

BOARD OF COUNTY COMMISSIONERS
LEON COUNTY, FLORIDA
DEPARTMENT OF MANAGEMENT SERVICES
DIVISION OF FACILITIES MANAGEMENT

Facilities Design Guidelines

v. 08.1

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Appendices

- A. Guidelines for Telecommunications Systems Infrastructure for Leon County, Florida**
- B. Project Construction Sign**

Introduction

The guidelines described in this document are for the use of architects, engineers, designers, and construction personnel. They are presented to assist the professional with the design, construction, and management of building projects for Leon County, Florida, by familiarizing him with the County's construction policies and preferences. The design professional shall incorporate applicable portions of this guide into the project drawings and specifications unless specifically relieved of particular provisions in writing by the County Construction Manager assigned to the project. This manual is divided into various sections and modeled approximately after the Construction Specifications Institute (CSI) 16-division format, starting with general guidelines and site work, continuing through architectural concerns, and concluding with engineering guidelines.

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

General Guidelines

General Guidelines for Architectural and Engineering Services

- The Architect / Engineer (A/E) shall conform to the requirements specified in the latest edition of the Leon County Professional Services Guidelines.
- The A/E shall conform to the latest editions of all codes, ordinances and regulations having jurisdiction over the project.
- The A/E shall ensure that the requirements contained in this manual, and those contained in the Professional Services Guidelines, are communicated to all sub-consultants and that their work also conforms to them.
- Quality control is of major importance in each County construction project. The County expects each A/E to routinely follow in-house quality control procedures, as are consistent with professional practice. The A/E shall provide an up-to-date copy of his/her respective firm's in-house quality control manual on request.
- The A/E shall include requirements in the Specifications for an orderly acceptance and turnover of the project to the Owner. Included in such obligations are: punch lists, "record set" plans and specifications, operating and maintenance manuals, and training of County maintenance personnel. Include written notification for insurance purposes.

General Guidelines for Construction Services

- The contractor shall maintain a daily log of weather conditions.
- All construction, renovation, repairs or maintenance work shall be scheduled so as not to disrupt County operations at any time. The contractor, subcontractor, repairperson, or the like shall schedule and coordinate all work with the County before commencing. The contractor must provide after-hour work as required to accomplish the work and take the cost of such work into account in the preparation of bids and/or GMP proposals.

GENERAL GUIDELINES

- Provide temporary partitions to control dust and noise.
- Damage to County property or other property incurred by the contractor during any stage of the work shall be immediately repaired and the damaged area restored to its original condition by the contractor at no expense to the County.
- Projects will only be certified substantially complete when the Project is ready for occupancy for its intended use when a Certificate of Occupancy has been issued and the completion certified by the County's Construction Manager.
- The Contractor shall prepare a master construction schedule using the Critical Path Method, as outlined in the Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors" or similar scheduling as appropriate to the Project size.
- Contract Closeout Documents. Include information regarding final cleaning, adjusting, Project Record Documents, close out procedures, and manufacturers' maintenance instructions including schedules showing proper time intervals for lubrication, adjustment, calibration or checking. Contractor shall consolidate manufacturers' schedules with a single master schedule of required maintenance.
- Project Record Documents: The Contractor shall maintain on site one set of the following record documents to record actual revisions to the Work: Contract Drawings, Specifications, Addenda, Building Official Approved Documents, Change Orders and other Modifications to the contract, Approved Shop Drawings, product data, and samples. Record documents shall be stored separately from documents used for construction and kept current with construction progress. The A/E shall monitor and verify progress in updating record documents prior to approval of Contractor's monthly Applications for Payment. The A/E shall require submission of record drawings reflecting "record set" conditions to the County with the project Close-out Documents. This "record set" shall be adequate to provide the Owner with a permanent record of actual construction, to facilitate troubleshooting, and for use in future building alterations.
- HVAC Systems Manuals: The Contractor shall provide four sets of manuals to the Owner before a Certificate of Substantial Completion is issued.
- Operation and Maintenance Data. Provide detailed requirements for each of the appropriate sections of the specifications. The following checklists should be modified to suit project requirements: Roofing Manufacturers maintenance data. Elevators and hoists as per specifications. Piping systems (printed diagrams, valve tag, etc). Control systems (printed diagrams, operating instructions, etc). Communications (point-to-point wiring diagrams and instruction manuals, if installed by the Contractor). Fire protection systems (as per specifications). Motor control (overload heater charts). Equipment (operating instructions).

GENERAL GUIDELINES

General Design Guidelines

- Provide a design concept that facilitates future expansion and renovation.
- Provide low maintenance and no maintenance materials and equipment both interior and exterior.
- Do not use products containing asbestos or other materials deemed hazardous.
- Certain building system components, typically visible on the exterior of a building or elsewhere on a project site, such as backflow preventers, transformers, switchgear, condenser units, and waste dumpsters, detract from a building's appearance if not appropriately handled. The design professional shall exercise care to ensure that these types of devices do not impact or detract from the project's appearance. All methods of concealment must comply with all applicable codes and with the access requirements of local utilities.
- Determine, in conjunction with County representatives, appropriate sound control characteristics on a space by space basis and provide the appropriate level of acoustical privacy. Specific spaces that will typically require sound control measures are offices, interview rooms, court rooms and conference rooms.
- Consideration shall be given at the early planning stages of a project to the location of sound sensitive spaces in relation to spaces that are sources of ambient noise, such as mechanical rooms, lobbies, break rooms, food service areas, loading docks, elevator shafts, restrooms, trash disposal areas, outdoor areas where people gather, high traffic outdoors areas, and nearby noise producing equipment such as generators. Where site conditions and other planning considerations make it necessary to locate sound generating functions near those with sensitive sound control requirements, special consideration shall be given to the separation of these functions with effective sound transmission barriers.

Design Guidelines for Specific Spaces

Custodial Closets

- Provide a minimum of one 6'x6' custodial closet per floor directly accessible from a corridor.
- Provide tool holders located over mop sink for wet mops.
- For multi-story buildings, provide an enlarged custodial closet / storage on the ground floor adequate to store custodial supplies for the building.

Communications Closets

- Refer to the telecommunications guidelines appended to this manual.

Sitework

General Sitework Guidelines

- Provisions shall be made for locating a dumpster receptacle and recycling containers in an accessible site with aesthetic screening provided.
- New buildings shall have at least one loading zone to accommodate frequent moving of portable equipment to and from the building and to allow maintenance vans and personnel to have ready access to the building. Where loading docks are provided, they shall be located as close as possible to freight/passenger elevators and shall be covered.

Safety Provisions, Security Provisions and Temporary Services

- A six-foot high heavy woven steel wire fence on steel posts (where appearance is a consideration, a privacy type fence might be required) with gates shall be erected around the project site. No trespassing signs to meet OSHA requirements shall be specified. The fence shall be shown on the drawings. The Owner shall be held harmless if improper or inadequate fencing is installed by the Contractor and injury or damage results.
- The specifications shall require the Contractor and its employees, while working on the premises, to comply with the Safety Orders issued by OSHA, and any other safety, health or environmental regulations of the State of Florida having jurisdictional authority.
- The Contractor shall not load or permit any part of the work to be loaded so as to endanger its safety.
- In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss. Notification of such occurrences must be made to the County as soon as practical.
- Unless otherwise arranged in advance, the Contractor shall provide continuous

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utility services until the date of Substantial Completion, or Beneficial Occupancy, whichever comes first, including operation of permanent equipment and services.

- Provide temporary heating and cooling as necessary to protect the work from dampness and cold, and to dry out the building prior to millwork doors, paint and acoustical tile installation.
- Provide temporary water necessary for construction, drinking, and testing of plumbing and mechanical systems.
- Remove temporary lines upon job completion.
- All costs, including use and connection fees, shall be paid by the Contractor.
- Provide temporary Sanitary Facilities and maintain in a neat and sanitary for the use of the Contractor's employees as necessary to comply with the regulations of the State Board of Health and the county and municipality.
- Provide temporary, as well as permanent, fire protection facilities including fire hydrants.
- During construction, fire hydrants shall be installed within the specified distance of a building according to the occupancy classification to meet NFPA requirements.
- Provide temporary barriers, enclosures, shielding, and/or warning signs including audible warning devices as required for protection from hazards outside the required construction site fence, including, but not limited to, open trenches, excavations and falling objects, to comply with all OSHA requirements.
- The Contractor must remove mud and spillage from public streets without delay. Failure to clean streets promptly could result in streets being cleaned by the Owner at the Contractor's expense.
- All catch basins and storm drain lines in the vicinity of the site shall be protected at all times from the entry of mortar, concrete spoil, dirt and other construction debris. The residue from the cleaning of concrete trucks, wheelbarrows, concrete buggies, etc., must be prevented from entering the drainage system. If cleaning is done, it must be contained and the Contractor must remove the residue from the site with other construction refuse.
- Damage to roads or other facilities resulting from Contractor's hauling, storage of materials, or other activities in connection with the Work, shall be repaired or replaced, at no expense to the Owner.
- Include requirements for temporary project identification and informational signs required during construction, and removal at completion of work been. Refer to the Professional Service Guide.

Parking

- Address parking by including parking requirements as part of facility design

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and cost as well as restoration of displaced and disrupted parking.

- All parking spaces shall comply with applicable code regulations and be a minimum of 9 feet wide.
- Striping of all lots must be done using set-fast water borne traffic marking paint. Colors: TM226 White, TM2132 Red, TM2159 Yellow and TM2133 Blue. (Sherwin Williams numbers)

Demolition

- Include the removal of all structures interfering with new construction in the demolition plans.
- Debris resulting from stripping and demolition operations shall be removed at frequent intervals so as to prevent this material from accumulating on the site.
- Removal of trees and shrubs shall include the removal of stumps and roots to the extent that no root greater than three inches in diameter remains within five feet of an underground structure or utility line or under footings or paved areas. Grubbing in open areas shall include removal of stumps and three-inch roots to two feet below finish grade elevations.
- In open areas, foundations of structures shall be removed to a minimum of three feet below finish grade elevation. Where new structures will replace existing structures, indicate extent of foundation removal on the drawings. No existing slabs will remain under fill for new structures.
- Hazardous material removal shall be conducted prior to structural removal as required by federal, state and local requirements.
- Disposal of existing buildings and structures, trees, dismantled equipment, etc., is the responsibility of the Contractor.
- Identify cutting and patching in detail, including incidental cutting, fitting, and patching required to complete the work or to make several parts fit together properly.
- On all projects involving demolition and/or renovation, the A/E should review with the County (for inclusion in the bid documents) the possibility of salvage of materials and equipment.

