceiling plans, and elevations of typical repetitive elements (i.e. exam room, offices, dormitories etc.): life safety plans indicating the class of construction, occupancy, exiting patterns, exit widths and

calculations, smoke compartments (if applicable), and fire ratings for walls, doors and other such openings, exit signs, and fire detection and protection devices. If smoke control systems are planned, so indicate; reflected ceiling plans with light fixture locations and ceiling materials; coffers, vaults, domes, and other special constructions; and operable partitions; roof Plans showing all equipment locations, penetrations, slopes and drainage; interior elevations; transverse and lateral sections through the building, indicating heights, vertical circulation, and relationship. The finished floor elevation of each level should be given; exterior elevations, giving floor elevations at each level and showing finish materials; exterior wall sections and details necessary to indicate the methods of construction and to determine the overall "U" values achieved as required; preliminary opening schedules (e.g. door, window and louver) and all sizes, types, constructions, finishes, hardware, frame types, and fire ratings; wall and partition schedules; preliminary architectural finish and color schedules - applied finish colors may be omitted at this phase (if a third party interior designer is involved, ensure that the architectural room finish schedule differentiates between architecturally selected finishes and interior designer selected finishes; indicate where interior designer finishes are documented; conventional and accessible toilet accessory schedules with fixture related mounting locations and heights; toilet partition types and supports; casework and countertop locations, profiles, configuration, and materials; architectural woodwork location, profiles, and materials; building specialties with their locations; exterior horizontal and vertical closure and roofing systems; horizontal and vertical circulation including chutes, shafts and their fire ratings and their ancillary and equipment spaces; fire-resistive assemblies and their locations; sound-rated assemblies, including operable partitions and their locations; provide for handicapped accessibility to all areas of the building in accordance with applicable codes. Any exceptions shall be documented in writing, discussed and agreed upon; area recap and square footage should be indicated for the project in comparison to that required by the program; provide list of all safety equipment, including cost that has been included in the project; other information considered necessary for the development of the program or explanation of the design, including a threshold building statement as defined in Section 553.71 Florida Statutes; the formal architectural rendering, if required by your Contract, should be submitted after approval of the Design Development documents; with Design Development, provide color schemes and schedules for all areas, interior and exterior. Material and sample palettes shall be provided, including exterior materials; sketches as necessary to portray the design concept; a description of the materials used for all major items of construction.

b. Structural:

- (1) A description of foundation conditions, types of foundations to be used, the method by which the allowable bearing value is to be determined, and the maximum allowable bearing capacity for the foundation; statement as to the type of construction adopted and reasons therefore with capacities, dimensions, or other size criteria; floor plans showing structural foundation systems and sub-slab construction, horizontal and vertical framing systems showing slab (or equivalent) edges, suspended slab openings, depressed slab locations, lateral load cross bracing, and typical construction details. Indicate proposed length and spacing of principal members, etc. Note floor elevations; the description of the structural roof system proposed with principal members' dimensions, etc; provide structural building sections, transverse and longitudinal, indicating vertical relationships and headroom; note limited load

carrying capacities and statement of live loading to be used, including floor loads, wind, earthquake, etc., with justifying data; provide calculations and design criteria when requested; a statement of any special considerations that affect the design; provide general notes, but do not duplicate info in specs.

c. Heating Ventilation, Air Conditioning (HVAC):

- (1) Provide floor plans showing major plant equipment sizes and locations, heating and refrigerant supplies and returns, air-handling equipment locations and air-handling distribution, air-handling supply systems and discharge locations and sizes, air handling exhaust systems and intake locations and sizes, shafts and chases. Provide exhaust and ventilation riser diagrams for multi-story buildings or those with complex systems;
- (2) Provide sections showing equipment and locations of ductwork;
- (3) Energy Conservation - Provide assumption, calculations, and criteria in the form and detail required to fully convey the design intent and show compliance to the Florida Building Code. For projects over 5,000 square feet, the HVAC Design shall reflect the lowest life-cycle cost alternative resulting from the lifecycle cost analysis;
- (4) Provide full description of the energy management control systems (EMCS) proposed for use including current and future capabilities;
- (5) Heating systems: Statement of indoor and outdoor design temperatures and "U" factor for walls, ceilings, floors, etc., to be used in design; heating medium, such as steam, hot water, baseboard, forced warm air, unit heaters, etc; type of heating system such as converter, baseboard, forced warm air, unit heaters, etc; types of building temperature control, and energy management control systems; location and type of heating plant; brief explanation of the basis for selection of type of fuel, including an economic comparison with other fuels; provide heat in all buildings with full-time occupants within the state. Deviations shall be requested in writing.
- (6) Ventilation: Statement of type of system and the design intent; show in the Design Development documents the selected design approved for maintaining indoor air quality (such as outdoor air quantity, recirculation through air purification devices, etc.). Provide a building ventilation schedule and a floor-by-floor air balance schedule to demonstrate positive building pressure; indicate the ventilation air quantity during cooling and heating seasons, assumptions, occupant load, calculate the critical space and adjust outside air quantity accordingly, and specify the code-compliance methodology; demonstrate compliance to ASHRAE 62. Delineate assumptions; show each space ventilation flow-rate based upon occupancy, ratio of ventilation to supply air, critical space, and calculation to determine the final outside air flow-rate per equation 6.1.e.
- (7) Air conditioning: Provide a brief description of the air conditioning system proposed, such as factory assembled or built-up system, variable air volume (VAV), variable-volume variable-temperature (VVT), constant air volume (CAV) (acceptable only in small spaces and/or where outside air pretreatment system is used), number of zones (if applicable) or unit type, chilled water system, or direct expansion, type of refrigerant, etc; list and describe areas to be air-conditioned; list applicable code standards and editions approved by the Authority Having Jurisdiction, e.g. FBC 2004, and/or other governing requirements such as ASHRAE. Delineate inside design temperatures and relative humidity, outside wet- and dry bulb design temperatures, "U" factors for the roof, walls, windows, and/or type of construction proposed and a

statement of the economics of applying insulation and/or sunshades; description of equipment to be used such as reciprocating or centrifugal compressor, condenser, air-handling equipment, duct system piping, etc; type of building temperature control system, such as electric, electronic or pneumatic and sequence of operation.

- (8) Refrigeration (cold storage): Statement of areas to be refrigerated, indicating their usage, and temperatures to be maintained; outside design dry and wet bulb temperatures; type of refrigeration equipment; type and thickness of refrigeration insulation.

d. Electrical

- (1) Indicate electrical service entrance power characteristics such as phase, voltage, configuration, transformer requirements, etc.
- (2) Indicate electrical characteristics, such as phase, voltage, number of wires, etc., of each circuit. Provide a breakdown of the estimated connected load to show: Lighting and convenience outlet load; power load for building equipment such as heating, air conditioning, etc; loads for special operating equipment such as compressors, x-ray equipment, pumps, etc., and for power receptacles being provided to energize special equipment. Apply an appropriate demand factor to each, to compute a total demand load.
- (3) Indicate the location of the main switchboard or power panels, light panels, transformers and all equipment panels. Indicate type of wiring system, such as rigid conduit, electrical metallic tubing, etc., and where proposed for use. The type of conductors and insulation, etc., and their proposed location. Specify breaker types and acceptable/reasonable ampere-interrupt capacities for the required service. Show the location of all lights, power outlets, switches, GFCI, etc. Describe the proposed pertinent standards of design such as voltage drop, lighting intensities, and types of lighting fixtures, in accordance with lifecycle cost analysis. Describe the short-circuit duty required for all protective devices and switchgear. Indicate the requirements for the emergency electrical system. Ensure that the electrical information for the facility is fully coordinated with the site electrical requirements and with the low voltage communications systems requirements. Describe the lightning protection system. Indicate resistance and continuity tests to be performed. Indicate the requirements for surge arrestors. Show the location of nurses' call stations, tamper proof receptacles (when required), etc. Provide any other information deemed necessary. Show the building grounding system and indicate the performance criteria the system is to achieve.

e. Communication, electronic and instrumentation provisions

- (1) Provide sufficient information, including engineering concepts for review purposes of the systems proposed, i.e. - intercom system, telephone system, public address system, radio and antenna systems, television antenna systems, protection alarm systems, respond tie-ins and any other data or systems deemed necessary. Indicate equipment selection. Site or location considerations for equipment. Required radio paths and propagation. Antenna requirements such as types, separation, tower heights, aircraft clearance, and area requirements. Antenna transmission lines, terminations and switching. Bonding and grounding requirements. Communication, control cables and radio links. Test equipment, repair shop and spare parts storage requirements. Equipment and instrumentation arrangement and space requirements indicating requirement for racks, consoles, and for individual mounting. Wiring and cable

requirements plus terminations. Power and lighting requirements, including emergency or standby requirements. Air-conditioning requirement, including humidity and dust control requirements. Interference and clearance requirements.

f. Plumbing

- (1) Provide preliminary layout of utility lines and building construction service lines with elevations and sizes fundamental to design. Provide fixture schedule and floor plans showing domestic hot and cold water supplies and returns, major horizontal and vertical services, the location and sizes of fixtures, equipment and the number of person served. Preliminary building sections showing riser and branch lines, fixtures and equipment. Provide the estimated number of fixture units, demand and GPM for all plumbing fixtures. Provide the estimated minimum and maximum water pressure at each building. Indicate the type of heater and capacity for hot water supply, when hot water is authorized. Indicate requirements for acid dilution tanks (laboratory waste), grease separators (foodservice wastes), etc. Additional details as necessary to describe or clarify any other conditions.

g. Fire Protection

- (1) Indicate service hydrants, post indicator valves, stand pipes and test valves. Indicate risers and provide a riser diagram. For sprinkler systems, indicate the hazard rate of occupancy, the type of sprinkler system (wet or dry), and the water volume, pumps and pressure required. Delineate any special system such as carbon dioxide, foam, etc. that will be required. Layout sprinkler head coverage based on current codes. Indicate type of protection for sprinkler pipes and heads located in unconditioned spaces.

h. Special Equipment

- (1) If equipment is to be purchased by others, indicates N.I.C (not in contract), and specify who is to assemble, set-up and provide the utility rough-ins and final connections of this equipment. Indicate all equipment, such as: kitchen equipment; auditorium seating; stage curtain; equipment gym layout equipment; window coverings; hospital equipment; lawn irrigation equipment; vacuum cleaning systems; material handling equipment and telephone/data communication systems

**C. Base Bid And Alternates**

The Design Professional should recommend the scope of the base bid and the additive alternates proposed in order of priority to receive a base bid within budget. Alternates must be listed in order of priority and will be awarded in that sequence as funds allow. The base bid must be structured so that the project will function as intended if the alternates cannot be awarded.

**D. Basis Of Design Booklet**

Update Basis of Design Booklet from schematic phase but no need to update preliminary project description. Booklet should include an estimate of probable construction cost with the Design Development submittal. This shall be compared with the Owner's approved budget.

Booklet should also include an area analysis of the project. This shall be compared to the approved program. The area analysis should include the net and gross square footage and efficiency factor by floor and overall.

**E. Draft Specifications**

Provide draft specification arranged according to C.S.I. format.

**F. Project Product Binder Material**

Update product binder from schematic phase and update with the addition of new materials and products as they are selected.

**1.05 CONSTRUCTION DOCUMENTS**

For bid projects, the latest edition of the Facilities Management non-technical specifications will be provided by the Project Manager at the start of the construction document phase.

At completion of 100% Construction Documents it is expected that all design, technical, administrative and cost challenges will have been resolved and that there is no carry over of work from this phase to the bidding phase.

**A. Drawing Requirements**

1. General - The Design Professional should ensure that the drawings are final and complete with all elements thoroughly checked and coordinated to ensure that there are no conflicts between architectural, structural, mechanical, electrical, civil and other portions of the work. Particular emphasis shall be placed on coordination when elements of the design are performed under subcontract to another firm. The drawings should be prepared so that Change Orders to Construction Contracts will not be necessary due to errors, omissions, inadequacies, lack of coordination among the various design disciplines or conflict between various component parts or with the specifications. When applicable, following design data should be shown on the drawings, i.e.:
  - a. Occupancy classification of all areas both for Building Code and NFPA 101.
  - b. Floor areas and occupancy classification areas in square feet.
  - c. Loads - Roof and floor live loads, wind loads for roof, walls, fenestration, etc. and total loads.
  - d. Basic working stresses for - concrete, structural steel, wood, concrete block, masonry.
  - e. Foundations - Allowable soil pressure for spread footings and bearing value for piles.
  - f. Means of egress - Identify clearly on drawings.
  - g. Construction type and occupant loads.
  - h. Smoke partitions
  - i. Fire and smoke barriers with fire resistance ratings as appropriate.
  - j. Details of fire stopping for all penetrations
  - k. Sprinkler system design criteria; head locations and riser diagrams
2. Media: Unless otherwise instructed, the drawings should be prepared by AutoCAD (Computer Aided Design & Drafting) version 2000 or later. FACILITIES MANAGEMENT requires electronic copies of plans and specifications for both the contract and record-set documents. Each AutoCAD (.dwg) drawing file shall be bound with

no extraneous X-refs such that it can be opened in its entirety by the end user via the CD media. All .dwg files shall be saved to one properly labeled CD.