Earthwork

- No excavation, drilling, exploratory work or installation of fence posts, etc., is permitted until the Contractor has review drawings of existing utility lines.
- Control storm water drainage during construction of the project.
- Slopes shall not be greater than one vertical to six horizontal in grassed areas. Steeper slopes will be considered in unique circumstances and will be reviewed and approved by the Owner.
- All site areas shall be designed for positive drainage with no areas of

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entrapment. Areas drained by piped storm water systems shall also contain a gravity outlet at least six inches lower elevation than the lowest finished floor elevation.

- Exterior finished grade shall be at least six inches below adjacent finished floor elevation around the entire building perimeter except in the immediate area of entrances and exits. Exterior grade shall then slope a minimum of $\frac{1}{4}$ " per foot away from the building for a distance of at least five feet.
- Fill under interior and exterior slabs-on-grade or pavement, and fill under landscaped areas shall meet applicable ANSI/ASTM standards.
- When excavating and backfilling for the mechanical and electrical trades, the compaction of back-fill shall meet applicable ANSI/ASTM standards and the requirements of Section 553.60, F.S., the Trench Safety Act.

Pest Control

- Termite treatment is required for every building.
- The Subcontractor for soil poisoning, must furnish a service agreement stating the work performed will be guaranteed for a period of 5 years from the date of substantial completion. In addition the agreement must state that the structure will be inspected yearly for infestation and treatment provided as necessary. The Subcontractor shall offer an optional renewal of the service on the same terms.
- The type of chemical treatment must be specified, including the amount of application per unit area. The service agreement shall state that in the event of damage during the guarantee period, the Contractor shall make repairs to structurally damaged surfaces to a dollar value based on the size of the building.
- Chemicals and application shall conform to EPA's Federal Insecticide, Fungicide and Rodenticide Acts.

Utility Work

- The Contractor shall make all necessary arrangements for the service, including the point of tie-in, times permitted for utility work, shutdown scheduling, traffic control and amount of lead time notification.
- The Architect/Engineer shall obtain drawings of existing utilities and shall identify services available and points of connections to services. All services shall be metered through meters furnished by the Contractor.
- Detectable or non-detectable plastic marking tape shall be installed underground above all buried utility lines; to facilitate the location of the lines before damage to the lines can occur during excavation.
- Water main materials shall be ductile iron pressure water pipe and PVC

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

- Sanitary sewers shall be vitrified clay pipe with gasketed push joints or PVC pipe with joints as recommended by pipe manufacturer. Sanitary manholes shall be precast concrete or cast-in-place concrete. Cover and frames shall be cast iron. Cleanouts shall be commercially manufactured wye branches.

Paving

- All exterior ramps, stairs, landings and walks shall have an integral non-slip finish and provided with a sealant coating.
- Expansion joints shall be provided in all concrete sidewalks every 20'-0" regardless of width. The expansion joint shall be made of elastomeric pre-molded expansion joint filler, manufactured for expansion joints. Tooled control joints are not to exceed 5'-0". Consult Portland cement Association, Cement Mason's Guide Booklet. All sidewalks shall be designed to prevent water from ponding on them; either crowned or sloped and contain ADA approved tactile warnings.
- Asphaltic concrete paving shall comply with requirements of the Florida Department of Transportation and as determined by the civil engineer. Minimum installation shall consist of 1" plant mixed type S-1 asphaltic concrete surface course over 6" compact base over 10" stabilized soil, unless civil engineers determine otherwise.
- Concrete paving shall be Class 'A' concrete with a minimum compressive strength of 3000 psi in 28 days. All products, materials, and execution shall comply with applicable ANSI and ASTM. Provide pre-molded type expansion joints, full depth of concrete, maximum 30'-0" o.c. and at junctions with vertical surfaces. Specify expansion joints and show on the drawings. Control joints shall be saw-cut to squared relief, e.g., 6'0" wide sidewalk, 6'0" space between. Line up control joints so that new stress points do not occur and cause more cracking of the concrete surface. Provide floated, troweled, and medium broom finished surfaces.
- The County recommends boring as the standard procedure for crossing streets/roads. Saw-cut finished surfaces only as a last resort. Concrete walks shall be cut and replaced from joint to joint, doweled to the remaining slab.
- Walks used as vehicular drives shall be a minimum of 6" thick with edges increased to a minimum of 2 additional inches thick and 10'-0" wide, steel

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reinforced.

Landscaping

- Tree Relocation. Provide instructions in the Construction Documents for relocation of existing trees or other major landscaping and ground coverings.
- Imported topsoil shall be a fertile, friable, natural topsoil of loamy character obtained from a well-drained, arable site free from sticks, stones, roots, clods and extraneous matter. Topsoil shall be a black loam, indigenous to general area in which the project is located and shall be suitable for planting and seeding. Specify a six-inch depth of topsoil for seeded areas and 12-inch depth for planting areas. Specify 18-mil weed block material for planted areas.
- Landscape Irrigation. All landscaped and sodded areas shall be irrigated with an automatic sprinkler irrigation system. Specify Rain Bird irrigation control systems, which shall be compatible with the Rain Bird Maxicom Central Control System. The irrigation system shall be designed so as to eliminate water spray on pedestrian walkways and buildings. All sprinkler lines shall be self-draining. Design the irrigation system to prevent or minimize runoff of irrigation water onto roadways, driveways, walks, etc. Specify schedule 40 wgt PVC irrigation lines.
- All areas not otherwise landscaped shall be sodded with appropriate sod. Comply with ASPA (American Sod Producers Association) - Guideline Specifications to Sodding. Scarify subsoil to a depth of six inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil. Topsoil shall be a minimum of two inches depth over area to be sodded.
- Survey existing trees to save major existing trees from damage by the new construction. Identify these trees in the landscaping plan and make provisions to keep damage and stress from occurring to the trees due to construction activity.

Landscape Design

- From a broad perspective, the regional topography, urban form and vegetation shall serve as points of reference, elements of continuation and, in the case of the Capitol, establish visual landmarks. The elevation changes shall serve as indicators for appropriate plant selection; from flood plain areas to uplands.
- The dominant plant palette for the City of Tallahassee shall be the overall framework for landscape development. The continuation of this palette and aesthetic shall be the element that lends visual coherence to all existing and future County development and which gives a special identity bound to a region.
- The plant palette shall consist primarily of Live Oaks trees, Dogwoods, Redbuds, Magnolias, Azaleas and Camellias. Accent plantings shall focus on

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evergreen and deciduous flowering trees and shrubs which give distinction in Spring, for which the area is noted. Palm trees and other exotic plants shall be reserved for special limited plantings. The overall intent is to achieve coherence and consistency with the use of a limited palette. In so doing, the overall effect shall appear to be not only unified, but set in a landscape that is part of a region and which appears to be indigenous. The designer shall seek to develop a unified landscape with surrounding areas versus an individual building zone landscape which has no relation to adjacent landscapes or larger, overall contextual landscape treatment (e.g. spatial definition, extension for overall canopy, extension of formal alignments, view corridors, etc.).

- Functional and aesthetic requirements shall consider scale, hierarchy, context, adjacencies, spatial definition, screening, buffering, shade, view corridors, and seasonal color. Landscape and plant material shall serve to complement the building and articulate main entry points and provide transitional zones between building area and larger, common open spaces and circulation areas. Plants shall also serve to buffer or screen areas such as service areas, trash dumpsters, bicycle racks and service areas. Plants shall also serve to reinforce rger such as streetscape and adjacent open spaces.
- Establish a hierarchy for landscape treatment of parking facilities. It is the intent that vehicular parking areas be both functional and aesthetically pleasing. Large canopy trees shall dominate the parking areas for shade. The trees shall have significant clear trunks for unobstructed sight visibility.
- Perimeter landscape buffer areas shall be created around the perimeter of lots. The perimeter landscape strip shall be continuous except where it is pierced by access ways. The minimum width of landscape strips shall be ten (10) feet in width, and include canopy trees, groundcover or sodded lawn areas, and continuous shrub masses to screen views of cars.
- Adequate sightlines shall be maintained between the underside of the tree canopy and the top of the shrub lines for security views inward.

Landscape Materials

- Landscaping plant materials shall be in a schedule including plant name in botanical identification, nominal size of trunk or spread of branches, height or other identifiable criteria. These plants shall be specified as "Florida Grade" and selected for the climatic conditions of the specific location. Coordinate the selection of all landscaping materials with County Facilities staff.
- The selection of plant material shall consider the use of plant species that are indigenous to the native plant communities of the region.
- Long term maintenance requirements shall be a consideration for plant selection. Longevity and permanence (e.g. Oak Trees) shall also be a significant factor.
- Plants that grow quickly, thereby requiring more maintenance, pruning, etc., shall be discouraged.

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- Additionally, plants shall be designed and located in a manner that is conducive to easier maintenance.
- Personal security and safety is a significant factor in selecting plant material and specifying their location. Generally, there should be a clear zone (visual zone) between approximate knee height and sight line (or underside of canopy of tree) for all plantings to allow unobstructed views and safety.
- Plants contained in the following list shall be used as a guide for the selection of plant materials.