3. Lettering: Lettering size should be a minimum of 3/32" high.

**B. *Specification Requirements***

1. General: The specifications shall be comprehensive and address all facets of requisite construction, tailored to the specific project, complete and final with all elements thoroughly checked and coordinated. Particular emphasis should be placed on the coordination of various elements of the specifications or portions of the specifications prepared under subcontract to another Design Professional.
2. Standard specifications: Maximum use shall be made of standard materials and methods of construction and standard specifications. Specifications for classifications of work and material issued by an approved association, such as ASTM, and ASME, etc., may be included. Each referenced specification must be examined, before its use, to ensure that it is suitable for its intended purpose and that proper choice is made of the options given in it. Federal and military specifications may be used. When a small quantity of material is needed and a standard commercial product would be suitable, reference to a standard specification should not be made. WHEN SPECIFYING BY PRODUCT, MODEL NUMBER, ETC., THREE ACCEPTABLE MANUFACTURER'S PRODUCTS SHOULD BE SPECIFIED (YOU MUST ASSURE THAT EACH MANUFACTURER LISTED DOES IN FACT MANUFACTURE AN EQUIVALENT PRODUCT). HOWEVER, WHEN THIS IS NOT POSSIBLE, THE WORDS, "OR ARCHITECT/ENGINEER APPROVED EQUIVALENT," MUST BE INCLUDED WITH THE ONE OR TWO SPECIFIED PRODUCTS. SOLE SOURCE SPECIFICATIONS ARE NOT ALLOWED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER. In referencing standard specifications, the following rules should be followed:
  - a. Avoid reference to specific paragraphs in the standard specifications, since it limits the requirements to the paragraph referenced.
  - b. Avoid repeated references to a standard specification within the same section
  - c. Specify types, classes, weights, and similar applicable characteristics required to ensure an accurate description.
  - d. The Design Professional shall submit a copy of each referenced Standard specification when requested by the Project Manager.
3. Code Compliance: Include in the Construction Documents a complete listing of applicable codes and regulations with current edition dates. Refer to paragraph 4.06N for the source of these codes.

**C. *Additional Submittal Information***

1. Statement of codes and ordinances – submit a final list of all applicable codes and ordinances showing their version and data with a sealed certification of compliance.
2. Final Area Analysis: - provide a final comprehensive listing of all spaces contained within the building(s) and compared with the facilities program. Show net assignable areas and final net/gross computation.
3. Statement of probable construction cost and Final Schedule as described in Section 1.01.

***D. Signatures And Seals***

The Design Professional shall submit bid documents and final drafts of reports under the signature, seal, and date of the principal in charge, representing each firm performing services on the project. This shall be done in accordance with the rules of the respective Board for that registered profession.

**1.06 OTHER BASIC REQUIREMENTS**

AS THE DESIGN PROFESSIONAL, YOU PLAY A KEY ROLE IN A SUCCESSFULLY MANAGED PROJECT. YOU ARE EXPECTED TO KEEP BOTH FACILITIES MANAGEMENT AND THE USER INFORMED OF THE SCHEDULE AND STATUS OF THE PROJECT. YOU ARE EXPECTED TO BE AWARE OF ALL THE LAWS, CODES, RULES, ORDINANCES AND PERMITTING AUTHORITIES HAVING JURISDICTION OVER YOUR PROJECT. You are expected to anticipate the projects' need for additional information or services (such as soil borings, surveys, asbestos testing, etc.). You are expected to alert the Project Manager and initiate any proposals for additional services that are not a part of your basic architectural/engineering contract.

## **2.00 PLAN REVIEWS AND APPROVALS**

At each design phase, as called for in your Agreement, the Design Professional shall submit documents to the Project Manager, the User, and other reviewing Agencies for approval. In order to keep the process moving as quickly as possible, the Design Professional should transmit copies to all entities directly. The best method is to address the transmittal letter to the Project Manager, and at the bottom of the transmittal show copies with attachments to the other applicable Agencies. Likewise, each Agency may respond directly back to you and should copy the appropriate Project Manager and User with their comments. (If you do not see the Project Manager copied on another entity's response, call your Project Manager to see if comments were received). This simultaneous distribution and commenting may cause some duplication or conflicts, but the time saved is advantageous. Face-to-face plan review meetings (see Section 4) can be beneficial in getting comments and approvals quicker and in getting problems resolved. The Design Professional should discuss this with the Project Manager prior to the phase submittal.

### **2.01 LEON COUNTY PROJECT MANAGER**

The FACILITIES MANAGEMENT Project Manager will review documents with an emphasis on function, program, budget, aesthetics, design quality, schedules and construction materials. The FACILITIES MANAGEMENT Project Manager will coordinate the comments of others and help resolve any conflicting comments. The approval of a design phase submittal is issued only after the Project Manager is satisfied that the documents meet the requirements for that phase and that all others' comments have been resolved or answered. **DO NOT PROCEED INTO THE NEXT PHASE WITHOUT WRITTEN APPROVAL OF THE FACILITIES MANAGEMENT PROJECT MANAGER.**

### **2.02 OTHER AGENCIES**

The following is a list of some of the regulatory agencies that should be coordinated with by the Design Professional and to whom plans submittal shall be made if applicable:

- User
- Water Management Districts
- Local Authorities for zoning, comprehensive planning and land use development permits
- DBPR Bureau of Elevator Inspections

## **3.00 BIDDING AND CONTRACT AWARD**

*(Design/Bid Projects Only, except as noted)*

### **3.01 APPROVAL TO BID**

Once the 100% Construction Documents have been reviewed and approved by all, the Project Director will issue FACILITIES MANAGEMENT's approval of the submittal. Some entities may issue their approvals directly.

At this point, the bid time and location is to be established by Leon County's Division of Purchasing. The design professional shall provide one unbound set of approved construction documents and specifications to the Leon County Division of Purchasing.

### **3.02 MINORITY SET-ASIDES OR PARTICIPATION REQUIREMENTS**

At times, FACILITIES MANAGEMENT may set-aside projects for bidding only by CERTIFIED MINORITY BUSINESS ENTERPRISES (CMBE). On all other projects each bidder should make every effort to include sufficient CMBE participation. A listing of State of Florida CMBE suppliers and subcontractors may be obtained through the Department of Management Services, Office of Supplier Diversity.

### **3.03 RECEIPT AND OPENING OF BIDS**

Transmission of bids may be by hand, mail or other courier. **FACSIMILE BIDS OR MODIFICATIONS ARE NOT ALLOWED.** No bid is to be accepted after the published time of bid opening has passed. Only bids from qualified bidders will be considered for the award of the contract. The Project Manager will receive and open the bids at the appointed time and place in accordance with the procedures established in Chapter 60D-5. This duty may be delegated to the Design Professional. The Design Professional shall attend and assist in the bid opening and supply bid tabulation forms (obtained from the Project Manager) for the bidders use during the bidding. The Design Professional shall be responsible for completing the bid tabulation and recording the minutes for the bid opening. The Design Professional shall indicate in ink the submission of all required documents by a check in the proper column and the price quotations of each bid as read aloud. The Project Manager, the User representative (or another witness present) and the Design Professional shall sign the bid tabulation sheet. The completed tabulation is to be given to the Project Manager. After the bid opening, the Project Manager, Design Professional and User will confer to determine what contract award they will recommend. If a recommended award can be made, the Project Manager will post the Bid Tabulation and Notice of Award Recommendation at the place of the bid opening. The Project Director will give the Design Professional a copy of each bid and the tabulation. The Project Director will then submit the bids through the Regional Office to the Contracts Administrator.

### **3.04 AWARD RECOMMENDATION**

For level 4 and 5 projects (projects over \$200,000), the Design Professional must review and evaluate the Low Bidder's "Experience Questionnaire and Contractors Financial Statement" qualification data following the bid opening. This form is found in the Non-technical Specifications. All data submitted by the low bidder shall be forwarded simultaneously to the Project Manager and evaluated concurrently by FACILITIES MANAGEMENT. The Design Professional shall review the low bidders proposed management staff, references and capability to perform the project and shall make a recommendation to the FACILITIES MANAGEMENT Project Manager. The low bidder will be judged as either qualified or unqualified. Should the bidder be judged unqualified that bid will be rejected and the bidder submitting the next lowest responsive bid will be given two calendar days to submit the required qualification data. The Design Professional shall write to the Project Director making his recommendation.

### **3.05 CONTRACT PREPARATION**

After the award recommendation has been determined, the Contracts Administration Section will prepare the contract documents and send them to the Contractor for bonds, insurance, signing and sealing. After the Contractor completes the contract documents, the Contractor returns all copies to the Contracts Administrator for execution and distribution.

The award of a contract does not give authorization to proceed to construction. THE CONTRACTOR SHALL BE CAUTIONED BY THE DESIGN PROFESSIONAL THAT WORK SHALL NOT BEGIN UNTIL THE BUILDING PERMIT, ALL OTHER NECESSARY PERMITS AND THE NOTICE TO MOBILIZE ON SITE AND PROCEED WITH CONSTRUCTION IS RECEIVED.

## **4.00 PERMITTING (All Projects)**

### **4.01 BUILDING PERMITS**

Projects shall be designed and permitted in accordance with the Florida Building Code and Florida Fire Prevention Code.

The building Contractor must obtain a building permit, except in certain locations as referenced herein, from the authorities having jurisdiction over the project, prior to starting work. In order for the Contractor to initiate this permit process he must first obtain multiple complete sets of signed and sealed final Construction Documents with all addenda from the Design Professional. The building Contractor then signs the cover of each document and submits them with a permit application to the local authority having jurisdiction.

### **4.02 OTHER PERMITS AND APPROVALS**

It is the responsibility of the Design Professional to determine which other authorities have jurisdiction, assure that the development of the project is fully coordinated with these agencies and see that their requirements are accommodated in the documents so that all approvals can be readily obtained. This coordination begins with the schematic design and must be completed prior to taking of bids so that delays in start of construction do not occur. Some agencies require fees for permits and approvals. Discuss this with your Project Manager. FACILITIES MANAGEMENT may be able to pay these agencies directly through electronic transfer of funds for these fees. This should be coordinated with the submittal of the permit application by the Design Professional.

#### ***A. Department Of Environmental Protection***

The Department of Environmental Protection is responsible for the implementation of Chapter 403, F.S., concerning pollution control of the environmental water supply and discharge. To meet the intent of the law, Department of Environmental Regulation has issued several rules of the DEP-62 series and some require permits. There are similar rules regarding storm-water and wastewater requiring permits. The Design Professional should ensure that the design meets the requirements of all Department of Environmental Protection rules applicable to the project.

#### ***B. Zoning And Comprehensive Planning***

All local government, as required by Part II of Chapter 163, F.S. entitled, "County and Municipal Planning and Land Development Regulation," have or will adopt comprehensive plans and zoning. Leon County is obligated to develop their property in accordance with the adopted comprehensive plans and zoning ordinances and obtain reviews and approvals, including any variances as required. The Design Professional should begin this coordination early in the design process and carry it through to the end to ensure that the project meets all local requirements and to resolve conflicts as they arise. This may include zoning, landscape ordinances, tree removal permits, drainage, etc.

**C. Use and Development Permits**

Certain use and development permits are required by local, state and/or federal agencies prior to commencement of construction. These permits, covering such items as sewage, water, air quality, etc., must be obtained prior to release of documents for bidding. It is the responsibility of the Design Professional to identify each such permit and to apply for these on behalf of the Owner.

**D. Connection Fees**

Leon County (through the Contractor) will pay for connection and impact fees for utilities such as water, sewer, storm drainage and electricity connected to an external system. A notice to obtain permits is issued to give the Contractor time to arrange for these connection fees. THESE FEES, IF ANY, ARE TO BE IDENTIFIED IN THE NON-TECHNICAL SPECIFICATIONS BY THE DESIGN PROFESSIONAL.

**E. The Local Fire Department**

The Design Professional is expected to work closely with the Fire Department serving the project area and to accommodate their fire fighting methods, equipment, hose threads, etc., in regard to the location and specifications for fire hydrants, siamese connections, standpipes, fire alarm annunciator panels, elevator controls and other items of concern to them.

**F. The Bureau Of Elevator Inspection**

The Design Professional shall submit elevator drawings and specifications, to:

Department of Business and Professional Regulations  
Bureau of Elevator Safety  
1940 N. Monroe St.  
Tallahassee, Florida 32399-1013

**G. Flood Prone Areas**

Every site plan shall be evaluated for flood hazard and meet the minimum building requirements mandated by the National Flood Insurance program as a mandatory requirement for obtaining a building permit. FACILITIES MANAGEMENT is responsible for assuring that all County facilities meet or exceed the FEMA requirements pursuant to 255.25(6) F.S. The Design Professional must provide documentation that indicates conformance. Flood criteria information may be obtained from the State Assistance Office for the National Flood Insurance Program at the Department of Community Affairs, Division of Emergency Management, 2555 Shumard Oak Blvd., Tallahassee, FL 32399

## **5.00 CONSTRUCTION ADMINISTRATION (All Projects)**

### **5.01 NOTICE TO PROCEED**

Award of a contract does not give the Contractor authorization to start construction. The Project Director gives this authorization separately. The Contractor shall be cautioned by the Design Professional not to commence construction until both a BUILDING PERMIT and a "NOTICE TO MOBILIZE ON SITE AND PROCEED WITH CONSTRUCTION" is received.

The contract will be issued to the Contractor by Leon County's Division of Purchasing. The Project Manager will then send the Contractor a "Notice to Secure Permits" from all other agencies having jurisdiction on the project. The Contractor is allowed up to sixty days from the time of this notice to secure the required permits and pay permitting and connection fees. If additional time is required, the Contractor may request approval of a time extension for the purpose of obtaining any permit required prior to commencing construction on site. The Contractor must receive the building permit before work begins.

When the Project Manager has been notified BY THE DESIGN PROFESSIONAL that the Contractor has secured all required permits, the "NOTICE TO MOBILIZE ON SITE AND PROCEED WITH CONSTRUCTION" will be issued. The date specified in the "NOTICE" marks the start of construction.

### **5.02 INITIAL CONSTRUCTION CONFERENCE**

Immediately prior to starting construction, or as soon as possible after the construction has started, the Project Manager and the Design Professional will arrange a meeting with the Contractor, the major subcontractors, the User, federal representatives, if any, and any other interested parties. The purpose of this meeting is to discuss the requirements and responsibilities of the various parties. The Design Professional will chair this conference. To be a productive meeting the Contractor should bring questions regarding schedules, schedules of values, substitutions, submittals, etc. to the meeting to be discussed. The Design Professional should be prepared to review the technical aspects of the project. This meeting may require the Design Professional to issue clarification drawings or supplemental instructions. The Design Professional shall keep detailed minutes, and after the conference, have the minutes typed and distributed to the Project Manager and all attendees. Items to be discussed include the following:

### **5.03 ROLES**

The Project Manager will handle liaison between the User, federal agencies, if any and any other interested parties. During construction the User has no contract responsibility or authority. All instructions to the Design Professional from the User must come through the Project Manager. All instructions to the Contractor must come from the Design Professional. Only the Design Professional can interpret the Construction Documents. However, the Design Professional cannot obligate the Owner to changes in the contract for either time or money.