Canopy Trees

Live Oak

Laurel Oak
Shumard Oak
Red Maple
Sweetgum Tree
Sycamore Tree
Bald Cypress
Slash Pine
Loblolly Bay Tree
Southern Red Cedar
Sweet Bay Tree
Florida Red Bay
Black Gum Tree
Cherry Laurel Tree
Tulip Poplar Tree
Accent/Flowering Trees
Leyland Cypress

Southern Magnolia
Bradford Pear
Dahoon Holly
Weeping Willow
East Palatka Holly
Savannah Holly
Glossy Privet
River Birch
Golden Rain Tree
Loquat Tree
Flowering Dogwood
Chickasaw Plum

Shrubs

Wax Myrtle

Crape Myrtle
Glossy Privet
Camellia
Silverthorn
Pinetorium
Thryallis
Burford Holly
Yaupon Holly
Schellings Dwarf Holly
Chinese Anise
Purple Anise
Primrose Jasmine
Shining Jasmine
Blue Vase Juniper
Parson's Juniper

Pfitzer Juniper
Blue Pacific Juniper
Japanese Privet
Glossy Privet
Wax Myrtle
Fortune Tea Olive
Red Tip Photinia
Japanese Pittosporum
Variegated
Pittosporum
Dwarf Variegated
Pittosporum
Yew Podocarpus

Nagi Podocarpus

Firethorn
White Indian
Hawthorn
Indian Hawthorn
Hybrids Azaleas
Sweet Viburnum
Sandankwa Viburnum
Rose

Groundcovers

Heather
White African Iris
Blanket Flower
Radicans Dwarf
English Ivy
Hybrid Daylily
Prince of Wales
Juniper
Golden Lantana
Trailing Lantana
Evergreen Giant
Lilyturf
Lilyturf
Boston Fern
Minima Jasmine
Coontie
Vines
Creeping Fig
Carolina Jasmine
Coral Honeysuckle
Confederate Jasmine
Accent Plants
Heavenly Bamboo

SIT E W O R K

Red Fountain Grass

Fakahatchee Grass

Wetland Plants

Yellow Canna

String Lily

Soft Rush

Blue Fig Iris

Fragrant Water Lily

Pickerel Weed

Arrowhead

Bulrush

Cordgrass

Fire Flag

Exterior Signage

- All exterior sign types and locations shall be reviewed by the County's Construction Manager.

Stormwater Drainage Guidelines

- Building floor elevations shall be set to minimum standards above 100-year flood plain elevation, but in no case lower than two feet above the 100 YFP.
- Provide for no floodwater from the 25-year storm event greater than six (6) inches deep on local roads, parking lots or other non-street vehicular use areas.
- Provide catch basin or inlets of precast, or cast-in-place concrete.
- Grates and frames shall be cast iron or galvanized steel.
- Drainage pipe to be concrete, corrugated metal pipe or helicoidal metal pipe (bituminous coated or aluminum).

Concrete

General Requirements

- Require concrete tests on projects utilizing structural concrete.
- Require proper coverage of reinforcement.
- The Architect/Engineer shall justify the use of admixtures. In general, admixtures are not desired.
- Provide proper seals where pipes pass through floors, to be made tight around the piping to prevent passage of vermin, rodents and fire.
- Specify proper filler where expansion space is needed.
- No buildings or other structures shall be built using exposed concrete finishes, other than exposed concrete paving and pre-cast architectural concrete or cast stone.
- Exposed concrete, pre-cast concrete and cast stone using steel reinforcing shall have exaggerated concrete coverage and/or epoxy coating to prevent rusting and spalling.
- Provide a sample of finished concrete for approval before proceeding.

Masonry

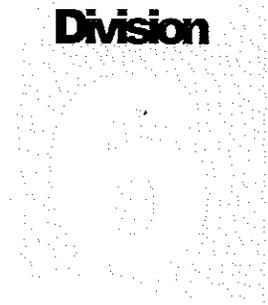
General Requirements

- Tool all exposed joints slightly concave when thumbprint hard, using a joint tool larger than joint.
- Plasticizers, accelerators, retardants, water repellent agents, or other admixtures are not recommended.
- Tops of all masonry walls, exterior and interior, where applicable, shall be built tightly against the floor construction above for stability, fire and sound protection, except where provision must be made for expansion, requiring alternative means for ensuring stability, etc.
- Require composite masonry mock-ups as a standard practice. The panel shall not be removed until masonry work is completed or until removal is authorized.
- Single wythe masonry construction for exterior walls is not recommended unless approved by the County Construction Manager.
- All masonry units shall be properly protected at the job site to insure placing in the wall without excessive moisture content.
- All interior masonry walls exposed both sides shall be 6" thick, minimum.
- All brick shall be laid with modular coursing, three courses to 8", unless otherwise required to match existing coursing or to accentuate an architectural feature or pattern. ASTM standards shall be complied with for all face brick, Grade SW, Type FBS. In addition, manufacturer's certification will be required stating that the rating for effervescence is not more than "slightly effervesced" in accordance with ASTM.
- Cleaning should be done sufficiently early for the walls to dry thoroughly; at least four weeks prior to application of silicone or other recommended waterproofing.
- Specify cleaning agents of detergent or solvent. (Acid solution is not recommended.)

Metals

General Requirements

- All structural steel work shall comply with AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" and applicable ASTM Standards.
- All exterior ferrous metals shall be hot-dipped galvanized including all shelf angles and other metal used in cavity walls, whether or not it is exposed to view.
- All iron and steel items must be shop primed and have additional coats applied at the job to prevent rusting.
- All exterior ferrous metals exposed to view shall be primed and painted with a paint coating designed for compatibility with the galvanized surface on which it is applied.
- All interior ferrous metal shall be painted with three mils of paint on all surfaces.
- All metal components shall conform to applicable ASTM requirements, including gratings, castings, supports for ceiling hung equipment and framed partitions, construction inserts and fastening devices, expansion joint inserts and covers, stair nosing and access doors for both ceiling and wall applications, vertical ladder for elevator pit; welded steel ladder (to meet OSHA,) elevator pit sump gratings; corner guard angles; steel angles, channels and clips; pipe sleeves for mechanical and electrical trades; trench drain gratings and frames; galvanized steel corner guards and, miscellaneous structural shapes.
- Handrails shall not end in 90 degree angles where there are circulation
- paths nor extend more than 3 inches past the circulation areas. All rails: 1-1/2" standard steel pipe. All posts: 2" x 2-1/2" standard steel pipe. Comply with all applicable codes.
- Tree grates shall be of dimensions as required with concentric patterns having gray iron frame sections and gray iron grate bolted to the frame.



Wood and Plastics

General Requirements

- Provide pressure treated lumber for all lumber in contact with concrete, masonry or steel.
- If plastic laminate is used, a backing sheet of manufacturer's recommendation must be specified. This material shall meet flamespread-rating requirements of NFPA 101 for interior finish consistent with the occupancy classification.
- Minimize the use of wood handrails because of the difficulty of maintaining an acceptable finish.
- Wood handrails shall return to walls and/or newel-posts.
- All lavatory counters shall have a seamless surface with back splashes at least four inches high and of a smooth, low maintenance material.

Thermal and Moisture Protection

General Requirements

- Water-proofing products (sheet butyl, PVC, EPDM, CPE, CSPE, neoprene, hypalon, or composite laminated membrane) shall be designed to function as principal moisture stop in arresting water predominantly in a horizontal application; adhesive bonded, self-adhered, loose laid, or mechanically secured installation.
- Slabs on grade shall be designed and installed so as to prevent damage to membranes during construction. At special areas and where waterproofing is considered necessary for slab on grade, a double slab system is preferred in order to reduce chances of a punctured membrane. A product equal to "Bituthane" by W. R. Grace should be considered under the wear slab.
- For a basement waterproofing condition, a water bar is essential at walls and columns.
- If a Radon Barrier is required, special consideration shall be given to design.
- Provide a through-wall damp-proofing membrane to prevent moisture in the soil from extending up the wall by capillary action. Material can be as light as 2 oz. copper-backed sisal paper if properly lapped and sealed at joints.
- Basement walls shall be damp-proofed or waterproofed on the soil side. The type of material to be used depends upon the condition; a brushed-on coat of bituminous paint might be adequate for dampness but sheet membrane waterproofing or "Bentonite" or equal should be considered where hydro static pressure is expected.
- Special consideration shall be given to preventing leakage in shower and drying room areas, especially on elevated floors.
- A depressed floor shall be provided for toilet areas where ceramic tile is used to allow space for the waterproofing pan and slope to drain.
- In waterproofed floor areas, a 24-hour water test required prior to placement

THERMAL AND MOISTURE PROTECTION

of the finish flooring. If leaks occur, another test is required after repairs are made.

- Water repellent materials shall be clear elastomeric water repellent.
- Provide a method used to continue a seal formed by a vapor and air barrier for each building enclosure construction, and to seal gaps between adjacent materials forming wall and roof openings.
- Fire stop material shall be used to close openings and continue a fire resistance rating uninterrupted.
- All gutters and downspouts, hangers, straps and shoes shall be completely detailed and/or described. Gutters and downspouts shall be held 1" from the building wall to allow air to circulate between gutter/downspout and wall surface.
- Specify that sealants, caulking and seals shall be done by experienced mechanics. Provide the highest quality of sealants for each individual application. Evaluate life-cycle costs for sealant products. In addition to caulking for water tightness, caulking shall be specified for finished appearance, i.e., at cracks between the juncture of different materials or of horizontal with vertical surfaces. Caulking is not to be used as permanent construction. Caulking shall be specified for use only as a supplement to properly designed and detailed joints.

Roofing

- Sheet metal flashing and trim. Shall be provided in accordance with the Architectural Sheet Metal Manual by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
- The County prefers clerestory structures in lieu of skylights. If skylights are used in the building design, ensure that performance requirements have been made as stringent as possible.
- Provide overflow scuppers in parapet walls to prevent water building up if the roof drains clog.
- Where gravel stops are used over exterior surfaces, provide high gravel stops, to prevent water from spilling over with resulting stain effect.
- Roof slopes shall be maximized, but in no case less than 1/4 inch per horizontal foot. The slope of the roof can be obtained either through the structural design or tapered insulation. The design and workmanship of the finished roof shall be such that no water shall pond on the roof surface more than 24 hours after a rainfall.
- An interior means of gaining access to the roof shall be provided with locking capability.
- The A/E shall specify a minimum of three manufacturers of roofing systems and shall obtain notarized letters from each factory technical representative

THERMAL AND MOISTURE PROTECTION

that the type of roofing system specified will perform in this locality and that all materials delivered to the job site and used by the contractor complies with the specifications. Minimum warranty shall be 20 years unlimited with no dollar limit.