#### **5.04 SCHEDULE OF CONTRACT VALUES**

The Design Professional shall review the Schedule of Contract Values to ensure that it is sufficiently detailed and accurate to give a true indication of the distribution of costs in the project, and reflect the total contract amount. The breakdown shall clearly identify cost of site work and outside utilities. The Design Professional's approval of the Schedule of Contract Values signifies that it is of sufficient detail for evaluation of the Contractor's request for payment; that it fairly represents the apportioning of costs; and that it is not "front end loaded." If the Design Professional does not agree with the Schedule of Values, it should be discussed with the Project Manager. The Schedule of Values shall be broken out in CSI format. The schedule should also show costs for rough-in, setting of fixtures/equipment, satisfactory operation, as-builts, warranties, demobilization, etc. The Schedule of Contract Values when approved by the Design Professional becomes the basis for payment request submittals. Transmit approved copies to the Project Director and the User.

#### **5.05 PROJECT SCHEDULE (DESIGN/BID PROJECTS)**

A project schedule is required to be submitted within 30 days of the issuance of the Notice to Proceed. Projects greater than \$2,000,000 require a CPM (Critical Path Method) for scheduling. The Design Professional shall review the schedule for reasonableness and adherence to contract times. It shall be of sufficient detail to indicate precedent and antecedent work items. Provide copies of the accepted schedule to the Project Director and the User. If the Design Professional does not agree that the Contractor's proposed schedule is reasonable, discuss this with the Project Manager. The Contractor's schedule and monthly updates serve as a focal point for most claims for time or delay costs.

The Design Professional shall determine whether the Contractor has met the schedule requirements with the initial schedule and with THE REQUIRED UPDATES WHICH ARE A CONDITION FOR PAYMENT APPROVAL EACH MONTH.

#### **5.06 SHOP DRAWINGS**

The Design Professional's specifications should require that the Contractor submit all shop drawings to the Design Professional for approval. It is the responsibility of the Contractor to properly schedule the submission of shop drawings, the manufacture and the shipment of items to the job site in sufficient time to prevent delays in the progress schedule. The Design Professional is expected to complete shop drawing review within ten (10) working days after receipt or sooner if items are on the critical path. The Design Professional shall send to the Project Manager copies of all transmittals (only) of shop drawing correspondence, approvals and disapprovals and shall keep a running log of all shop drawings. The Design Professional will receive one copy of shop drawings for the Project Manager and should discuss with the Project Director at the initial construction meeting if these are to be retained by the Design Professional until project closeout, or whether the Project Manager wishes to receive some or all submittals during the course of the project.

The Design Professional shall retain one copy of all approved shop drawings to be turned over to the Project Manager together with all guarantees, warranties, and as-built drawings at completion of the project. This documentation must be furnished to the Project Manager prior to approval of the final payment for Contractor and Design Professional.

## **5.07 RECORD SET / AS-BUILT DRAWINGS**

Either the non-technical or Design Professional's specifications shall require record-set drawings that accurately reflect the as-built conditions at completion of the project. These shall be maintained and updated daily by the Contractor and subcontractors and checked monthly by the Design Professional when the Contractor submits pay requests.

The specifications shall require the General Contractor and his subcontractors to record, on a daily basis, exact locations, as installed, on their field sets of drawings; all walls and doors, and all conduit, pipe and duct lines, etc. whether concealed or exposed. Where manholes, boxes, underground conduits, plumbing, hot or chilled water lines, inverts etc., are involved as part of the work, the Contractor shall furnish true elevations and locations, all properly referenced by using the original bench mark used for the institution for this project. Where the work was installed exactly as shown on the contract drawings, the drawings shall not be disturbed other than being marked "as-built." In showing the changes, the same legend shall be used to identify piping, etc., as was used on the contract drawings. Each sheet shall bear the date and name of the subcontractor submitting drawings.

If separately authorized as an additional service, and prior to completion of the project, the Design Professional shall review and input via AutoCAD 2000 or later edition (.dwg file type) all as-built drawing information on the electronic drawing set and rename these as Record-Set Drawings. Show all as-built changes as a revision with cloud, provide the revision note and date, and print three (3) preliminary sets for the contractor to review/comment/markup.

Note: Each drawing shall be bound (no x-refs) such that it can be viewed/printed without access to any external (x-ref) files.

The Contractor shall review the completed/preliminary as-built drawings to ascertain that all data furnished on the drawings and input by the Design Professional is accurate and truly represents the work as actually installed. The contractor shall return one marked up preliminary set to the Design Professional. The Design Professional shall incorporate the contractor's comments/markups and issue one electronic (on Compact Disks, CDs) and paper final set of record-set drawings to the contractor and two sets to the Project Manager.

## **5.08 DISTRIBUTION OF CONTRACT DOCUMENTS**

The Contractor shall bring the permitted plans and specifications (the set approved by the Facilities Management or Authority Having Jurisdiction) to the Initial Construction Conference. These plans and specifications must be the sets with the approval stamps and signatures thereon. The Contractor's set of these documents are to be used for construction and shall be available at the site at all times for code inspectors, and others as requested. If the Contractor requires additional sets of documents, other than those listed in the Agreement, these may be purchased through the Design Professional office at cost. If sets have been returned after bidding, any additional sets may be given free to the Contractor for use on the project.

## **5.09 PROJECT SIGN**

If a project sign is called for in the contract, the location and colors should be agreed to during the Initial Conference. The size and layout are shown in the Non-technical Specifications. The Design Professional is responsible for verifying the content of the project sign with the Project Director and the User and for transmitting this information to the Contractor in a timely manner.

## **5.10 CONSTRUCTION INSPECTIONS**

Under the Agreement, the Design Professional shall provide adequate inspection during construction to assure that the project is being built in accordance with the plans, specifications, and other Contract Documents. Each time the Design Professional or Consultant makes a visit to the site, a written report shall be issued describing the construction status, reporting any problems that require resolution. Do not make entries that require reference to earlier reports. Provide copies of field reports to the Project Manager. (These do not have to be typed).

## **5.11 CODE INSPECTIONS**

The Design Professional should understand that visits to the site by Code Inspectors or by the Project Manager in no way substitutes for inspections by the Design Professional or the Design Professional's consultants. These code inspections also serve the secondary purpose of evaluating the adequacy of the inspection being provided by the Design Professional and the consultants. During construction, the Project Manager will evaluate the services being provided by the Design Professional.

## **5.12 CLARIFICATIONS**

When necessary, the Architect/Engineer should issue additional drawings and/or specifications to the construction manager to clarify the Contract Documents. Copies of these documents shall be sent to the Project Manager. Facsimile transmittals are encouraged to save time. All transmittal letters to the Contractor for clarification documents shall bear the following disclaimer: "If these additional plans or specifications result in a modification of the scope of the basic contract in either time or money, the Design Professional shall be notified immediately." When clarification documents are issued to the Contractor, copy the Project Manager, and the User. If the Contractor makes a claim for time or money as a result of a clarification, the Design Professional must evaluate the claim and recommend to the Project Manager if a Change Order should be issued. IMMEDIATELY NOTIFY THE PROJECT MANAGER WHEN ANY CLAIM IS RECEIVED.

## **5.13 MONTHLY PAY REQUEST MEETINGS**

A construction conference will be called monthly, or as required by the project conditions and agreed to by the Design Professional and the Project Manager. The Design Professional will invite the following persons: Project Manager, Contractor and the appropriate subcontractors, the appropriate Design Consultants, and User. Certain essential areas of information should be sought and reported in EVERY CONFERENCE, such as:

- A. Project progress as it relates to schedule
- B. Schedule updates
- C. Payment requests and their status
- D. Change Orders and their status
- E. Special problems and remedial action required
- F. Results of previous agenda items and their status, action taken, results, etc.
- G. Code violations as reported by inspections

- H. Shop drawing submittal and approvals
- I. RFI/ASI logs and status of outstanding issues

The Design Professional shall chair the conference, keep detailed minutes, and after the conference have the minutes typed and distributed to the Project Manager and all attendees.

#### **5.14 CONTRACTOR'S PAY REQUESTS**

The Design Professional, the Contractor and Project Manager shall agree in advance of the date selected for their periodic construction meeting. There are two preferred methods for reviewing monthly pay requests. One method is for the Contractor to supply the Design Professional with copies of the construction payment request several days prior to the meeting date for review. This pay request is to be reviewed, and if found correct, approved at this meeting. Minor corrections can be made and initialed as necessary to reflect the Design Professional's approval. A second approach is to review a draft of the pay request at the monthly pay request meeting. Once agreed upon, the Contractor types, signs and transmits the final version to the Design Professional for signature. After certifying, the Design Professional shall transmit the Contractor's pay request directly to the Project Manager for processing. **A TOTAL OF FOUR NOTARIZED COPIES, WITH BACK-UP DOCUMENTS, ARE REQUIRED.**

It should be emphasized that materials must be stored at the site and cannot be removed from the site after the payment has been made. An itemized listing of materials stored on-site should be prepared on the Contractor's letterhead, listing those items stored at the end of the period and those items listed in the previous month's request that are now incorporated in the project. The date on this list must match the date on the Certificate for Partial Payment. The detailed description of stored materials should show quantities and size of materials. The usual terms of reference such as tons of steel and types of windows will be acceptable. Shipping tickets or invoices may be required of the Contractor as back up to substantiate quantities. A copy of the stored material list shall accompany each copy of the Pay Request.

If the Contractor deems it necessary, and both the Design Professional and the Project Manager recommend it, the Contractor may store material off the construction site if there is a prior written agreement between the Owner and Contractor. The Contractor must provide the following:

- A. Proof of applicable insurance.
- B. A written guarantee of delivery on the job site.
- C. A written title to all materials covered by application for payment, which will pass to the Owner.
- D. An on-site inspection of facilities, by the Design Professional to verify the authenticity of quantities of stored materials. The Contractor will be responsible for reimbursing the Design Professional for all incurred expenses resulting from each inspection. A copy of materials requested to be stored off-site should be submitted with each Partial Payment Request.

#### **5.15 MONTHLY STATUS REPORTS**

The Design Professional will supply the Project Manager and the User with a report of construction progress EACH MONTH and an updated summary schedule for the construction furnished by the Contractor. The report shall be a standard format. Samples can be obtained from the Project Manager.

These reports shall begin upon issuance of the Contractor's contract and will not terminate until transmittal of the Contractor's final payment request. Numbered in consecutive order, reports shall be prepared at the end of each month and be mailed in time to be received by the fifth (5th) day of each month.

### **5.15 TESTING**

The Design Professional shall clearly set forth in his technical specifications the tests to be carried out during construction. The Design Professional is cautioned not to proceed with any additional testing until a written additional services authorization from the Project Manager is approved. The arrangement for an authorization for testing is considered a basic service of the Design Professional.

### **5.16 CHANGE ORDERS**

#### ***A. General***

Changes in the work (Construction Contract) shall be held to a minimum and be consistent with the original scope and budget. The Design Professional shall not permit "swapping" of extras and credits except through a written Change Order. All changes in the work, regardless of the amount, must be thoroughly documented by Change Order. Where a change is made at no cost, or where added and deleted work balance in cost, a Change Order shall be initiated to record the fact that such changes were made and a full description and explanation shall be given. A sample form can be obtained from the Project Manager.

#### ***B. Initiation Of Change Orders***

The Design Professional should actively involve the Project Manager with full details and price quotations on proposed Change Orders in order to provide guidance on how to proceed. The Design Professional should discourage changes in the work that may be requested during the later stages of the construction period.

The Design Professional must promptly prepare both the "Contract Change Order" and the backup data. The Change Order shall fully specify the scope of the work explaining completely what each item entails and the cost or credit, and time extension involved. THE DESIGN PROFESSIONAL SHALL ATTACH A LETTER GIVING ADEQUATE JUSTIFICATION AS TO THE CONDITIONS ON A PARTICULAR PROJECT NECESSITATING THE CHANGE AND HIS CONCURRENCE IN THE PRICING. Also, attach the written proposal from the Contractor with a detailed breakdown of cost, showing quantities and sizes of materials, unit costs, labor profit and overhead. Should an emergency change item occur requiring immediate action, immediately contact the Project Manager for advice and procedures to follow. The cost of any changes not receiving prior authorization shall be the liability of the person authorizing such changes.

Process Change Orders as they develop on a timely basis. Do not wait until the contract is scheduled for completion or accumulate items before processing a Change Order. It is our policy not to process any Change Orders near the end of construction that will delay the final completion unless the change is of a critical nature.

### *C. Review*

The Design Professional should discuss any Change Order proposals with the Project Manager prior to its preparation. After the Contractor's pricing and the draft Change Order have been discussed with the Project Manager, the Design Professional shall transmit TWO COPIES of the Change Order form (but not his letter), to the Contractor for signature, and return to the Design Professional. Simultaneously, the Design Professional shall transmit a review copy of the Change Order, justification, Contractor's cost proposal and any other related material to the Project Manager. When the two signed copies of the Change Order are received from the Contractor, the Design Professional shall sign both copies, add the Contractor's proposal and breakdown of costs, add any applicable supplemental instructions or request for proposals, add the justification letter, and then transmit TWO FULL SETS OF THE CHANGE ORDER PACKAGE TO THE PROJECT MANAGER.

The Design Professional shall have reviewed quantities and costs carefully and determination made that they are reasonable and proper before submitting the Change Order to the Project Director.

FACILITIES MANAGEMENT shall pay a fair value, and only one time, for the end result to be achieved under the contract. Where items of material, equipment or work have been inadvertently omitted from the contract documents and are necessarily included in the contract Change Order, the Owner shall pay the first cost of the omitted items since such cost was not included in the bid.

EXTRA COST TO THE OWNER BECAUSE OF CORRECTIONS OR MODIFICATIONS RESULTING FROM OMISSIONS OR FOR REMOVAL OF INSTALLED WORK WHICH HAS TO BE TORN OUT AND REPLACED BECAUSE OF ERROR, OMISSION, OR FAULT ATTRIBUTABLE TO THE DESIGN PROFESSIONAL SHALL BE ASSESSED TO THE DESIGN PROFESSIONAL. THIS SHALL INCLUDE THE CONTRACTOR'S OVERHEAD, PROFIT, AND OTHER CHARGES RESULTING FROM THE ERROR OR OMISSION.

EXTRA COSTS TO THE OWNER BECAUSE OF CONSTRUCTION NOT INSTALLED IN ACCORDANCE WITH CODE OR SPECIFICATION STANDARDS, INCLUDING WORK COVERED UP PRIOR TO CODE INSPECTION, WILL BE ASSESSED TO THE CONTRACTOR.

The Project Manager and the Regional Manager will carefully review each Change Order. If necessary information is found to be lacking, the Design Professional will be called to add the information required to complete the package. The Project Manager will keep an accurate and up to date log so that he will know at all times where each Change Order is and when it has been approved.

### *D. Time Extensions*

The Design Professional shall review the contract documents for the basis upon which a time extension request can be granted. THE CONTRACTOR SHALL INDICATE WHAT THE AFFECT IS UPON HIS SCHEDULE AND WHY WORK CANNOT BE DONE CONCURRENTLY. SUBSTANTIATING DATA MUST BE SUBMITTED WITH REQUESTS FOR TIME EXTENSIONS. Such time extensions, if justified, will be granted by contract Change Order only. It is important that written notices of delay be submitted to the Design Professional and the Project Manager within twenty days of the beginning of the delay. TIME EXTENSIONS WILL NOT BE GRANTED FOR NORMAL AMOUNTS OF INCLEMENT WEATHER, BUT MAY BE GRANTED FOR PERIODS EXCEEDING THE NORM. NORMAL WEATHER CONDITIONS WILL BE BASED UPON THE RECORDS OF THE NATIONAL WEATHER SERVICE FOR THE GEOGRAPHICAL AREA OF THE PROJECT. Time extensions for

changes in work must be included on the contract Change Order form authorizing such changes. DO NOT WAIT UNTIL THE END OF CONSTRUCTION TO PROCESS TIME EXTENSION CHANGE ORDERS.

### **5.17 CLAIMS**

The Contractor as required should submit claims directly to FACILITIES MANAGEMENT. HOWEVER, WHEN THE DESIGN PROFESSIONAL IS PRESENTED WITH ANY WRITTEN REQUEST FOR DAMAGES BY THE CONTRACTOR, FOR MONEY OR TIME, THE DESIGN PROFESSIONAL MUST IMMEDIATELY COPY THE PROJECT MANAGER WITH THAT NOTIFICATION. The Design Professional, acting as the owner's agent, shall make a thorough and objective analysis of the claim, in a timely manner, consistent with terms of the Construction Contract and shall advise FACILITIES MANAGEMENT of the Design Professional's opinion. FACILITIES MANAGEMENT will respond to all claims as required by the conditions of the contract.

### **5.18 SUBSTANTIAL COMPLETION**

The Design Professional shall arrange an inspection for verification of substantial completion after notification by the Contractor that the work is ready for inspection. The Design Professional shall select a time when the Contractor, Project Manager, User and other interested parties can attend. At this time, all previously uncorrected code violations shall have been corrected and passed inspection by the code inspector. The Contractor shall notify the code inspector prior to the date of the inspection set to establish substantial completion.

The Design Professional's substantial completion inspection shall be detailed and complete. The Contractor is to inspect the project and prepare a punch list prior to the Design Professional's inspection and provide it to the Design Professional. The Design Professional shall then prepare a master punch list to include the comments of all attendees and any corrections needed with provision for indicating the room or location and provision for indicating correction at a later date. This punch list shall be assembled and transmitted to the Contractor expeditiously. Should it become apparent that there will be numerous items to be added to the Contractor's punch list, the Design Professional should cancel the inspection and tell the Contractor to reschedule when the project is in fact ready. When the project is deemed substantial, the Design Professional shall prepare the Certificate of Substantial Completion form obtained from the Project Manager and forward it to the Contractor for signature. He shall transmit three signed copies of the certificate and punch list to the Project Manager for execution. The Project Manager will transmit copies back to the Contractor and the Design Professional (with copies to the User).

The term "substantial completion" shall mean that the project under this contract is sufficiently completed in accordance with the contract documents, so that the owner can occupy or utilize the work or designated portions thereof for the use for which it is intended, as expressed in the contract documents and a certificate of occupancy has been issued by the permitting authority

(Note: The issuance of a certificate of occupancy, in itself, does not constitute "substantial completion").

## 5.19 INSPECTION BY OTHER AGENCIES

Where other agencies are involved with inspecting the work, it is generally the Contractor's responsibility to notify these agencies of the need for inspection and certification. The Design Professional should prompt the Contractor of this need at least 60 days before scheduled contract substantial completion. Such items requiring coordination of inspection may include, but are not limited to:

- A. Fire Alarm Certification
- B. Sprinkler Certification
- C. Elevator Certification
- D. Emergency Generators Certification
- E. Water Systems Certificate to Construct and Certificate to Operate
- F. Sewage Systems Certificate to Construct and
- G. Storm-water Systems Certification
- H. Medical Facilities inspection and approval by the Agency for Health Care Administration
- I. Kitchen/Food facilities inspection
- J. Certificate of Occupancy
- K. Manufacturer Inspection, start-up and testing of boilers

## 5.20 OCCUPANCY PRIOR TO COMPLETION

FACILITIES MANAGEMENT discourages the occupancy of any project prior to final completion of all punch list items by the Contractor. If the User must occupy the project, or a part thereof, prior to final completion and acceptance of construction, the following items shall be accomplished prior to occupancy:

- A. A Certificate of Occupancy from the authority having jurisdiction for that portion to be occupied.
- B. Written agreement from the Contractor that none of the provisions of this contract are being violated.
- C. Written approval from the resident agent of the Contractor's insurer resident agent that the builder's risk coverage provisions will not be violated.
- D. All arrangements shall have been made in writing between the User, Facilities Management and the Contractor pertaining to the payments for utility costs, maintenance and repairs during the period of joint occupancy.
- E. A written statement from the Design Professional indicating any punch list items outstanding in the area proposed for joint occupancy by the User and the Contractor.

## 5.21 FINAL INSPECTION

Final inspection shall be arranged by the Design Professional after notification in writing by the Contractor that the punch list work has been completed and after advice from the Design Professional's inspection team, that the work is ready for final inspection. The Design Professional shall select a time when the Contractor, Project Manager, User and other interested parties can attend.

This inspection is to verify that all corrections from previous inspections have been made. Following the inspections, the Design Professional shall prepare a new list of items, if any,

requiring correction and shall make another inspection, if necessary, to ensure that all the work has been completed. All punch list items that were found at the time of substantial completion shall have been completed by the time stated in the Construction Contract.

***A. Certificate Of Contract Completion***

FOUR COPIES of the Architect/Engineer's Certificate of Contract Completion shall be prepared by the Design Professional after the final completion. The Contractor shall complete, sign and notarize FOUR (4) COPIES of the Contractor's Affidavit of Contract Completion and submit them to the Design Professional.

The total amount of the contract shown on the certificate shall include the sum of all approved Change Orders. The substantial completion date on the A/E Certificate of Contract Completion must be the same as that shown on the substantial completion form. The actual final completion date should be the same or earlier than the contract completion date.

If not, the Design Professional must recommend charging liquidated damages as provided in the contract or a Change Order, completely justifying any extension of time. Approval of any late Change Order can delay processing of final payment to the Contractor. Therefore, this requirement should be addressed early. The Design Professional should retain both the Contractor's Affidavit of Contract Completion, and the Architect/Engineer Certificate of Contract Completion; he should then hold them until the Contractor's request for final payment is furnished. Attach the certificates to the Request for Final Payment.

***B. Guarantees And Operating Instructions***

The Design Professional is responsible for obtaining all guarantee documents from the Contractor. The Contractor shall be responsible for collecting, identifying, indexing and collating the materials from the subcontractors, and will deliver three copies of the finished document to the Design Professional for checking. When the Design Professional has approved these, send all copies of all documents Project Manager. The Design Professional may wish to obtain an additional copy of all documents for their office files.

As applicable, complete equipment diagrams, operating instructions, maintenance manuals, parts lists, wiring diagrams, pneumatic and/or electrical control diagrams, test and balance reports, inspection reports, guarantees and warranties for each and every piece of equipment furnished under this contract are to be supplied in a ring binder, hard-cover book, properly indexed for ready reference. Also, specific information regarding manufacturers' names and addresses, nearest distributors and service representative's names, addresses, office and home phone numbers, make and model numbers, operating design and characteristics, etc., will be required. All information submitted shall be updated to reflect existing conditions.

The specifications must provide that the Contractor and/or subcontractor shall provide competent and experienced personnel, thoroughly familiar with the work, for a reasonable period of time to instruct the Owners personnel in operation and maintenance of equipment and control systems, subsequent to the time of substantial completion and receipt of as-built drawings, operations and maintenance books, but prior to the date of final acceptance. This instruction will include normal start-up, run, stop, and emergency operations, location and operation of all controls, alarms and alarm systems, etc. The instruction will include tracing the system in the field and on the diagrams in the instruction booklets so that operating personnel will be thoroughly familiar with both the system and the data supplied. Evidence that this instruction has occurred must be included in the Contractor's final submittal.

**C. Keys**

The specification must also provide that the Contractor will deliver keys and key blanks to the designated building operator and provide a signed receipt to the Project Manager and the Design Professional.

**D. As-Built/Record Set Drawings**

The Construction Manager or Contractor shall include completed as-built drawings in accordance with previous sections mentioned herein in the close out document submittal. The Design Consultant shall verify accuracy and number and type of paper/electronic copies submitted as part of the closeout package review and before approving final payment. The contractor is responsible for distributing the paper and CD media copies of the Record Set Drawings to the Project Manager and User at the time of final completion.

## 6.00 ADDITIONAL SERVICES

In addition to basic services, the Design Professional may be requested to provide additional compensable services for the Owner. SUCH SERVICES MUST BE AGREED UPON IN ADVANCE AND AUTHORIZED IN WRITING. Services will either be agreed upon for lump sum amounts, or for hourly rates with a maximum fee amount. The more common additional services are.

### 6.01 PROGRAMMING

A thorough, definite facilities design program giving conditions precedent to construction and requirements to be met by the proposed project, based upon project information supplied by Leon County, information gathered during conferences and by correspondence with Leon County staff, consultation with others having an interest in or jurisdiction over the project and information gathered from the proposed site.

The program shall include, at a minimum, the following:

1. A thorough narrative of the facility's general purpose and the needs which gave rise to the project.
2. A description of the Owner's design objectives for the project, including public image, functionality, durability, ease of maintenance, the use of green building concepts and the psychological needs of emergency personnel.
3. An evaluation of the proposed project site and the various issues involved in site development in that location, including zoning, storm water provisions, utilities, adjacent land uses, parking requirements and other site-related issues.
4. A description of master planning that impacts the project, planning of other existing and proposed facilities related to the project and how design must respond to fit within the context of the site and County and City planning at large.
5. A determination of the space and volume requirements for the facility and the distinct characteristics of each space based on the number of persons involved, the equipment used and the nature of activity patterns to be housed.
6. A summary of the requirements of each new space including, but not limited to, the following:
  - (a) activities and functions,
  - (b) service requirements,
  - (c) parking requirements,
  - (d) utility requirements,
  - (e) public vs. private,
  - (f) circulation,
  - (g) functional relationships,
  - (h) special equipment requirements,
  - (i) areas and volume requirements expressed in net assignable square feet and cubic feet,
  - (j) ceiling heights,
  - (k) orientation,

- (l) desirable or undesirable views,
  - (m) climate and conditioning,
  - (n) sun control and lighting requirements,
  - (o) vegetation,
  - (p) drainage,
  - (q) horizontal and vertical displacements,
  - (r) special foundation and structural requirements,
  - (s) electrical demands,
  - (t) mechanical demands,
  - (u) safety requirements,
  - (v) security requirements,
  - (w) maintenance requirements,
  - (x) finishes,
  - (y) colors,
  - (z) furnishings,
  - (aa) future expansion requirements and
  - (bb) flexibility.
7. Flow diagrams, relationship diagrams or other such descriptive graphics which depict how the various spaces within the proposed facility or outside the proposed facility must relate to each other.
  8. A complete, summary listing of project spaces indicating their size and occupant load, the anticipated net/gross ratios and projected total building square footage expressed in gross square feet.
  9. An examination of the reasonableness of the Owner's budget compared against program requirements.
  10. A determination of the future expansion needs of the facility based on the program analysis of each space and how this must be accommodated on this site.
  11. Code and ordinances that impact the project design.
  12. Any drawings, concept diagrams, or other descriptive data which convey information pertinent to the project design.
  13. Other issues which shall arise during discussions with County staff and during program development.

## 6.02 SURVEYS

If available, a survey of the project site will be provided to the Design Professional by the Project Director. If a survey is not available, the Design Professional shall, upon authorization by the Project Manager, arrange to have a survey made, the cost of which is paid as an additional service. The purpose of a site survey is to obtain all information necessary for drainage design, development of the site and for making utility connections to the building. Any existing structures or improvements on the site will be so designated on the survey drawings. The survey description and legal description by the surveyor shall be copied onto the drawing. If the survey is of a partial plot, it shall be so indicated. Securing a survey:

1. Determination of need: The Design Professional shall determine the surveying needs in detail. These needs shall be defined and sent to the registered surveyor(s) of choice for

pricing and availability to schedule the work. The surveyor is considered a special consultant to the Design Professional.