- Roof drains shall be unobstructed, properly connected to storm drains and designed and installed as per the Florida Building Code.
- Emergency overflow scuppers shall be constructed below the flashing and not more than one inch above the roof surface.
- If pre-stressed concrete structural members are used to support flat roofs or roofs with minimum pitch (with or without a light-weight concrete topping poured on the structural members), an expansion joint shall be provided at the ends of each pre-stressed section where the structural members butt together to allow for proper expansion. The roof insulation shall be applied in two layers with no bonding applied between the two layers. Regardless of the thickness required to obtain required pitch or "R" rating, the thickness shall be enough to prevent expansion and contraction of the pre-stressed members. The bottom layer of insulation shall be bonded to the felt layer above. Care shall be taken to avoid coincident placement of joints.
- On all built-up or membrane roofs, roof walkways shall be provided from roof access point(s) to and around all roof installed mechanical or electrical equipment.
- Do not provide rooftop A/C units or exposed ductwork.
- Parapet walls and caps (or coping) shall have through the wall flashing. If limestone caps are used they shall have a lead "T" shaped cap embedded in caulking between each piece of stone cap. Mortar shall not serve this purpose.
- Warranties from roofing manufacturers shall include coverage for installation as well as materials. In the event of roofing material failure, the roofing manufacturer shall warrant all costs of roofing repairs, including labor. Warranty shall be in effect for as long as the material warranty is in effect.
- The A/E shall physically verify dimensions where critical to the project design, such as roof areas, room layouts, etc.
- Roof installations must meet current wind load design standards.

Exterior Closure Assemblies

- Do not use exterior wall assemblies that have not been tested for 20 years such as EIFS (Exterior Insulated Finish Systems).
- Do not rely on sealants alone to prevent water infiltration.
- Ensure that the entire building exterior moisture barrier systems have continuity and form a continuous, uninterrupted barrier to water infiltration.
- Do not use galvanized metal for flashing.

Doors and Windows

Doors and Frames

- All exterior doors shall be insulated metal doors with adequate weather stripping and threshold utilized to conserve energy. If glass is used, the glass shall be thermal/safety glass, and non-reflective.
- All interior solid core wood doors to be left natural shall be finished with a natural material, which is insoluble and resistant to marring, abrasion and staining.
- Door frames shall be properly anchored to prevent movement of frame during the opening and closing of the door. Galvanized frames shall be used in exterior applications. Frames in masonry shall be fully grouted.
- To prevent the flexing and breaking of the wall along the door frames, a nest of studs shall be provided around each door installation to accommodate the weight of the door and the shock caused by the closing of the door. The number and gauge of studs in the nest must be specified. The finished wall shall extend into the doorframe throat opening a minimum of 1-1/2 inches for wrap-around frames.
- Do not knock-down frames.
- All operable items on exterior doors shall have an integral painted or baked on finish.
- At least one main entry door shall be accessible from adjacent sidewalks by wheelchair and shall display the proper handicapped signage. Preferably all other entry doors shall have proper signage to direct wheelchair handicapped persons. The current ANSI standards shall apply to raised letter signage for the blind.
- Exterior doors shall be of "monumental" quality, minimum width of each leaf 3'-0" and minimum height of 7'-0". In renovation projects, a different height may be used, if appropriate.
- Interior doors shall be 3'-0" wide minimum x 7'-0" high each leaf, except that in renovation projects the door height shall match existing. Do not mix door

DOORS AND WINDOWS

- heights in adjacent areas. All doors shall be solid core wood stave.
- All doorways shall be numbered. Do not place number on door, but to the open side with raised numbering at a height of five feet.
 - View panels in any fire door shall conform to Florida Fire Prevention Code specifications.
 - Install doorstops on all doors.
 - All hollow metal door frames shall be made of min. 16 gauge metal. Provide reinforcing of frames for hardware. A light angle is desirable. Where two doors swing from the same mullion the metal should be of heavier material and reinforced.
 - If large equipment occurs in a room, provide doors of adequate width to provide clearance for moving the items in or out. If size is questionable, use larger size opening.
 - All corridor doors and doors to closets shall be 1-3/4" solid core to meet requirements of NFPA 80 and 101, and able to use standard locksets. Where cutouts for closers are required, the head rail should be not less than 6 inches. If hardwood edges are desired, they should be completely specified with the thickness given. Wood doors shall meet the Standards of The National Woodwork Manufacturers Association.
 - All doors shall be 7-foot high doors as a standard.
 - Wood door quality shall be clearly specified as well as manufacturer's name noted.
 - Plastic faced wood doors shall conform to NEMA LD3 Adhesives for both exterior and interior shall conform to ANSI/NWMA-I.S.1.

Door Hardware

- Include a completely itemized hardware schedule in the specification. A cash allowance for finish hardware shall not be used unless otherwise authorized. The hardware schedule shall include a complete list of items proposed as standard, together with manufacturers' names and with the names of manufacturers whose products are proposed as equals.
- Specify one manufacturer as standard and, whenever possible, at least two other manufacturers whose products are proven equal.
- The hardware supplier shall furnish to the door manufacturer templates or the actual hardware.
- Hardware added to existing buildings will be of the same manufacturer as the existing hardware, unless specified otherwise, and shall be in compliance with the American with Disabilities Act.
- Use non-handed door closers whenever possible: Russwin 2800 series, Sargent 1230 series, or LCN equivalent.

DOORS AND WINDOWS

- All operable items on exterior doors shall have an integral finish -- not applied, painted, baked on, etc.
- Use stainless steel at all locations where severe usage is anticipated.
- Hardware trim shall be Satin Chrome, US26D, 626 finish.
- Provide only five-knuckle, stainless steel ball-bearing hinges, with non-removable pins, on exterior doors. Provide heavy-duty ball-bearing butts, with 4 ball bearing for exterior doors and interior doors over 3 feet wide and standard weight butts with 2 ball bearing for interior doors up to 3 feet wide.
- All hinges on exterior doors or doors in security areas should have non-removable pins to prevent the unauthorized removal of the door from the outside.
- Provide extra-heavy adjustable pivots at exterior doors that have a high frequency of use.
- Interior Door Locks: Heavy use openings - use heavy duty lever handle lost motion mortise locks; Best, Russwin, Sargent, or comparable. Standard use openings -- use heavy duty lever handle lost motion cylindrical locks; Best, Russwin, Sargent, or comparable.
- All building entrance/exit doors shall be equipped with exit devices. Use horizontal exit bolts for single doors and horizontal exit bolts with removable mullions for double doors. Vertical rod fire exit bolts are not desired unless their use is dictated by specific functional requirements.
- All exit bolts installed on exterior doors should have cylinder dogging devices.
- Provide Von Duprin 99 series, or Russwin ED5000 series, or Sargent 9800 series, reinforced crossbar exit bolts in a finish compatible with the door.
- Exit bolts for narrow stile exterior doors shall be equal to Russwin ED4000 series, Von Duprin 55 series or Sargent 9500 series.
- Provide Kawneer Panic Guard, or comparable, at exterior double door aluminum entrances.
- Provide aluminum or steel removable mullions at all lockable pairs of doors, interior and exterior.
- Provide surface applied Russwin 2820 series, LCN 4040 series, or comparable closers.
- Provide weather-stripping at heads and jambs and surface applied automatic door bottoms, on machine room doors and other doors where excessive noise is anticipated.
- Provide kick plates, push plates, or pull plates of lexan or stainless steel.
- Avoid thresholds raised above floor levels at doors to trash and receiving rooms and at all doors intended for use by handicapped persons.
- All interior fire doors shall have magnetic door holders actuated by the building fire alarm system, where appropriate and allowed by code.

DOORS AND WINDOWS

- Provide latch guards at secure exterior doors.
- Review with the Owner regarding electronic building card access and control systems.

Keys and Keying

- All door locks shall be purchased with Best removable core cylinders "less cores." The County will accept no substitutes. All final cores and keys will be supplied and installed by the County, in order to maintain consistency of County master keying systems and to maintain control over final keys. The Contractor must coordinate installation of cores with the County and the County's Locksmith.
- Cores for all exterior doors and certain high security interior doors shall be keyed using a non-duplicable Best patent keyway.
- The Contractor will supply and install temporary construction cores and provide construction personnel and the owner with keys during construction.
- All keyed locks shall be grand master reserved and subject to the Zone Master as assigned to the facility by Leon County Facilities Management.

Electronic Card Access

- Review each project with the County regarding electronic building card access and control systems.
- Where the County elects to include an Electronic Card Access system, provide a system compatible with existing County security and monitoring systems.
- Interior stand-alone card access shall be Best B.A.S.I.S. G Series or Locknetics 5596 MGK 17 LC 626 ATK, with Best cylinder and core key override. Installation and programming shall be done in coordination with Leon County Facilities Management.

Window Guidelines

- Do not locate glass in areas that are inaccessible. Exterior windows shall be accessible for washing either by manually operable sash, the use of a swinging scaffold or the use of safety gear that snaps onto the window frame. Each window shall be properly equipped with anchors to support safety gear.
- All windows shall be capable of being opened manually for cleaning and in the event of a shutdown of the HVAC equipment, unless fixed windows are required for control/security reasons. Operable windows shall be provided with positive locking devices.
- Consideration shall be given to the use of double panes (thermopane) with outer shield of solar glass, especially if windows area exceeds 3% of wall area.

DOORS AND WINDOWS

- Provide guardrails at all full height glass panels in accordance with applicable codes.
- Confirm that any hurricane shelter requirements have been considered in the design of windows and selection of window materials.
- Types of glass and location shall be indicated on the drawings or in the specifications.
- Use obscure glass in toilet and bathroom windows.
- All window glass shall be replaceable from inside the building wherever feasible.
- Windows shall be glazed in the closed position and left closed for several weeks, particularly awning or projected types.
- Specify safety glass in all hazardous locations to comply with Life Safety Code, ADA Requirements, etc.
- Selection of window materials shall be assessed for long range, life-cycle cost.

Finishes

General Guidelines for Finishes

- The selection of materials shall have the benefit of long range, life cycle cost analysis. All selections shall, however, be within budget limitations. It is expected that the A/E will advise the County of all savings opportunities regarding material selections. Solid and hazardous waste disposal costs for excess materials shall be included in the life cycle cost analysis.
- The A/E shall coordinate all color and material selections with the County. Color schedules will be required for review with the submittal of 100% construction documents. Schedules and samples shall be provided for interior finishes, such as paint, vinyl, baseboards, carpet, tile, bathroom partitions, and the like as well as exterior finishes, such as paint, roof shingles, glazing, and so on. Colors shall be presented in the form of a non-returnable "color-board," which demonstrates all color selections in the form of an overall project color palette. In case of special concrete finishes or stucco work, a sample at least 2'-0" square shall be submitted.
- As a minimum, use a latex-based semi-gloss paint on all wall surfaces to be painted to facilitate cleaning. Use water based epoxy paint behind and beneath water coolers, trash receptacles, adjacent to elevators, in vending rooms and in all restrooms.
- Do not use paint containing lead.
- All horizontal, plastic laminate surfaces shall have a matte finish.
- Blown-on acoustical ceilings and walls are not acceptable.
- Restroom floors shall be of ceramic, porcelain or quarry tile with dark epoxy grout. Elevated restroom floors shall have a watertight membrane, sealed so as to prevent seepage.
- Custodial closet floors shall be finished with ceramic or quarry tile and dark grout, or sealed concrete.
- Walls in restrooms and custodial closets shall be of ceramic tile or other special waterproof coating material, a minimum of 4 feet high.

FINISHES

Carpet

- Carpet grain direction, seaming, and scribing shall be carefully addressed in drawings and specifications.
- All carpet, unless otherwise specified, shall run in the same direction. Lay with a minimum number of seams and carpet sections. All carpet is to be smoothly laid with no bubbles, ridges, etc.
- Where roll carpet is used, no seams shall occur at doorways and entries perpendicular to doors and entries. Seaming occurring at doorways parallel to doors shall be centered directly under doors.
- When seams occur at corridors, change of directions shall follow wall line parallel to carpet direction.
- Cross-joints, which are necessary due to length of rolls, shall be placed in the cutting, to avoid occurrence at conspicuous locations, near doors, or at pivot points.
- Where needed, raw carpet edges at doorways and the like shall be finished with a high quality metal strip or molding.
- Do not specify carpet in stairways.

Carpet Quality Assurance

- Fire Performance Characteristics: Provide carpet that meets or exceeds code requirements.
- Appearance Retention Rating (ARR): Test Method: Carpet and Rug Institute (CRI) test TM101 graded in accordance with ASTM D-5252(hexapod). Rating: 4.0 or higher.
- Colorfastness to Light: Test Method: AATCC-16, option E. Rating: 4 minimum, 4.5 for heavy light exposure locations, after 40 AATCC fading units using AATCC gray scale for color change.
- Soiling Resistance: Test Method: AATCC 189 Rating: An average of 3 fluorine analyses of a single composite sample to be a minimum of 500 ppm fluorine by weight when new and 400 ppm fluorine by weight after 2 AATCC 171 (HWE) cleanings.
- Stain Resistance: Test Method: Red Dye 40 Test. Rating: 8 or better.
- Durability Characteristics: Tuft Bind / Edge Ravel: Test Method: ASTM D-1335. Rating: 10 lbs. Of force or higher, wet. Delamination Strength of Secondary Backing: Test Method: ASTM D-3936. Rating: 2.5 lbs. of force per inch width. Dimensional Stability of Modular Carpet: Test Method: Physical measurement. Rating: within 1/32" of specifications.
- The manufacturer shall supply unrestricted, full replacement non-prorated warranties guaranteeing wear no more than 10% yarn loss by weight for a minimum of 15 years of carpet under normal use, no edge ravel in normal use for a minimum of 15 years of normal carpet use, no zippering for a minimum

FINISHES

of 15 years of normal carpet use and no delamination of primary and secondary backings for a minimum of 15 years of normal carpet use.

Carpeting Products

- Based on appropriateness of use, carpet selections shall be made from the following:
 - Broadloom Carpet – 12’ roll goods. Tufted level or multi-level loop pile. Dupont Antron Legacy or Lumena, type 6,6 nylon. No substitutions. Dye Method: 100% yarn dyed, solution dyed or a combination of yarn dyed and solution dyed. Pile Weight: 26 oz per square yard or higher measured according to ASTM D-5848. Stitches: 8.3 per inch minimum measured according to ASTM D-5793. Pile Height: 0.145” minimum measured according to ASTM D-6859. Primary Backing: Woven polypropylene or equal. Secondary Backing: Woven polypropylene or equal.
 - Hard-backed Carpet – Same as above except 6’ roll goods, solid backing impervious to moisture; primary backing: reinforced synthetic; secondary backing: fiberglass reinforced thermoplastic composite; pile weight: 22 oz per square yard or higher measured according to ASTM D-5848; and stitches: 10.0 per inch minimum measured according to ASTM D-5793.
 - Modular Carpet – same as hard backed carpet except supplied as individual solid backed carpet squares. Install with releasable adhesive. Recommended for general use and where additional cleanability, acoustical dampening and durability is desired. Modular carpet is recommended where frequent carpet replacement is anticipated, where access to the substrate is necessary and where replacement of roll goods is impractical due to obstructions in the space.
 - Solution Dyed Carpet (Lumena) – made with carpet yarn that has color throughout the yarn and therefore has superior color retention and resistance to fading. Solution Dyed Carpet may be supplied as Broadloom, Hard-Backed or Modular. Solution dyed carpet is recommended for general use and use in areas with high sunlight exposure and/or potential exposure to bleaching agents, such as areas near toilets or janitor’s closets where bleach is used in cleaning.
- Carpet Adhesive: Provide highest quality adhesive recommended by the carpet manufacturer for intended use condition. No substitutions. All adhesive used for modular carpet tile shall be a releasable adhesive.
- Carpet products shall be applied to areas within projects according to the following recommendations:
 - Very High Traffic Zones – Immediately inside entrance doorways, elevator doors, and other places where traffic is very highly concentrated. Use tile, walk-off mats, or similar materials in the immediate vicinity of the doorway, elevator entrance or other high

FINISHES

traffic zone. As traffic concentration begins to be more spread out, transition to carpet, using the recommendations below for High Traffic zones.

- High Traffic Zones – Modular Carpet is recommended for High Traffic Zones where frequent carpet replacement is likely. Transition to Hard Backed Carpet as traffic becomes less concentrated, and frequent carpet replacement becomes less likely. These zones must be designed carefully and with respect to the challenges of each particular project, but, in general, the designer should consider Hard Backed Carpet in corridors, lobbies, atriums, aisles, walkway areas within open office areas and similar spaces. Give careful consideration to the transition of this thicker carpet to adjoining areas using Broadloom Carpet.
- Areas with High Sunlight Exposure or Exposure to Bleaching Chemicals – Use Solution Dyed Carpet for superior color retention and resistance to fading. Provide this carpet as a Broadloom, Hard Backed or Modular design, depending on the traffic characteristics of the space, as outlined above. Examples of such areas are Atrium spaces located inside large areas of South-facing glass, spaces adjacent to any spaces using chemicals with bleaching properties, and carpeted areas adjacent to custodial closets and toilets.
- Other areas, including offices and other spaces, can be carpeted with Broadloom carpet, at the discretion of the designer and the County. Careful consideration should be given to the use, traffic load, and sunlight exposure of each area in choosing the most effective carpet for that area.

General Carpeting Installation Guidelines

- As job progresses, surplus adhesive squeezed out between joints shall be removed. Any stains remaining shall be removed by approved methods.
- Upon completion of work, all base and edging shall be cleaned, all foreign materials removed by approved methods.
- Installation of carpeting and related items shall be done by a competent contractor normally engaged in this trade with materials and methods complying with the specifications and drawings, and in such a manner as to insure a workmanlike job.
- Moisture tests of substrates are required prior to the installation of carpet and vinyl tile in new structures. A satisfactory reading, conforming to the manufacturer's requirements, shall be obtained before installation is permitted.
- Carpet shall not be installed prior to drywall installation.
- Floors shall be free of all wax, grease, paint, oil or any other substance that would create adherence problems. Cracks, expansion joints, etc. are to be filled

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- with a top quality patching compound and finished smoothly.
- Cut edges on all roll carpet are to be treated with a seam sealer at the edge of the carpet at the base of the pile and primary backing. On all carpets, excess sealer is to be removed in accordance with the manufacturer's recommendations.
 - To insure an almost 100% contact with the adhesive, the carpet is to be pressed with a roller or push broom per the manufacturer's standard procedures. Note: Carpet with an attached cushion is not to be treated with a floor-covering roller exceeding 30 pounds.

Resilient Floor Tile and Related Products

- Immediately upon completion of the tile installation, apply a high quality floor sealer and the minimum number of coats of floor finish recommended by the manufacturer to prevent damage to the floor during construction. Re-coat prior to acceptance of the facility by the owner.
- Provide 5% surplus floor tile to be saved for the owner.
- Resilient Tile shall not contain asbestos.
- All surfaces on which resilient flooring and edging are to be installed shall be
- cleaned free of grease, dirt, paint, and hardeners. Holes, cracks, and other depressions in the existing floor slabs shall be filled or patched, and brought to a true plane with a non-shrinking grout similar or equal to "Loxon."
- Floor tile shall be laid with close, even joints, to a smooth, even surface, and square with the corridor axis.
- Floor tile shall be laid with the grain direction alternating in a checkerboard pattern.
- Floor tile at borders on opposite sides of the space shall be equal, and shall be laid, cut, fitted, and scribed to walls, columns, door frames, and the like after laying of the field tile.
- Use molded inside and outside corners. No scribed corners are permitted.
- Base and molded corners shall be firmly cemented to walls and other vertical surfaces with tight joints. Base throughout its entire length shall have its top and bottom edges in firm contact with the floor and walls. Base shall be scribed accurately to molded corners and to doorframes.
- Adhesives for flooring and accessories shall be of the types specifically recommended by the resilient material manufacturers, for the installation conditions involved and shall meet Federal specification standards. For the installation of floor tile and edge strips, waterproof adhesive only shall be used.
- All resilient tile and resilient base shall be of the same millrun to maintain consistency.
- All resilient edging strips shall be vinyl with factory formed feathered edge

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(similar or equal to Johnsonite Reducer Strips).