2. Authorization: The Design Professional shall review the surveyor's service proposal and send it with a recommendation to the Project Manager, who, after review, will authorize the services.
3. Upon receipt of the survey the Design Professional shall verify its completeness, and to the extent possible, its accuracy.
4. Upon receipt of the survey, the Design Professional shall send two signed & sealed copies to the Project Manager.
5. Survey content, minimum requirements:
  - a. Survey shall meet the standards required under F.A.C. 61G17-6. The surveyor may want to contact the Department of Environmental Protection, Division of State Lands, Bureau of Survey & Mapping for any updated requirements.
  - b. Boundary survey - the typical boundary survey of property should indicate the following:
    - (1) All headings and distances of property lines of all parcels that comprise the site.
    - (2) The dimensions and locations of buildings, structures, easements, rights-of-way, setbacks, and encroachments on the site, and the presence of any undeveloped mineral rights to which the site is subject.
    - (3) Details of all party walls, walls and foundations adjacent to, or within five feet of, the property lines.
    - (4) Certification on the survey drawings by the city engineer or other qualified official that the officially established street lines, grades of curbs, sidewalks, and sewers are correctly given.
    - (5) All surveys shall designate the full legal description of the parcel shown; said legal description shall also indicate if the parcel is part of a parent tract.
    - (6) The survey shall be certified, sealed, signed and dated by a land surveyor registered in the State of Florida.
  - c. Topographic Survey - The typical topographic survey drawings should indicate:
    - (1) Items one through six (1-6) above.
    - (2) The position, dimension, elevation, and contours of all cellars, excavations, wells, backfill areas, and the elevation of any water bodies.
    - (3) Generally, only trees six inches or larger in trunk diameter need be shown. The survey should note their identity, trunk sizes and approximate foliage area.
    - (4) Existing major shrubs, undergrowth and ground cover areas.
    - (5) Detailed information required to established curb and building lines, street, alley, sidewalk and curb grades and lines at, or adjacent to, the site and materials of which they are constructed.
    - (6) Floor elevations of all existing buildings to be renovated or to which additions will be made.

- (7) All known utility services, including pipe sizes, pressures and electrical characteristics. The location and invert elevations of all piping, mains, sewers, poles, wires, hydrants, and manholes upon, over, or under the site, or adjacent to the site, if within the limits of the survey.
- (8) The probability of water overrunning the site shall be investigated. The one hundred (100) year flood elevation and contour shall be indicated.
- (9) The official data upon which elevations are based and the benchmark established on, or adjacent to, the site shall be clearly indicated. Only one such data point or benchmark shall be used on any site for establishing the grades for a project.
- (10) Contours and elevations or a grid system of not more than fifty-foot intervals shall indicate changes of slope over that portion of the site to be developed. The intervals for contours shall be tailored to the site where construction is anticipated.
- (11) The contemplated data and description of any known or proposed improvements to the approaches or utilities on or adjacent to the site shall be given.

### **6.03 SUBSURFACE INVESTIGATIONS**

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

Any investigation undertaken should be extensive enough to provide all the information needed to complete the design and should be closely monitored by the Design Professional. Upon receipt of a geo-technical report, the Design Professional shall send two copies to the Project Manager. Securing a subsurface investigation:

1. Determination of need - the Design Professional shall determine the testing needs in detail. This should be sent to the testing laboratories serving the project vicinity.
2. Authorization - the Design Professional shall evaluate the replies from the testing laboratories and determine which can provide the services required. The Design Professional shall forward the selected proposal with recommendations to the Project Manager. The Project Manager will authorize the Design Professional to proceed. The Design Professional is cautioned against proceeding with subsurface investigations until the authorization is approved.

Typical Requirements for Subsurface Investigation:

1. The Design Professional shall arrange for a full and comprehensive report prepared by a qualified professional with graphical indication of the soil strata in each test location and a written narrative analysis of the tests and their meaning with regard to design of the proposed construction.
2. Borings and test pits shall extend to stable soil below the bottom of all proposed foundations. A field log of each boring shall be made, recording the thickness, consistency and character of each soil layer encountered. Samples of each layer shall be taken and retained for later reference.

3. The amount and elevation of ground water encountered in each pit or boring, its possible variation during the seasons and its effect on the subsoil shall be determined. High and low levels of nearby bodies of water that affect the ground water level should also be determined and noted.
4. Appropriate laboratory tests shall be performed to determine the safe bearing value, compressibility, and characteristics of the various soil strata encountered.
5. Tests shall be made to determine if the soil has chemical characteristics, which would adversely affect foundations or metallic conduits or pipe.
6. Percolation tests.

#### **6.04 REZONING**

Normally authorized on an hourly fee with a maximum limit.

#### **6.05 MEASURED DRAWINGS**

Normally authorized on an hourly fee with a maximum limit.

#### **6.06 ASBESTOS/LEAD SURVEYS, TESTING AND ABATEMENT**

1. General:
  - a. Prohibition: In accordance with 255.40 FS "The use of asbestos or asbestos-based fiber materials is prohibited in any building, construction of which is commenced after September 30, 1983, which is financed with public funds or is constructed for the express purpose of being leased to any government entity." Construction documents must include this prohibition.
  - b. AWARENESS: ASSUME THAT ALL EXISTING BUILDINGS MAY HAVE ASBESTOS CONTAINING MATERIAL AND/OR LEAD PAINT. AFTER BEING AUTHORIZED, HAVE THE NECESSARY/CURRENT (less than five-years old) ASBESTOS/LEAD SURVEY AND/OR CLEARANCE TESTS FROM PRIOR ABATEMENT PROJECTS PRIOR TO INITIATING DESIGN.
  - c. Design professionals overseeing asbestos or other hazardous material abatement projects shall comply with all state, federal, and local laws/rules/etc. It is recommended to abate hazardous materials prior to commencing construction. This eliminates the coordination issue between the abatement contractor and the general/sub contractors and minimizes risks overall. In the event hazardous materials remain in the facility, provide in an appropriate section of the specifications the requisite coordination information. Also include procedures to be followed if potential or suspect asbestos containing material (ACM) is encountered.
  - d. The following list suggests several actions that the professional consultant and the Project Manager should accomplish as part of the consultant's services:
    - (1) Develop a work plan and a schedule for having survey teams in the building as well as for construction monitoring.

- (2) Coordinate and review these plans with the Project Manager and User.
- (3) Review these plans with the building occupants' highest level of administration.
- (4) Hold right-to-know meetings with the building occupants, other maintenance, HVAC and electrical personnel.
- (5) Assure that DEP and any other regulatory agencies have received notification prior to commencing abatement projects.

#### **6.07 ENVIRONMENTAL ASSESSMENT**

Levels I and II: May be lump sum or hourly fee with a maximum limit.

As the Design Professional you may be asked to provide copies of floor plans and brief description or statement about the building may be requested. The Design Professional is requested to plan for art display in the building during the design of the project. This may affect lighting, space for sculpture or wall hangings, structural support or rigidity for hangings, lobby layouts, etc. An hourly proposal with a maximum limit is the normal authorization.

#### **6.08 ADDED PROJECT SCOPE**

During the course of the project, the Design Professional may be asked to design additional elements by the User, Owner, a Permitting Agency, or some other Agency having jurisdiction. The Design Professional should consult with the Project Manager and refer back to the program, the original fee proposal and the negotiation minutes. If this is not a basic service, or if this has not been discussed and agreed upon at negotiation, then this service may be authorized as an additional service. Some common examples of added scope may include:

1. Designing alternate bids outside the scope of the original program, or designing alternates over the budget once the Design Professional has advised FACILITIES MANAGEMENT and the User of this during the design phase.
2. Securing and paying for permits such as driveway permits, storm-water permits, DEP permits, etc.
3. Designing off-site utility or roadway improvements not in the original program or discussed and agreed upon during the original negotiation.

#### **6.09 FULL TIME PROJECT REPRESENTATIVE:**

Sometimes referred to as "Clerk of the Works." This is usually authorized as a lump sum amount.

#### **6.10 BUILDING COMMISSIONING**

Building Commissioning is a term that describes bringing the building systems from their static state to complete operation to meet both the design intent and the user's needs. It is a period for fine-tuning building equipment and controls by running through the various cycles and load conditions. When commissioning is required, the engineers should coordinate with the commissioning consultant, if used, to delineate the operational design features to be accomplished

and provide operational instructions and sequencing to assure that the systems operate as intended. This service will be further defined by the FACILITIES MANAGEMENT Project Manager and may be authorized hourly or lump sum either to the design professionals or commissioning consultants.

#### **6.11 WARRANTY AND GUARANTEE INSPECTION**

Prior to the expiration of the one-year warranty and guarantee, the Design professional may be authorized to schedule an inspection of the facility. A time would be selected when the Contractor, Project Manager, User and other interested parties can attend. This inspection shall completely cover the constructed facility, and the Design professional shall generate a list of all items requiring corrective action for the Contractor.

While the User is expected to contact the Contractor or his Subcontractor about deficiencies occurring during the warranty period, the Design professional, if contacted, is expected to assist the User or FACILITIES MANAGEMENT in obtaining satisfactory correction.

#### **6.12 POST OCCUPANCY EVALUATION**

It may be desired to evaluate selected buildings after they have been occupied to provide feedback for designing and constructing future buildings. The Design Professional's team may be authorized to evaluate the building usage, its systems and materials. The building occupants, maintenance staff, and the building committee members may be interviewed for their input.

# Appendix A

# Appendix A

# **Guidelines for Telecommunications Systems Infrastructure For Leon County, Florida**



**Version 3.0**

Prepared By



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# I. Introduction and Scope

## INTRODUCTION

This document is a set of guidelines for new construction and renovation. It addresses the current design and construction requirements for communications cabling and infrastructure. All parties should make sure that the latest version of these standards is obtained BEFORE beginning any work as these standards are subject to change.

Adherence to these standards will help to ensure the future viability of the organizations information systems. As networks begin to converge, planning, developing, and managing these resources becomes more critical than ever.

## SCOPE

The Communications Systems Standards address the requirements for the following system components:

- Outside Plant Service Entrances and Termination
- Telecommunications Rooms
- Inside Cable Plant Wiring and Raceways
- Testing, Labeling, and Certification
- Bonding, Grounding and Protection
- Codes, Standards and Regulations

Construction drawings and specifications are the result of a detailed design process and are only useful for a single project. This document is not intended to be used for construction purposes. It is a guideline for designers to use in the preparation of construction documents.

## II. Outside Plant Service Entrance and Termination

### **General**

#### **INTRODUCTION**

This section provides the necessary guidelines to install service entrances to buildings and information for the termination of cables entering buildings.

All outside plant voice, data, and video cabling, conduit and manholes shall be designed and/or approved by Leon County MIS before final construction documents are issued. At a minimum, the design documents shall include drawings and specifications. The minimum drawing package shall include a cover sheet, legend sheet, site plan, trench details, manhole details (if applicable), building entrance details, termination details and instructions to contractors. The designer shall coordinate with Leon County MIS and all of the applicable service providers for service entrance requirements.

#### **GENERAL**

There shall be no cable with voltages higher than 48 volts in communications duct banks. Electrical feeders for sump pumps, lights and outlets must be installed according to the National Electrical Code requirements for wet locations. All conduit must be extended in the manhole. These conduits must be clearly tagged.

All telephone cables and coaxial cables entering a building shall be terminated on protection blocks. Only gas and solid-state protectors shall be used. Requirements for protection systems are found in Section 6 of this document.

Damaged cable is not acceptable. Damages incurred during installation are the responsibility of the contractor. Damages incurred after installation and acceptance of the cable are the responsibility of the party involved. All damages are to be reported to Leon County MIS immediately.

#### **LABELING**

All cables entering buildings or installed in manholes shall be labeled. Steel or Aluminum tags shall be used and shall indicate the originating building and the terminating building, the cable type and number of pairs/strands. Labels shall be as indicated on construction drawings.

### **Conduits**

#### **GENERAL**

Each building shall be served with a minimum of two 4" conduits and two 2" conduits. Exact sizes and quantities shall be determined and/or reviewed for each building by Leon County MIS. Construction documentation shall indicate the sizes of each conduit along with the type of cable to be installed.

Any fiber optic cabling shall be installed in innerduct. Provide (1) 1" innerduct and (2) 1-1/4" innerduct in one four inch duct, typical. Actual quantities shall be specified on construction drawings and approved by Leon County MIS prior to start of construction.

Sizes and quantities of conduits shall be approved by Leon County MIS before construction documents are issued. All underground conduits shall be clearly marked on construction drawings.

All new services shall be coordinated with the respective service providers for demarcation and conduit tie-in locations. All conduits from new buildings shall be connected to the nearest manhole (or a new manhole) or stubbed up to the nearest service provider aerial pole as designated by Leon County MIS and shown on drawings.

Damage to conduits are the responsibility of the party involved. Report any damage to communications conduits to the Leon County MIS office immediately.

**REQUIREMENTS**

All new facilities or facility renovations shall meet the minimum requirements of two 4" conduits and two 2" conduits. Buildings larger than 200,000 s.f. shall have two service entry points that meet minimum requirements. Where required, rigid galvanized steel conduit shall be extended from the building entrance to the telecommunications room. Pull boxes and other junctions shall be installed as shown on construction drawings.

Conduit runs shall have no more than (2) 90 degree sweeping bends without the installation of an approved hand-hole or manhole. "Sweeping" shall be defined using the following table:

<b>Internal Diameter of Conduit</b>	<b>Required Bend Radius of Conduit</b>
Less than 2"	6 times conduit diameter
Greater than 2"	10 times conduit diameter

The maximum length of any conduit section shall not exceed 400' without the addition of a manhole/hand hole. All new conduit runs shall contain a pull-tape, marked in feet and tied off at the mouth of the conduit.

Conduits shall only be installed in quantities of 2, 4, 6, or 8. In NO CIRCUMSTANCE shall any contractor install a single underground conduit.

All conduit installed underground shall be encased in flowable-fill concrete unless directional bore methods are used or if prior approval is obtained by Leon County MIS and Facilities Management. Conduit passing under sidewalks, parking lots or roads shall be encased in steel reinforced concrete (3500 psi minimum).

Communications conduits, trenches and manholes shall not be shared with any other utility. This includes power, steam or any other service. Communications conduit trenches shall be physically separated from power conduits, cables or trenches by a minimum of 18 inches.

All conduit shall have watertight connections and shall be properly sloped to prevent drainage into buildings. Where conduits enter the exterior walls of any facility, the contractor shall provide pipe sleeves with half-inch minimum watertight seal.

### III. Telecommunications Rooms

#### Overview

##### DEFINITION

Telecommunications rooms are special purpose rooms that house telecommunications equipment. These equipment rooms have stringent requirements due to the nature, size and complexity of the equipment housed in the rooms.