Ceramic Tile

- The current edition of "The Handbook for Ceramic Tile Installation," published by the Tile Council of America, shall be used as a reference guide for selecting design details and specification wording.
- Ceramic tile is desirable for floors and walls or wainscots in toilets as well as in other wet areas where frequent cleaning is necessary. Toilet floors shall have dark sealed grout.
- Where ceramic tile is used on shower room floors and walls, specify parging or painting the back-up wall material, flashing at base and waterproof pans under floor tile, detailed to prevent water penetration. Ceramic tile on a masonry wall is insufficient to prevent water from permeating a shower room wall.

Acoustical Ceiling Tile

- Use extreme care in choosing the correct acoustic units. Do not specify exotic patterns, etc. Ensure that only standard patterns have been specified that will be available for many years in the future.
- Specify that the Contractor cannot accept discontinued acoustic units, since matching replacements is impossible.
- Specify that all acoustical ceiling materials shall meet flame-spread rating requirements of prevailing codes for interior finish according to occupancy classification.
- Specify acoustical ceilings, not only by noise reduction coefficient, but also by tile thickness.
- Specify mechanical suspension of acoustical ceilings. Adhesive attachment is not permitted.
- Where exposed grid systems are specified, a reflected ceiling plan is required on the drawings.
- Specify construction tolerances regarding plumb-ness, dimensions and locations, particularly where exposed masonry and concrete is used.
- Specify that the buildings must be dried by heat or other means prior to installation of acoustical ceilings, to control humidity.

Painting

- Require undercoats to have slightly different tints, and to be inspected and approved by the Architect/Engineer prior to application of the next coat.
- Specify the total thickness of paint by "dry mil" or "wet mil" thickness (according to which is recommended by the paint manufacturer), and verify

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the thickness on the job by use of gages.

- Paints with the highest proportion of titanium dioxide should be used for dirt shedding properties.
- Require metal doorframes in masonry walls to be back painted prior to installation.
- Specify paint on steel and iron items on the basis of mil thickness rather than number of coats. Items exposed to the weather shall have a minimum of six mils total dry film measurement. Interior steel and iron shall have a minimum of four mils dry film measurement.
- Use a clear silicone waterproofing or approved alternative on the exterior of all brick buildings including stone. 3% silicone is considered adequate; for limestone a 5% silicone is desirable. Products, which have been used and found acceptable, are: Florida Laboratories Chemclear 30 and Sonneborn-Hydrocide S-X.
- Clear silicone waterproofing shall contain a minimum of 3-5% silicone resin solids in a hydrocarbon solvent conforming to formulation and performance standard of Federal Specifications SS-W-OO11O (G.S.A.). Container label shall certify that it meets above requirements.
- Where an interior paint is used on masonry or concrete surfaces, no silicone waterproofing is desired.
- Use latex based paint for interior applications and an oil based paint for exterior applications.

Specialties

Toilet Accessories

- Fixtures and partitions shall be wall or ceiling hung to keep floors clear for cleaning. Fastening is to be by means of toggle bolts and through bolts into studding, stringers, joists, concrete or solid masonry. Attachment to wall finish only is not permitted.
- All items are to be securely installed. In drywall partitions, use solid wood backing. Solid plastic stall walls are preferable. Santana or Equal, graffiti resistant type.
- Provide coat hooks on the inside of each stall door.
- Provide soap dispensers - Model 9034-12 800ml, as manufactured by Gojo Industries, Akron, Ohio.
- Provide toilet tissue dispensers – Model 09686, JRT Escort bulk roll dispenser, as manufactured by Kimberly Clark.
- Provide paper towel dispensers – Model 09706 Lev-R-Matic, as manufactured by Kimberly Clark.
- Provide sensor operated hand dryers where possible.
- Provide wall mounted, semi-recessed stainless steel waste receptacles.
- Provide stainless steel sanitary napkin receptacles in all female toilet stalls.
- Provide a utility shelf for extra tissue and paper towels in each restroom.
- Do not provide ashtrays.
- Mirrors are to be provided for all restrooms. Do not place mirrors in open view of the entranceway.

Custodial Closet Accessories

- Provide 10'-0" of 12" shelving mounted at 4'-0" AFF.
- Provide one built in locker 2'-0" x 4'-0" x 7'-0" with hasp.
- Provide wall splash protection.

SPECIALTIES

Signage

- Provide marking, signage and other identification for all mechanical equipment and piping.
- Provide clear marking in accordance with code for all fire rated wall assemblies.
- Provide a sign at each floor level landing in accordance with NFPA 101 (Life Safety Code), Chapter 5. The sign shall indicate the floor level, the terminus of the top and bottom of the stair enclosure, and the identification of the stair. The sign shall also state the floor level of the direction to exit discharge. The sign shall be located approximately 5 ft. (152 cm) above the floor landing in a position that is readily visible when the door is in the open or closed position.
- Provide directional signs for direction of the public through corridors to destination.
- Provide occupancy limit signs as required by Code.

- Submit to the County for approval details relative to materials, dimensions of individual components, profiles, and finishes for each type of sign required. Provide shop drawings for fabrication and erection of signs. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, reinforcement, accessories, layout, and installation details.
- Provide message list for each sign required, including large-scale details of wording and layout of lettering.
- For signs supported by or anchored to permanent construction, provide setting drawings, templates, and directions for installation of anchor bolts and other anchors to be installed.
- Furnish full-size spacing templates for individually mounted dimensional letters and numbers.
- Furnish full-size rubbings for metal plaques.
- Provide samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.

Room Signage

- Work out room numbering with the County to assist way finding and facilitate identification of spaces for inventory and other purposes.
- Provide individual routed cast acrylic signs for each space clearly identifying room number and name.

Project Construction Sign

- Before the ground breaking ceremony for a new facility the project

SPECIALTIES

construction sign shall be erected by the contractor at the site, in accordance with the standard shown in Appendix B. It is the contractor's responsibility to insure that all names, Mount sign on 2 – 4"x4"x12' PT wood posts. Removal shall be performed by the contractor at substantial completion.

Building Plaque

- The construction contract shall contain an adequate allowance for the installation by the contractor of a cast metal building plaque.
- Location of the plaque in the building, and the information it contains shall be as determined by the County.

Fire Extinguishers

- Unless otherwise required by Code, all fire extinguishers shall be maximum 5 lb. units, with a 3A40BC rating. Min. 10 lb. units shall be used in shops, garages, mechanical rooms, elevator rooms and similar spaces.
- CO2 extinguishers – Do not use except with prior approval of the County.
- Fire extinguisher cabinets – Use only UL approved pull open, non-locking cabinets, with a flat, shelf bottom. All cabinets shall be fully or partially recessed. Do not use 'bubble front' units.
- - Use Halatron or FE2000 fire extinguishing agents in computer rooms and laboratories where sensitive equipment exists.

Louvers

- All wall louvers shall be extruded aluminum, storm proof, and include bird screens.
- All louver perimeters shall be sealed to provide full perimeter integrity.
- Meet hurricane requirements where required.

Wall and Corner Guards

- Provide wall and corner guards, in conjunction with door kick plates, where necessary to protect walls and other surfaces from damage and reduce maintenance.
- Where wall and corner guards are used, provide high impact vinyl or stainless steel with approval of the County.
- Provide 3/16" or a heavier gauge PVC to prevent warping.

Equipment

Trash Handling Equipment

- Provide a careful plan for the sanitary collection, storage and removal of trash from every facility by means appropriate to the project.
- Install trash chutes and trash compactors in new facilities where approved by the County.
- Establish on site recycling areas accessible to staff members assigned to the collection and pickup of recyclable materials. (i.e., immediately off loading docks or accessible by paved sloping walkways, not stairs.)
- Pay particular attention to fire prevention problems associated with trash removal and storage.
- Buildings three or more stories high shall be designed with a trash receiving room large enough to place a 10 cu. yd. (8' wide X 7' deep X 8' high) steel trash collection box directly below a vertical chute. (A roll-up door is suggested, not less than 10' X 10')

Loading Dock Equipment

- Provide loading docks in new facilities where the use demands frequent deliveries or shipments.
- All loading docks shall be equipped with leveling platforms and be covered to accommodate deliveries in inclement weather.

Furnishings

General Guidelines for Furnishings

- The County prefers standard items to reduce costs and maintenance or replacement problems, in preference to special items.
- Trash receptacles shall be located outside each elevator door, each building entry and in all hallways and lobbies where appropriate. Receptacles shall have hinged doors or be removable.
- Cigarette urns shall not be provided except in designated areas, where sand urns shall be located.
- Building directories shall be provided in all main lobbies.
- All shelving shall be adjustable except when a specific installation is impractical.
- Bulletin boards and display cases shall be provided as designated by the user.
- Entrance floor mats shall be recessed flush with finished floor and be provided inside and outside of all building entrances. Where possible, recessed and replaceable walk off mats shall have a 12-foot run length inside of all entrance doors. Exterior mats shall be a minimum of 4x6 for a single door, and 6x8 for a double door. Exterior mats shall be of the type to scrape and remove heavy dirt and soil.
- Interior mats shall be absorbent and be constructed so as to trap sand and finer particles.
- In rooms designed for frequently moved furniture or equipment provide a chair rail or guard around room perimeter to protect wall finishes.

Elevators and Chair Lifts

Elevators

- Require installation by an approved contractor regularly engaged in manufacturing elevator equipment of the type required for this project with not less than ten (10) years of satisfactory experience.
- The Installation Contractor must submit catalogs and show evidence that all required parts are kept in inventory within ten (10) miles of the elevator installation. The Installation Contractor must certify that he/she has a Service Office with full time employees within ten (10) miles of the project site.
- Elevator maintenance and warranty on new and/or up-graded elevators is required and shall be for a period of 12 months after acceptance. The Certified Mechanic must spend a minimum of two (2) hours per month per traction, one (1) hour per month per hydraulic, one (1) hour per month per dumbwaiter and/or one (1) hour per month per chairlift regularly and systematically cleaning, examining, adjusting lubricating per Manufactures Recommendations.
- The approved elevator maintenance Technicians must be certified with a "Certificate of Competency" from the State of Florida. The Contractor shall be responsible for providing additional maintenance, repairs, service, call-backs and other work on a 24 hour, 7 days per week basis as part of the installation or modernization contract Response time for any problem calls must be within one (1) hour after notification of the problem.