These rooms have two separate classifications. These are:

##### Communications Equipment Room (CER):

A CER is defined as a telecommunications room that serves as the main communications equipment room in a building. This room will house some or all of the following building systems:

- telecommunications (PBX/KSU/ESSX) equipment
- broadband CATV equipment
- data network equipment
- lightning protection
- fiber optic cable terminations
- building automation system equipment
- building security and fire alarm equipment
- overhead paging systems

All buildings shall have one Communications Equipment Room. Minimum dimensions for CERs are shown in the table below. The smallest dimension permitted for any CER shall not be less than 12' X 12' or 150 sq. ft.

<u>Building Area:</u>	<u>Minimum CER Size:</u>
30,000 ft <sup>2</sup> or less	12 ft. x 12 ft.
>30,000 ft <sup>2</sup> to 45,000 ft <sup>2</sup>	12 ft. x 16 ft.
>45,000 ft <sup>2</sup> to 75,000 ft <sup>2</sup>	16 ft. x 20 ft
>75,000 ft <sup>2</sup> to 90,000 ft <sup>2</sup>	20 ft. x 25 ft

Buildings which exceed 90,000ft<sup>2</sup> will require additional information to determine the actual CER size required. Smaller buildings may have less stringent requirements for floor space.

Leon County MIS shall provide final square footage approval for any CER before construction documents are issued however this room shall not be less than 12' x 12' (approximately 150 sq. ft.), except in specifically approved situations. The Communications Equipment Room is the central equipment space to which all star wired segments of the network attach. Space shall be reserved for other technologies that share the same space. CERs shall not be located in rooms which house HVAC, plumbing, electrical power, or other equipment. CERs shall be provided with HVAC services with dedicated thermostats and humidity controls. Do not locate CERs in a perimeter space with vented doors (i.e. similar to outside access mechanical and electrical rooms). All CER's shall be environmentally controlled to maintain a temperature range of 65 to 85 degrees Fahrenheit and relative humidity of 50%. Conditions shall be maintained 24 hours per day, 7 days per week.

##### Communications Closet (CC):

A CC is defined as a telecommunications room that serves as an intermediate connecting point for the building horizontal and vertical cabling and information systems. This room will typically serve an entire floor (less than 10,000 square feet) or a portion of a floor (greater than 10,000 square feet).

Communications Closets shall be star attached to the CER unless special topologies are needed and approved by the Leon County MIS. CCs shall not be located in rooms which house HVAC, plumbing, electrical power, or other

equipment. CCs may be provided with HVAC service equivalent to that in the surrounding areas, however a temperature range of 65 to 85 degrees Fahrenheit and relative humidity of 50% shall be maintained 24 hours per day, 7 days per week. This may require the use of a dedicated HVAC unit or the use of ducted vent fans with vented doors. Do not locate CCs in a perimeter space with vented doors (i.e. similar to outside access mechanical and electrical rooms).

Minimum dimensions for communications closets are shown in the table below. The smallest dimension of any room (CER or CC) shall not be less than 6' for any reason whatsoever.

<u>Serving Area:</u>	<u>Minimum Closet Size:</u>
5,000 ft <sup>2</sup> or less	10 ft. x 8 ft.
>5,000 ft <sup>2</sup> to 8,000 ft <sup>2</sup>	10 ft. x 10 ft.
>8,000 ft <sup>2</sup> to 10,000 ft <sup>2</sup>	10 ft. x 12 ft.

Areas which exceed over 10,000ft<sup>2</sup> may require multiple closets.

Minimum clearances for equipment and cross-connect fields in the telecommunications closet:

- Allow a minimum of 3.0 ft. of clear working space from equipment and cross connect fields.
- Equipment racks or cabinets should be provided within the telecommunications closet (room). Allocate a space of at least 32 in. deep and 7 ft., 6 in. high for each rack or cabinet. Provide space for an aisle of at least 32 in. wide

To facilitate the proper installation, routing and placement of cables, wires, premise equipment and terminal fields, CC's shall be located on each floor, in the middle of the floor, and stacked one above the other, unless instructed otherwise by Leon County MIS. Rooms shall be placed to minimize cable lengths, such that no length of cable exceeds 260 feet.

#### **GENERAL REQUIREMENTS**

**Electrical panels are strictly prohibited in telecommunications rooms.**

**Janitorial or storage space is not suitable for telecommunications rooms. Telecommunications rooms shall not be used to store materials or janitorial supplies.**

**Shallow telecommunications closets are strictly prohibited and shall not be specified for any reason.**

All design drawings for telecommunications shall be submitted to Leon County MIS for approval. Drawings shall show partial plans for the space (showing the room layout), rack elevations, and wall-field elevations.

Doors shall be 3' W x 7' H. Doors shall open fully into the corridor. Some exceptions may apply. Leon County MIS shall approve any exceptions. Floors shall be tile or sealed concrete. No carpet shall be installed in telecommunications rooms.

All rooms shall be provided with 2' x 2' acoustical ceiling tile grid ceilings. No rooms shall be permitted to have ceilings exposed to the building structure.

Fire treated plywood, ¾" thick, shall be provided on all walls in the CER and CCs unless otherwise specified or approved by Leon County MIS painted with (2) coats of fire retardant paint, battleship gray in color.

Install multiple 4" conduits sleeves between stacked CC's and CER's. Quantity shall be as required by MIS. Where rooms are not stacked, provide 4" conduits with pull strings. Extend sleeves and conduits 4" into rooms (from ceiling or wall).

Install overhead ladder cable tray in CER's and CC's on all walls and extend to the data racks in the room. Cable tray shall be 12" W x 1-½"D, typical.

Refer to Figures A and B attached to this document for typical closet requirements and rack elevations.

#### **ELECTRICAL AND MECHANICAL REQUIREMENTS**

All CER's and CC's shall be environmentally controlled to maintain a temperature range of 65 to 85 degrees Fahrenheit and relative humidity of 50%. Conditions shall be maintained 24 hours per day, 7 days per week. If these conditions cannot be maintained 24 hours per day, 7 days per week, HVAC units dedicated to these rooms must be installed.

No plumbing, HVAC ductwork or electrical conduit shall pass through or be directly above the telecommunications spaces, whenever possible.

Provide 2' X 4' fluorescent fixtures, ceiling mounted, as required, to provide 50 foot-candles at 3' AFF. All lighting should be connected to emergency power when available. All ballast types shall be electronic.

Provide quad 120V receptacles on each wall at 6' intervals, at standard 18" AFF height. Provide additional, dedicated 20 amp, duplex 120V receptacles mounted on overhead cable tray. Quantity and locations shall be as shown on construction drawings. Coordinate with MIS for any 30A or atypical power requirements.

Provide a telecommunications grounding busbar in each CER and CC. The bar shall be a minimum of 12" W X 2" H with pre-drilled 1/4" holes. This bar shall be attached to the main building grounding system with a #4 AWG copper wire, minimum. All bonding and grounding shall meet the minimum requirements of the NEC. Refer to Section VI for specific bonding and grounding requirements.

## IV. Inside Cable Plant Wiring and Raceways

### Overview

#### INTRODUCTION

The telecommunications cabling that supports the information systems is a critical resource and must be carefully designed, installed and tested to balance present needs with future requirements. Inside cable plant wiring is the system of horizontal and vertical (riser) cabling, connecting hardware and raceways that provides end to end connectivity between the wiring center (CC) and the workstation.

All communications cabling shall be installed in continuous wire runs from the CC's and CER to the workstation outlet. Leon County MIS and the end users requirements shall determine the types and quantities of outlets in all spaces. These requirements shall be reflected in construction documentation.

### Horizontal Cable

#### GENERAL

Horizontal cabling shall consist of a multiple of Enhanced Category 5 drops and/or RG6 coaxial CATV drops unless noted otherwise on construction drawings.

Each Enhanced Category 5 cable drop shall consist of four unshielded twisted pairs that exceed the EIA/TIA-568-A electrical requirements for Category 5E cable at 100 MHz. All communications cable shall be plenum (CMP) rated, unless otherwise noted on construction drawings. The jacket color of the Category 5E drop cable shall be as indicated in the construction drawings. The cable provided shall be Belden Datatwist 350 or approved equivalent by Leon County MIS.

Coaxial CATV cable drops shall consist of a center conductor, dielectric material, aluminum foil shield and braid and Teflon jacket (for plenum applications) or PVC jacket (for non-plenum applications).

#### REQUIREMENTS

All cables shall be installed without defect and shall be neatly dressed in cable trays and j-hooks. All horizontal cable shall be run above ceilings and properly supported with approved hangers at 4'-0" on center. Bundle cables together in groups of no more than 50 cables and route parallel and perpendicular to building lines. Bundle cables at 4'-0" on center with industrial velcro, or ty-wraps, plenum rated as required. Attach hangers to the building structure. Do not attach hangers to ceiling grid or support wires, conduits, ductwork, piping, or any other system component. Install all cables to avoid electromagnetic interference from motors, transformers, power cables/conduits, lighting fixtures, etc.

Install all horizontal cabling in a neat, professional workmanship fashion. Any cables not run to the acceptance of Leon County MIS may be required to be re-bundled, re-hung, or rerun.

All cables shall be installed by cabling contractors with a minimum of three years experience installing, terminating and testing cables. See contractor requirements in Section VIII. No contractor shall be engaged by a general contractor without the specific approval of Leon County MIS. Cabling contractors shall present certification and qualification documents upon request.

### Vertical Cable

#### GENERAL

Vertical (riser) cabling shall consist of singlemode fiber optic cables, multimode fiber optic cables, multi-pair UTP telephone cables and coaxial distribution cables. Cable sizes, pair counts and strand counts shall be as shown on construction drawings. Leon County MIS shall approve all riser system design criteria before construction documents are issued. All riser cables shall be clearly marked by the manufacturer with the type of cable, the number of pairs/strands, and sequential markings in feet.

#### **SINGLEMODE FIBER**

Singlemode fiber optic cables shall be installed between the CER and every CC in a building. Singlemode fiber optic cables shall be tight buffered with a totally dielectric central member. Cables shall be rated OFNR unless noted otherwise on drawings. Cables shall meet the following physical/performance criteria:

- Core diameter: 8.3  $\mu\text{m}$
- Cladding diameter: 125  $\mu\text{m}$
- Buffer diameter: 900  $\mu\text{m}$
- Maximum attenuation: 0.75 dB/km at 1550 nm

#### **MULTIMODE FIBER**

Multimode fiber optic cables shall be installed between the CER and every CC in a building. Multimode fiber optic cables shall be tight buffered with a totally dielectric central member. Cables shall be rated OFNR unless noted otherwise on drawings. Cables shall meet the following physical/performance criteria:

- Core diameter: 62.5  $\mu\text{m}$
- Cladding diameter: 125  $\mu\text{m}$
- Buffer diameter: 900  $\mu\text{m}$
- Maximum attenuation: 1.0 dB/km at 1310 nm

Multimode Fiber shall be OCC Fiber, DX series, DX012-055S-W3EB/1UC/900-OFNP or approved equivalent by Leon County MIS.

#### **MULTI-PAIR UTP**

Multi-pair UTP telephone cables shall be installed between the CER and every CC in a building. Multi-pair cables shall contain multiple twisted pairs of 24 AWG cables in color-coded sub-units in multiples of five. The conductor identification shall be by coloring the insulation used on each conductor of a twisted pair. Multi-pair UTP telephone cable shall be rated CMR unless noted otherwise on drawings.

#### **COAXIAL CABLE**

RG-11 Coaxial riser cable shall be installed between the CER and every CC in a building. Coaxial riser cable shall consist of a center conductor, dielectric material, continuous aluminum outer conductor and flame retardant jacket. Cables shall comply with the NEC requirements for CATVR rating.

#### **OUTSIDE PLANT CABLE (OSP)**

All cable, including Fiber optic, Multi-pair telephone, and coaxial cables which are run outdoors and underground shall be run in conduit. In addition, all OSP cables shall be flooded with a water-blocking gel.

Multi-pair, outside plant telephone cables shall be PE89 type cables. Pair counts shall be determined by Leon County MIS.

Outside Plant Fiber Optic cables shall be loose tube, water-blocking and totally dielectric.

Outside plant coaxial television cable shall be flooded to prevent flow into damaged jacket areas.

#### **SPECIAL CONDITIONS FOR HOSTILE OR HAZARDOUS ENVIRONMENTS**

In certain conditions, the environment in which the cabling is installed may warrant additional requirements for cabling. Such environments include, but are not limited to jails and prisons, water and waste-water treatment plants, areas known to have rodent problems, areas with excess temperatures and humidity, and the like. These areas shall be identified to Leon County MIS prior to design and installation to determine if any additional considerations to the cabling systems are warranted. Additional considerations may include all cabling to be run in conduit, chemical-proof cable jackets, rodent-proof (armored) cable jackets, and the like.

## ***Outlet Hardware***

### **GENERAL**

Outlet hardware shall be provided at each outlet shown on construction drawings. Outlet hardware shall consist of a multiple of modular 8-pin Category 5E jacks and/or F-type coaxial CATV couplers, unless noted otherwise on construction drawings. Install blank modules in unused spaces.

All faceplate hardware shall be off-white in color or as required to match the architectural finishes of the space.

### **SPECIFICATIONS**

Communications Outlets, unless otherwise specified by Leon County MIS, shall be AMP, 4 port, single gang faceplates, P/N 558088-X, with category 5e modular jacks, P/N 406374-x or approved equivalent by Leon County MIS.

## ***Termination Fields***

### **GENERAL**

Termination fields in each CC and the CER shall be installed as shown in construction drawings. All fiber and UTP riser cabling shall be neatly dressed, labeled properly and terminated in modular termination panels. Coaxial riser cabling shall be neatly coiled with 25' of slack, labeled properly and fastened to the wall with D-rings.

In general, all fiber and UTP cabling (horizontal and riser) shall be terminated in freestanding, 7'H x 19"W equipment racks. All terminations details shall be shown on drawings and shall be approved by Leon County MIS before construction documents are issued.

In the CER, terminate fiber optic riser cables in sequence in modular fiber optic patch panels. Use ST-type terminations and connector modules. Terminate singlemode riser cables in one patch panel. Terminate multimode riser cables in a second patch panel.