Elevator Pit And Hoistways

- The elevator pit area, which includes the floor and walls up to the lowest landing threshold area, must be water sealed and painted with two (2) coats of high gloss acrylic latex floor enamel.
- Where needed, grating shall be provided in shafts to permit safe lubrication of sheaves and equipment.
- No foreign piping, ductwork or conduit shall pass through hoistway.

ELEVATORS AND CHAIR LIFTS

Elevator Mechanical Room

- The elevator machine room shall be no larger than necessary to house and repair machinery. The elevator machine room walls and ceiling must be primed and completely painted with two (2) coats of semi-gloss acrylic latex paint. The machine room floors shall be smooth and level. The elevator machine room floors must be painted with two (2) coats of highest quality oil based light gray color gloss floor and deck enamel.
- The elevator machine room shall not to be used for storage of any kind. No foreign piping, ductwork or conduit shall pass through the machine room. With the use of Microprocessor based elevator control system, the elevator machine room must be environmentally controlled.
- Elevator machine rooms shall not be located adjacent to noise sensitive spaces without thorough consideration to noise transmission to these spaces.

Elevator Maintenance and Repair

- **Important** – Require the Elevator Contractor to provide serial number specific operation, adjustment & maintenance data; tools or computer devices, for each elevator (or for each multi-car group elevator system) elevator electrical controller and door operator control, is to be provided to owner.
- Elevator Contractor shall provide four (4) copies of typewritten or professionally printed, elevator serial number specific installation, adjustment and troubleshooting instructions, to be used in maintaining and repairing all new, upgraded or renovated elevators or group elevator systems.
- Elevator Contractor shall provide four (4) copies of the elevator serial number specific, as built, electrical wiring diagrams, designed with point to point wiring or circuit connections. Further, furnish a complete set black on white drawings, printed on high rag content paper for long life, to be used for reproduction of wiring diagrams, if needed in the future. Additionally, provide one (1) complete set of the same high quality wiring diagrams, laminated with heavy gauge clear plastic, and designed to be hung on sturdy wall bracket(s) in the elevator machine room(s). Drawings shall be designed to be easily removed from the rack for use by the elevator technicians.
- Elevator Contractor shall provide four (4) copies of all elevator serial number specific computer or handheld adjustment device passwords, legends, reference codes, key words, operational descriptions and related information so that a competent elevator technician can access the elevator electrical controller system(s), make adjustments to the equipment settings, determine the malfunction codes, troubleshoot the electrical system or verify correct operation of the elevator electrical controller or door operator equipment.
- Elevator Contractor shall provide four (4) copies of an elevator serial number specific replacement parts list for each elevator or group of elevators, located in a new building, or that which is renovated or up-graded in an existing

ELEVATORS AND CHAIR LIFTS

building. Elevator Contractor shall have the right to furnish either "on board" mounted computers or hand held diagnostic devices, or similar portable computer or hand held devices that can be disconnected from the elevator electrical controller and door operator controller systems. Either design is acceptable so long as the required maintenance and adjustment information, diagnostic functions, equipment operation, equipment performance and troubleshooting activities can be performed without unnecessary delays, and the same performance results can be anticipated. Regardless of the type of computer or diagnostic equipment provided under the contract, the Elevator Contractor must provide the Owner with one (1) complete set of computer or handheld technical equipment devices that will operate each and every elevator covered by the new elevator or elevator upgrade contract.

- Provide a complete set of current, as built and installed, microprocessor software for each and every elevator covered by the contract.
- The Elevator Contractor must provide a notarized letter with his bid that states that, if he receives the contract to perform the elevator work, the Elevator Contractor shall provide all of the required installation and adjustment information, computer devices or service tools, data, instructions, diagrams, parts lists and related information at the time the project is completed. All required information, data, diagrams, instructions and related materials shall be provided in heavy duty, oversize type, three (3) ring binders, properly identified with the project name, locations, elevator serial numbers, building elevator numbers and related information.

Elevator Replacement Parts

- All of the major parts utilized in new or up-graded elevators must be manufactured in North America, and the elevator manufacturer must have a documented quality assurance program.
- Only new parts or components shall be accepted. The installer shall not use rebuilt, used or reconditioned equipment or parts on any new elevators or up-graded elevators.
- The Elevator Contractor, and Elevator Manufacturer, if not the same company, must provide a notarized letter at the time the elevator work project is bid stating that all necessary replacement parts, supplies and related equipment, necessary to maintain, repair and service the elevator equipment will be promptly sold, without delays, directly to the Owner, or to the Elevator Contractor who maintains the elevator equipment on behalf of the Owner without the necessity of the replacement parts being initially purchased by the Owner. The letter must be signed by an executive officer of the Elevator Contractor.

Door Operators

- Elevator Door Operators must be highest quality, heavy duty type, with "closed-loop," type microprocessor digital control system. Door operator

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must have digital encoder.

Hydraulic Elevators

- A Hydraulic Elevator can only be used when total travel is less than fifty (50) feet.
- The Motor Starter for new or up-graded hydraulic elevators must be soft start type, adjusted to a maximum of three (3) times the full load running current.
- Elevators not on emergency generator system must have a battery lowering system.
- The hydraulic jack assembly (cylinder) shall be a complete new assembly of the highest quality available, manufactured in strict accordance with ASME A17.1-1996, Safety Code for Elevators and Escalators.
- The jack packing seal around the plunger must be of the molded type that does not require adjustment. The packing gland must be designed to accept the molded packing or seal that is clamped in place without the use of unusually high pressure on the attachment bolts.
- The top of the cylinder shall have a ring for collecting the oil that seeps past the jack packing and/or wiper ring. Provide a new drip tube from the top of the cylinder to new five (5) gallon collection container that has a small entry
- hole for the drip line. Leakage of more than one 1/2 gallon per month will not be accepted.
- The jack assembly shall be supported on a pair of new steel channels of adequate strength that are approximately as long as the distance between the elevator guide rails.
- Reinforce mounting brackets shall support the weight of the fully loaded elevator and cylinder on the pit channels. The pit channels must be at least 6" in height, and weighing at least 16.3 pounds per foot. The pit channels shall be capable of supporting the vertical reaction on the hydraulic cylinder and the full loaded car without deflection.
- The pit channels must receive a rust inhibitive primer and two (2) finish coats of paint before installation.
- Additional Protection Against Electrolysis: The entire hydraulic jack assembly shall be completely electrically isolated from the entire building, elevator car/platform, pumping unit, pit mounting channels and all other components of the elevator by using the following insulating techniques:
 - The jack plunger shall be isolated from the elevator car/platform assembly through the use of specifically designed rubber isolated platen plate that will no allow metal to metal contact and absorb pulsations from the hydraulic pump. The minimum thickness of the rubber under compression from a fully loaded car shall be at least 3/4 inch.
 - The hydraulic cylinder assembly must be isolated from the jack support channels and the pit floor. The material to be used between the cylinder

ELEVATORS AND CHAIR LIFTS

mounting brackets and the top of the support channels is Micarta or any high quality high pressure plastic laminate material of at least 3/8 " thickness. The backs of the channels must be isolated from the top of the cylinder with a double wrapping of high quality rubber sheeting material, which is wrapped around the top area of the cylinder (behind the pit support channels) and secured with an oil resistant cement. The pit support channels must not make metal-to-metal contact with the cylinder. The bolts that attach the support brackets to the support channels must be positively insulated with high strength rubber. Micarta or schedule 40 PVC insulating material around the bolts, washers and nuts to prevent metal to metal contact between the cylinder and the cylinder support channels.

- The oil pressure supply line must contain at least two (2) rubber isolated sound and vibration isolation couplings the effectively isolate the pumping unit from the cylinder. The blow- out proof isolation couplings must be installed in the machine room as required by ASME A17.1. The oil pressure supply line, from the point of the isolation couplings, must be completely isolated from the building structure, pit floor and any other material in a manner that is effectively isolated to prevent a grounding effect. The use of high quality rubber materials at least 3/8" thick when fully compressed will be acceptable as an isolation material for pipe supports or hangers. Electrical isolation couplings without sound and vibration-absorbing properties are not acceptable.
- The oil pressure supply line shall be insulated from the building structure, walls, supports and all other contact points. Where the piping penetrates a wall, the piping shall be insulated with rubber materials at least 3/8" thick when in compression.
- The complete isolation of the jack assembly must be checked during installation, and after the installation work has been completed to verify that there is no electrical path to ground. Elevator Contractor must use a megger and high quality ohmmeter to verify that his work complies with these work specifications. The Elevator Contractor will be required to remove or correct any work that does not fully comply with the isolation requirements.
- Hydraulic Oil Line: The oil line shall include the following:
 - The oil line shall be schedule 80 thickness, with threaded forged steel fittings at all locations where the oil line must change directions or be coupled. Victaulic or similar brand clamp type fittings are not permitted except that one (1) Victaulic fitting may be utilized where the oil line connects to the hydraulic control valve at the pumping unit so long as it is correctly installed and not used to correct for alignment deficiencies in the oil line. All threaded fittings must be sealed with Expando brand thread sealer. Install a high quality ground joint union near the hydraulic cylinder. Flexible hoses shall not be used under pressure in this installation.