In the CC, terminate fiber optic riser cables in modular patch panels. Terminate multimode fiber first followed by the singlemode fibers.

In the CER and CC's terminate multi-pair telephone riser cables to rack mounted 110 blocks. Label and dress all cables and cable pairs. Locations of blocks in racks shall be as shown in construction drawings.

### **SPECIFICATIONS**

Fiber Optic Patch panels shall be Tyco Electronics, fixed-style rack mount enclosure with ST-connectors, P/N 2-1206109-4 or approved equivalent by Leon County MIS..

Horizontal cabling and telephone riser rack mounted 110-style punch down blocks shall be Panduit P/N P110B1004R2 or approved equivalent by Leon County MIS. Punch Down cables using 4-pair termination clips.

## ***Conduits, Cable trays, and J-hooks***

### **GENERAL**

In major renovations and new construction, provisions shall be included in the contract for a minimum of four-4" riser sleeves between CC's. Provisions shall be included in the contract for four-4" rigid conduits between the CER and any CC's on the same floor. Pull strings shall be installed in all conduits. Locations and final quantities shall be as shown on construction drawings and must be approved by Leon County MIS before construction documents are issued.

All wall mounted communications outlets shall consist of a dual-gang back box, a single gang plaster ring, and a 1" conduit stubbed above the ceiling with a pull string. Under no circumstances shall conduit smaller than 1" be used

for communications cabling. All conduit ends shall be furnished with a plastic bushing to prevent damage to communications cables. Where conduit is extended to a cable tray or CC/CER, no more than two 90 degree sweeping bends shall be used without adding a junction box. Junction boxes shall NOT be used at 90 degree bends. The contractor shall indicate the location of ALL junction boxes on their as-built record drawings.

All outlets for wall mounted telephones shall consist of a single-gang box and plaster ring, a ¾" conduit and pull string stubbed above the ceiling. Terminate cable and provide wall-mount telephone outlet with posts.

J-hooks shall be used to manage runs of cable from the workstation to the cable tray or the CC/CER. Cables in J-hooks shall be fastened with plenum rated ty-wraps. Install multiple rows of J-hooks when more than 50 cables are installed. J-hooks shall be Erico CAT 21 or CAT 32 type cable hangers or approved equivalent by Leon County MIS. Install J-hooks at a minimum of 4'-0" on center above ceiling.

Cable trays shall only be used when specifically approved by Leon County MIS. If cable trays are indicated and approved by Leon County MIS, they shall be installed as indicated on construction drawings. Cable trays shall be a minimum of 12" W X 3" D. Cable tray is to be supported by allthread rods at 8' intervals. All installations shall comply with manufacturer's instructions. Use factory 90 degree sweeps for turns and factory crosses and tees for joints. All cable tray ends shall have factory termination ends.

#### REQUIREMENTS

Cable trays, conduits and back boxes shall be roughed in by the electrical contractor, as shown on construction drawings. J-hooks shall be installed by the cabling contractor. All work above the ceiling shall be coordinated with the other trades. All conduits passing through firewalls shall be fire-stopped after installation of cabling is complete. All sleeves passing between floors shall be fire-stopped after installation of cabling is complete.

The contractor shall coordinate the final routing of conduits to avoid conflicts with other utilities and obstacles, while minimizing changes in direction and overall conduit length. All aboveground conduit shall be run overhead except for floor boxes and free-standing casework. Significant changes to conduit routing shall require the approval of Leon County MIS.

The contractor shall coordinate the final location and routing of any underground conduits to avoid conflicts with existing buried utilities and other obstructions. The contractor shall be responsible for location of all existing buried utilities prior to commencing any excavation required. The contractor shall repair any damage to existing utilities that may occur as a result of operations performed. Repairs shall be made using materials & methods to match existing construction and shall be approved by the Leon County MIS and Facilities Management prior to re-covering.

Conduits run indoors shall be concealed overhead above ceilings unless located in spaces without ceilings, in an unfinished space such as equipment rooms, or in spaces specifically indicated to have exposed conduit installations. Indoor conduit shall be EMT with steel fittings. Fittings in exposed indoor locations shall be steel compression type. Fittings in concealed indoor locations shall be steel setscrew type. Support conduit at a minimum of 4'-0" on center with 2-hole heavy duty galvanized steel hardware. Do not run conduits below slab unless specifically indicated and approved.

Support conduit directly from building structure using approved hardware. Do not support conduit from other systems components or supports unless specifically approved. Route all conduits as high as possible. Where conduit is exposed, run hard against wall or underside of roof/floor deck. Run all conduits parallel/perpendicular and plumb with building lines.

Conduit bodies such as 'LB' fittings are not allowable for communications cabling.

For aboveground conduit, provide pullboxes for each run of conduit at every 100 feet on center and at each end of conduit runs containing a total of two 90 degree bends or a combination of lesser bends totaling 180 deg. Conduit

runs containing more than two 90 deg bends without a pull box are not allowable unless specifically approved by Leon County MIS.

For underground conduit, provide hand holes as required due to changes in conduit direction. Install a hand hole in each conduit run of longer than 400 feet or containing the equivalent of more than two 90-degree bends. Install hand holes after bends; do not use hand holes to make a change in direction.

Terminate all conduit ends with plastic insulating bushings. Bushings must fit tightly on conduit connector threads. Install all bushings prior to pulling cable. Install 3/8" marked pull tape along with required cabling for all backbone conduit. Install pull strings in all horizontal cabling conduits.

For underground conduit installations, the contractor shall restore unpaved surfaces disturbed during installation of underground conduit to their original elevation and condition. Preserve and replace sod or topsoil after installation is completed. Replace sod that is damaged with sod of type and quality equal to that removed. Where trenches or other excavations are made in areas of existing roadways or walkways where surface treatment of any kind exists, restore such surface treatment to the same thickness and in the same kind as previously existed and to match and tie into the adjacent and surrounding surfaces. The contractor shall be responsible for determining the extent of existing surface treatment such as concrete or asphalt paving required to be replaced and/or repaired.

The minimum bend radius for all underground conduits shall be 10 times the internal conduit diameter.

After installation and termination of the Category 5E UTP cable, test each cable in accordance with all applicable TIA/EIA standards for UTP Category 5E. Testing shall be of the Basic Link. However, Contractor shall warrant performance based on Channel performance and provide patch cords that meet channel performance.

Test each cable with an approved Category 5E tester to verify compliance with TIA/EIA specifications for Category 5E UTP, "Basic Link" configuration, Level III accuracy, with no allowable deviation. Test at the full range of frequencies indicated by TIA/EIA.

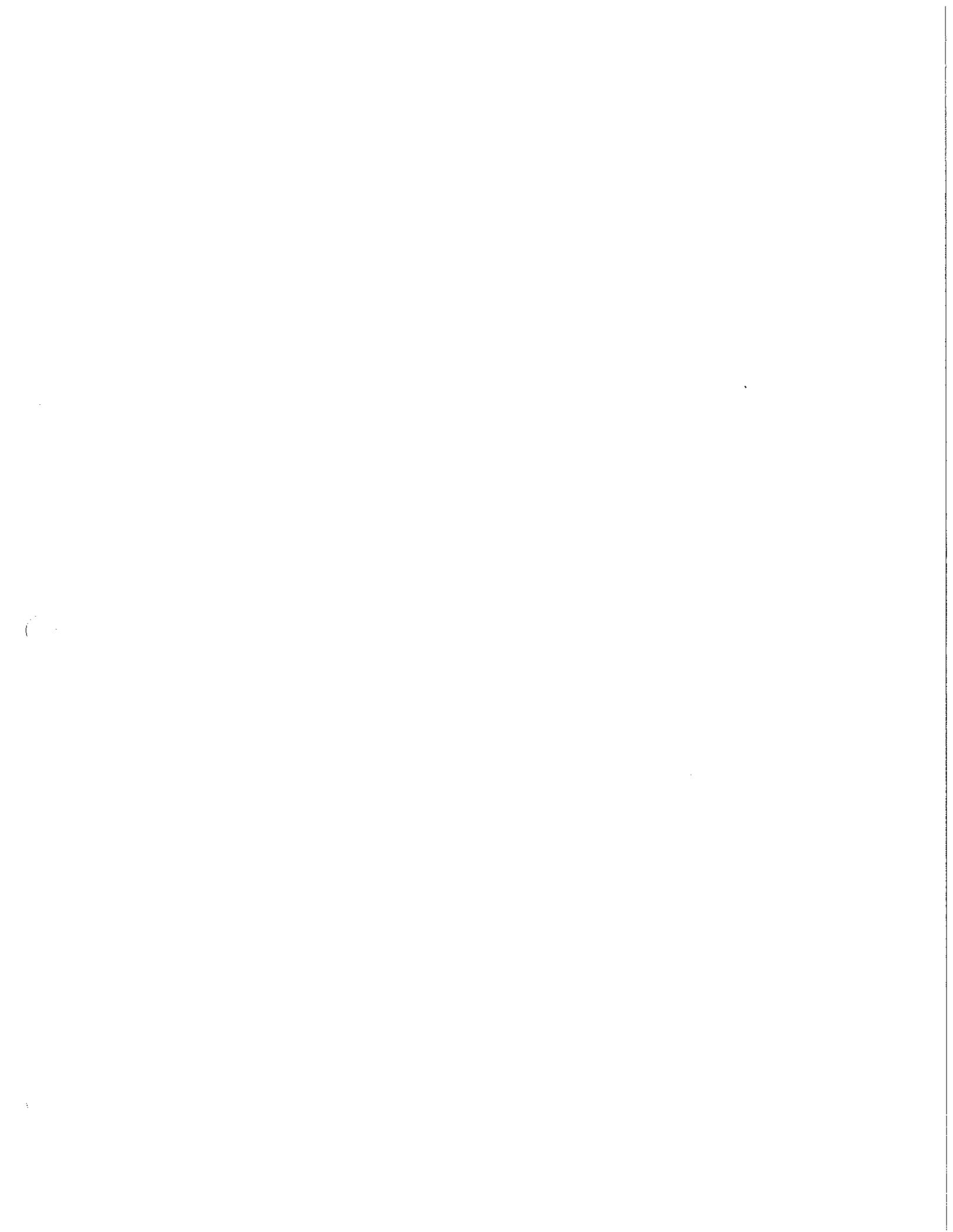
Test each horizontal category 5E cable for the following parameters:

1. Cable Length
2. Wiremap – verify no shorts, opens, miswires, split, reversed or crossed pairs, and end-to-end connectivity is achieved.
3. Propagation Delay
4. Delay Skew
5. Attenuation
6. NEXT
7. PSNEXT
8. Return Loss
9. ELFEXT
10. PSELFEXT

Each and every individual test that fails the relevant performance specifications shall be marked as FAIL.

Results for the electrical tests shall be stored in the cable analyzer. Printed copies of all tests shall be provided to Leon County MIS not less than ten (10) days after completion of the acceptance tests. Electronic copies of the test results shall be provided on electronic media (CD/R). Test documentation for Category 5E cabling shall include the following:

1. A letter from the Contractor's RCDD certifying that all cables have been tested in compliance with the contract documents and have met or exceeded the requirements stated therein.
2. A summary hardcopy printout for all cables using the tester manufacturer's standard software to produce a "Summary Report". The summary report shall include Project Name, Circuit I.D., Result (pass or fail) and the cable length.
3. One copy of a full page hardcopy printout for each cable using the tester manufacturer's standard software to produce a "Certification Report". Each report shall include the following components:
  1. Tester manufacturer, model, serial number, hardware version, and software version
  2. Cable manufacturer, cable part number/type and NVP
  3. Project Name
  4. Operator Name
  5. Circuit I.D.
  6. Autotest specification used (must be standard TIA Category 5E autotest)
  7. Overall pass/fail indication
  8. Date of Test
  9. Cable Length in meters
  10. Wiremap Results
  11. Propagation Delay
  12. Delay Skew
  13. Attenuation\*
  14. NEXT\*
  15. PSNEXT\*
  16. Return Loss\*
  17. ELFEXT\*
  18. PSELFEXT\*



## VI. G

### ***Lightning Protection***

#### **GENERAL**

Lightning protection for telecommunication rooms shall be provided protecting electrical and communication equipment.

All multi-pair UTP telephone cables shall be protected by lightning protection equipment.

#### **MATERIALS**

The following materials are acceptable for use in all construction drawings.

For building entrance terminals, use Receptacle type stub-out terminal. Splice the stub-in to the stub-out terminal in the equipment racks. Locations of blocks shall be indicated on drawings.

Use standard 5-pin gas tube modules in all equipment racks or equivalent.

### ***Grounding***

#### **GENERAL**

A ground is a conduction connection, with or without the earth, or some conduction body that provides a common reference point for electrical potential.

#### **REQUIREMENTS**

Provide main grounding busbars in 'CEI' rooms. The main telecommunication connections in that room are made. All equipment shall be grounded to these busbars through individual grounding holes.

Ground all CC's to the main telecommunication room main copper grounding conductor. Ground the building grounding electrode (building enclosure) to the main grounding conductor. Run grounding conductor in EMT conduit. Provide insulated grounding busbars in all rooms. Grounding to building structure, and to the main electrical service ground is not acceptable.

In CER and CC's, ground all communication equipment enclosures, and lightning protection inductors along cable runway to grounding busbar.

The grounding and bonding practice shall conform to the "IEEE Standard on Electronic Industries Association Communications".

## VII. Codes, Standards and Regulations

### **Overview**

#### **GENERAL**

To design facilities for an effective telecommunications system, the designer and the installer must be familiar with national and local regulations. Both the designer and the contractor must be familiar with and adhere to the standards of the telecommunications and building industries.

#### **AGENCIES**

The following agencies and their codes, standards and regulations shall govern all telecommunications work.

- ANSI - American National Standards Institute
  - EIA - Electronics Industries Association
  - TIA - Telecommunications Industry Association
  - BOCA - Building Officials and Code Administrators
  - FCC - Federal Communications Commission
  - IEEE - Institute of Electrical and Electronics Engineers
  - NFPA - National Fire Protection Agency
  - NEC - National Electric Code
  - UL - Underwriter's Laboratories
- BICSI - Building Industry Consulting Service International

## VIII. Designer and Contractor Qualifications

### *General Design Team Requirements*

*The design team comprised of the A/E Team, Leon County Facilities, and Leon County MIS shall coordinate all aspects of the communications systems design. Leon County MIS shall have final approval of all materials, conduit sizes and quantities, telephone and fiber optic pair counts, communications room sizes, and any other issues related to the communications infrastructure design for the building. Leon County MIS shall have final approval of any selected cabling contractors. During the construction phase, Leon County MIS shall have final approval of all equipment submittals, proposed design changes, testing parameters, labeling, and any change orders that may occur. Leon County MIS shall also review and approve all as-built record drawings prior to final acceptance of the project.*

### *Designer (A/E) Requirements*

The A/E shall be responsible for fully developed structured cabling systems (SCS) and related communications systems design. The A/E shall provide a competent designer who, in the judgment of the Leon County Facilities and MIS, is sufficiently experienced to design the SCS in accordance with these guidelines and all applicable standards.

The State of Florida requires the use of a State of Florida Registered Professional Engineer to design the plans and specifications for any project (including network infrastructure requirements) as required by Florida Statute Chapters 481 and 471 and to produce contract documents for the installation of the network infrastructure by a professional contractor. The State of Florida Department of Professional Regulation requires the use of a State registered professional engineer for the design of data communications systems as per the Rules of the Board, Chapter 21H-33.005, with specific authority via Florida Statute 471.008, 471.033(2).

In addition, Leon County MIS also requires the services of a BICSI certified (Registered Communications Distribution Designer (RCDD) for all communications systems design services.

The A/E shall provide detailed drawings and specifications that fully document the SCS. The A/E shall not rely upon the installing contractor to develop the SCS design or to provide detailed drawings for the system.

The types of drawings and level of detail indicated below are mandatory requirements for each telecommunications design project for the County with individual considerations to be taken into account for each project. A custom design shall be provided for each project.

Key design requirements are as follows:

- Develop and indicate specific topology for the SCS including location and sizing of equipment rooms, backbone conduit sizes and configuration, and backbone cabling pair or strand counts and configuration.
- Provide dimensionally accurate site floor plans indicating location of all buildings and rooms, location of all equipment rooms and communications outlets, conduit routing, and other pertinent information.
- Indicate all cable types and sizes, including end connections and terminal equipment. Provide detailed single line riser diagrams of all voice, data and video systems indicating manufacturer and model number for each system component.
- Provide detailed layout elevations of all backboards and racks, including all wire management, drawn to scale.

## ***Contractor Requirements***

The Structured Cabling System Contractor (SCSC) shall be an experienced firm regularly engaged in the layout and installation of structured cabling systems of similar size and complexity as required for each individual project. The Structured Cabling System Contractor, under the same company name, shall have successfully completed the layout, installation, testing and warranty of not less than five Structured Cabling Systems similar in scope to the project under design for a minimum period of three years prior to the bid date, and shall have been regularly engaged in the business of Structured Cabling Systems contracting continuously since. The Contractor shall have an existing permanent office located within a 200 miles radius of Leon County, Florida from which installation and warranty service operations will be performed.

The Structured Cabling System Contractor shall present, with his signed contract, the name and certification number of a minimum of two BICSI certified Registered Communications Distribution Designers (RCDD) who are permanent employees of the Contractor. The Contractor shall maintain these RCDDs, or other RCDDs approved by Leon County MIS, in his permanent employment throughout this project. These RCDDs shall have overall responsibility for certifying that the installed structured cabling system conforms to these contract documents and to the referenced EIA/TIA, IEEE, BICSI, and UL standards. Specific requirements for the RCDDs are as follows:

- The RCDD shall be, in the judgment of Leon County MIS, thoroughly experienced in the design, layout, and installation of structured cabling systems of similar size and complexity as required for this installation. The RCDD shall submit evidence of these qualifications to Leon County MIS upon request.
- The RCDD shall affix his stamp to the Contractor's pre-installation submittal drawings, indicating that he has reviewed and approved the drawings for conformance to the contract documents and to the referenced codes and standards. As part of the Structured Cabling System installation, the Contractor shall provide detailed documentation to facilitate system administration, maintenance, and future moves, adds and changes. Drawings shall be provided which incorporate all information in the Design Drawings, and which fully document any and all approved changes in materials and methods made by the Contractor. Submittal drawings are not required if no changes to the A/E design drawings are made by the Contractor.
- The RCDD shall periodically visit the site and inspect the work in progress. RCDD site visits shall be made not less than once per week when the job is in active progress. The RCDD shall prepare a field report for each site visit for submission to the Engineer, Leon County MIS, and Leon County Facilities.

The Structured Cabling System Contractor shall provide the following documentation, to be presented with the signed contract, as evidence that the requirements for Structured Cabling System Contractor qualifications listed above are satisfied.

- A list of not less than five (5) references for jobs of similar size and complexity including project name, location, contact person and phone number.
- RCDD name, BICSI certification number, and qualifications.
- Location of office from which installation and warranty work will be performed.

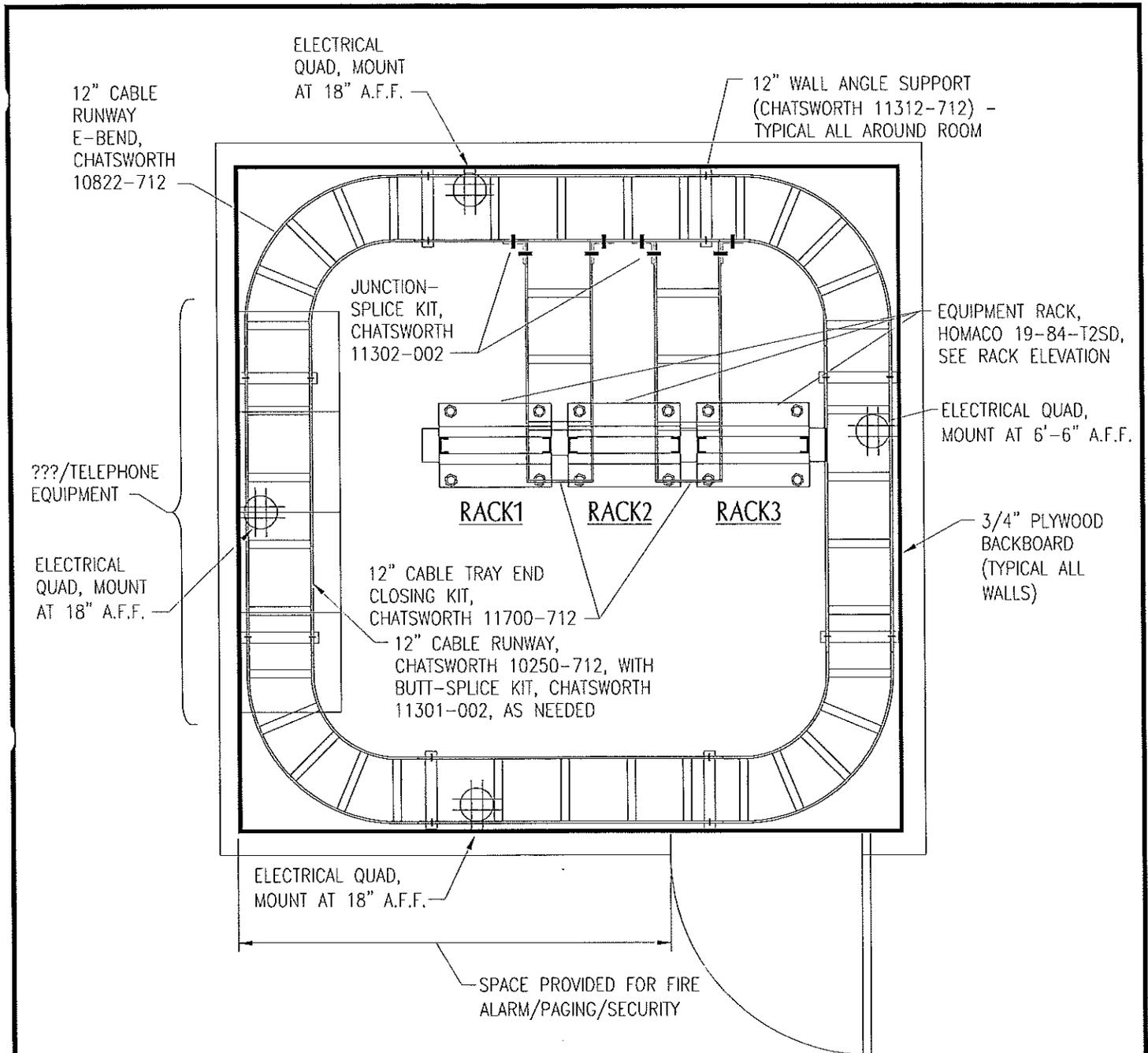
After the project is complete,

- The contractor shall provide all cable test results as outline in Section V. The Contractor's RCDD shall sign off on all copper and fiber optic cable test results, indicating that he was in responsible charge of all cable testing procedures and that all cables were tested in compliance with the contract documents and met or exceeded the requirements stated therein.

In addition, the contractor shall provide as-built drawings indicating all outlets, cable routes, cable ID, conduit, Communications closets, cable trays, and pullboxes. The contractor's RCDD shall affix his stamp to the as-

built drawings, indicating that he has reviewed and approved the drawings as being complete, accurate, and representative of the system as actually installed.

- The RCDD is responsible for certifying and assuring that all installations by contractors are performed in compliance with the contract documents & specifications of this wiring standards document.



**NOTE:** THE GENERIC COMMUNICATIONS ROOM SHOWN ABOVE IS PROVIDED TO DEPICT GENERAL CONSTRUCTION PRACTICES REQUIRED TO MEET COMMUNICATIONS SYSTEMS REQUIREMENTS.

## ENLARGED FLOOR PLAN TYPICAL COMMUNICATIONS ROOM

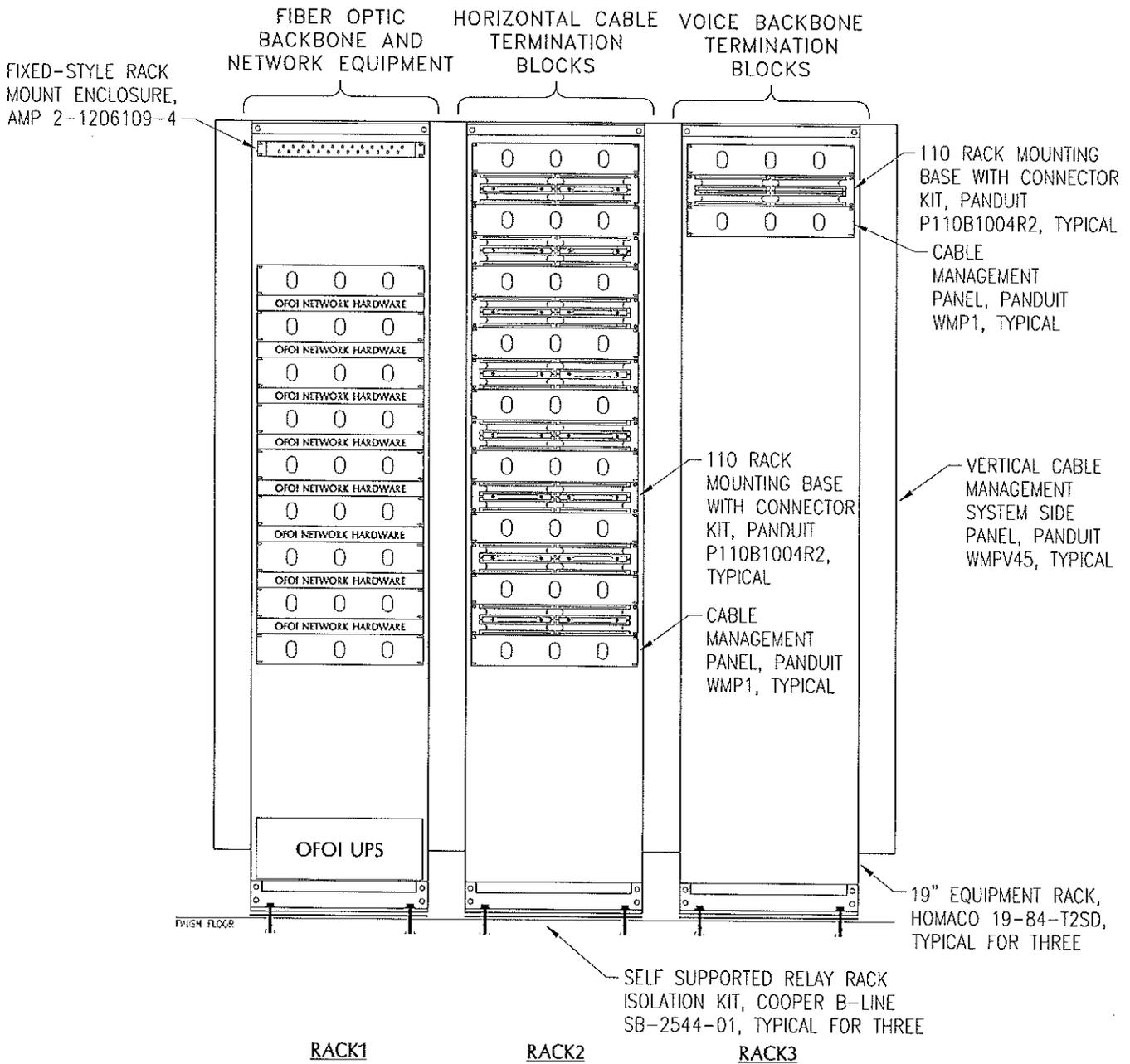
NOT TO SCALE



**SCHMIDT, DELL & ASSOCIATES, INC.**  
CONSULTING ENGINEERS

FLORIDA LICENSE NUMBER 05371 •  
139 E. GOVERNMENT STREET • PENSACOLA, FLORIDA 32501 • PHONE (850) 438-0050 FAX (850) 432-8631

FIGURE A



# RACK ELEVATION TYPICAL COMMUNICATIONS ROOM

NOT TO SCALE



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**FIGURE B**