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- Install the pipe rupture valve adjacent to the hydraulic cylinders. The valve must be adjusted to properly to stop the decent of the elevator car in the event of pipe or valve rupture; however, the passengers should not be burdened by unnecessary closure of the valve when no emergency exists.
- Two (2) oil shut-off valves must be installed in the oil line. One (1) shut-off valve shall be installed adjacent to the pumping unit, and is to be provided for purpose of being used when the relief pressure is tested on an annual basis. One (1) line shut-off valve is to be installed near the hydraulic jack cylinder and is to be used only when the packing is replaced in the jack. Elevator Contractor shall attach a laminated plastic tag on the valve handle stating that the valve is to be used for packing replacement purposes only. The lettering on the tag shall be with 3/8 inch high letters stating the following: "Caution!! This valve is to be used when serving the cylinder only. Do not use for hydraulic system pressure tests." tag lettering must be a contrasting color to the surface. The bursting strength of both valves shall comply with the requirements of ASME A17.1, Section 1302, Safety Code for Elevators.
- Perform all the necessary cutting as may be required to run or install the oil supply line from the machine room to the hoist way, including the work necessary to completely isolate the oil line from the building or other building systems. Isolation of the oil supply line must be neatly installed, and be rubber at least 3/8 inch thick while under compression.
- Hydraulic Muffler Device: The Oil line must be equipped with an effective muffler device that removes the hydraulic pump pulsations and noise before being transmitted to the hydraulic cylinder through the oil supply line. The muffler must have rubber absorbing materials that can be replaced on a regularly scheduled basis. The muffler device shall be held together with high strength bolts and designed to be serviceable without removal from the oil supply line. Connections must be threaded. Include a metal tag on the muffler to indicate the required service by replacing the rubber pads every two (2) years. Locate muffler device in the elevator machine room area in a manner that will not inhibit the service work.
- Hydraulic Oil: The hydraulic fluid for all new or up-graded hydraulic elevators must be manufactured by Hydro-Safe Oil Division, grade VG-32, biodegradable type vegetable oil. Install a large data plate on the power unit identifying the oil that has been installed in the system.
- Pumping Unit: When the motor of the pumping unit is 40 horsepower or less, the pumping unit shall be of the type with the pump and electrical motor submerged in the oil supply in reservoir. Oil reservoir shall be capable of holding at least 25 gallons of additional fluid above the amount required moving the elevator safely to the upper floor. The motor must be insulated to withstand up to 120 starts per hour without burnout from overheating. The valve shall be installed inside the reservoir and under the reservoir cover. The

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valve must be mounted above the oil level. Provide a drain connection fitting near the bottom of the oil reservoir. A heater must be installed in the Oil reservoir to maintain constant hydraulic oil temperature.

- Hydraulic Cylinder Installation: All hydraulic cylinder casing for new hydraulic elevators or replacement cylinders for existing elevators must be installed in a completely plumb condition with a variation of not more than 1/8 inch variation from absolute vertical plumb condition from bottom to top of the cylinder. All hydraulic cylinders for new hydraulic elevators or replacement cylinders for existing elevators must be fully protected by schedule 40 PVC piping and 100% isolated from all other portions of the elevator, building, pumping unit and the pit floor.

Traction Elevators

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

Elevator Cabs

- Elevator cabs for new or up-graded elevators must have hinged, swing type front return panels to contain all of the operating devices, stainless steel vandal resistant buttons, indicators, standard size certificate holder, emergency phone, handicapped markings and other devices.
- All mounting must be from the rear to provide neat and vandal resistant panel.
- Front return panels must have heavy hinges, and vandal resistant locking devices.
- Independent service, etc. shall be located in a separate cabinet with a locked, hinged door.

Elevator Phone

- A one (1) inch home-run conduit shall be provided from the elevator phone to

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the nearest communications closet.

- The telephone will be supplied by the County.

Freight Elevators

- Freight elevators shall be located in close proximity to docks and service area. They shall go to each floor and be of sufficient size to accommodate large equipment.
- In the event a freight elevator is installed in a corrosive environment or installed in conditions that require sanitary environment, the equipment shall be fabricated from extremely corrosion resistant and/or materials that are easily sanitized.
- Provide highly accurate electronic load weighting device, overload alarm and signal light. Alarm and signal light shall function if load exceeds design capacity. Elevator shall not function if overloaded conditions exist.

Chairlifts

- Any chairlift placed outside of a building must be manufactured to withstand wet conditions and be placed in surroundings to protected from weather.

Approved Manufacturers

Note: All approved elevator manufacturers' proprietary equipment is subject to the requirements of this chapter.

- Approved Elevator Manufacturers:
- ThyssenKrupp Elevator Corporation
- Otis Elevator Company
- Schindler Elevator Company
- Closed-Loop Door Operator Equipment
 - MAC
 - ECI
- Motion Control Engineering
 - Smatraq
- Micro-Processor and Car/Group Control Equipment
 - Motion Control Engineering and Elevator Controls Corp.
- Motor Drive Systems for Elevator Machine Motors
 - Megnetek
 - Approved Equal
- Hoisting Machine Motors Only
 - General Electric
 - Imperial Electric
 - Magnetek
 - Rueland Electric

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- Approved Equal
- Elevator Hoisting Machines and Deflector Sheaves
 - Hollister – Whitney Elevator Corp.
 - Titan Machine Corp.
 - Approved Equal
 - Rope Gripper for Traction Machines
 - Hollister – Whitney Elevator Corp.
 - Approved Equal
- Hydraulic Fluid
 - Hydro Safe Oil Division, Inc., Grade ISO VG-32
 - Approved Equal
- Pump Motor
 - a. General Electric
 - Imperial Electric
 - Magnetek
 - Ziehl-Abegg
 - Thyssen/Krupp
 - Approved Equal
- Hydraulic Pump
 - IMO
 - Allweiler AG
 - Approved Equal
- Oil Control Valves
 - Beringer
 - Maxton
 - EECO
 - Thyssen/Krupp
 - Approved Equal
- Hydraulic Cylinders
 - EECO
 - United
 - CEMCO
 - Approved Equal
- Pipe Rupture Valves
 - EECO
 - Thyssen/Krupp
 - Approved Equal
- 3D Door Detector Devices
 - Janus Elevator Products
 - Approved Equal
- Elevator Hoistway Entrances
 - Gunderlin, Ltd.
 - Tyler Elevator Products, Inc.

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- H&B Elevators
- Elevator Doors Inc.
- Approved Equal
- Guide Shoes and Roller Guides
 - Elsco
 - Thyssen/Krupp
 - Otis
 - Approved Equal
-

Mechanical Systems

General Mechanical Guidelines

- It shall be the responsibility of the A/E to investigate and determine the actual location of all underground utilities or obstructions at the building site before beginning design work.
- The specifications shall provide for the orientation and training of County personnel on all installed equipment and systems.
- Where required by the County, prepare an energy life cycle cost analysis. Use industry standard cost analysis software such as that available from Trane.
- All utility metering must be coordinated with the County prior to completion of contract documents.
- Provide separation of mechanical equipment and other noisy areas from office areas, conference rooms and other noise sensitive spaces.
- Care shall be taken in the placement of all outdoor air inlets to ensure that odors and other pollutants (automobile exhaust, generator exhaust, fume hood exhaust, etc.) do not enter the building.
- Mechanical rooms must have adequate openings to facilitate the removal and replacement of major pieces of equipment. Provide a minimum of double 3'-0" doors which swing outward, with active/inactive leaves.
- There must be adequate space in mechanical rooms to provide ample access space around all equipment for routine maintenance items and procedures, such as filter replacement, lubrication, and so on.
- Access to electrical rooms, mechanical rooms, communications closets, elevator machine rooms, fan rooms, pump rooms, etc., shall not be through other rooms. It is preferred that access to these spaces be achieved from a main corridor and/or exterior space. Access shall not be by ladders. Where possible, penthouse rooms shall have elevator access.
- Mechanical Rooms and similar spaces are not to contain storage areas. All power disconnects to equipment shall be so located as to be easily accessed.
- All piping shall be color coded and labeled as to use.

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- All fans shall be labeled as to use, area served and power source.
- All HVAC controls shall be of the direct digital type and conform to the controls design.
- All hydronic systems shall have adequate air eliminators installed.
- Provide 40-45% ASHRAE Dust Spot filtration in all major air handling units.
- All piping utilized for underground piping are required to have the ends sealed prior to storage or use on site. No end seals shall be removed until the end in question is actually ready for welding or otherwise connecting. In no event shall any piping be left in a trench with an open end at any time. This requirement shall be strictly enforced.
- Systems Test & Balance will be provided through the A/E as an additional service. The specifications will require the contractor to participate in the testing, make any changes necessary and pay for any re-testing that may be required to make the systems meet specifications.
- All air handling unit condensate drain pans must drain to the storm sewer system, with a by-pass to the floor drains when using chemicals to clean coils.
- Mechanical rooms shall not be utilized as return air plenums.
- Mechanical rooms that generate heat such as steam rooms and pump rooms shall be cooled using a thermostatically controlled forced air ventilation system utilizing outdoor air. Generally, pump rooms and similar spaces with electronic systems such as variable speed drives, shall be separated from rooms containing steam reducing stations and condensate pumps.
- All mechanical equipment such as air handlers, pumps, exhaust fans, etc., shall be referred to and labeled by floor number.
- Identification signage systems and markings for all mechanical equipment and piping are required.

Plumbing

- The City will furnish water meters and taps for domestic and fire water. All tap fees and system charges shall be paid by the Contractor. Install water meters and domestic water backflow preventer above grade in an inconspicuous location and provide an insulated cover.
- Fire Flow backflow preventers shall be installed inside the building.
- Below grade, all domestic cold water piping exterior to building shall be ductile iron or PVC.
- Underneath buildings, piping shall be type K copper or ductile iron. All domestic water piping inside the building and above grade shall be type L copper, except for high purity water.
- Fire water system connections shall be compatible with the City of Tallahassee Fire Department fittings.

MECHANICAL SYSTEMS

- Provide shut off valves at least at each floor level for all utilities. Toilets, urinals, sinks and water coolers shall have individual shut-off valves. Provide access panels with the appropriate fire ratings for maintenance and repair activities.
- Floor drains are to be provided in all toilet rooms, custodial closets and mechanical rooms.
- All piping system strainers shall be equipped with valves for blowdown cleaning.
- Hose bibs shall be provided in toilet rooms located underneath the sink, machinery rooms and at 100 foot intervals in exterior areas for maintenance use.
- Teflon containing joint sealer shall be utilized in all screwed piping installations.
- All piping shall be color coded and labeled as to use and flow direction.
- All exterior valves shall be fitted with a complete one-piece valve box unit constructed of concrete, steel or plastic. The box shall have a hinged cover and be set in concrete. The installation shall be such to support small vehicle and lawn maintenance equipment.
- Fire suppression systems shall be installed, tested and certified per appropriate NFPA requirements.
- Urinals shall be of the flooded open throat type to avoid stoppages and odor problems. Urinals shall be provided with automatic flushing sensors.
- Floor drains, where necessary, are to be placed at the lowest point in the area and shall be provided in all restrooms, custodial closets, mechanical rooms, storage rooms, etc.
- Lavatory faucets shall be the types that will not flow over .5 GPM and provided with automatic sensors.
- Toilets shall be wall mounted.

Water Based Fire Extinguishing Systems

- The fire system contractor shall furnish all labor and equipment for a complete installation of a water-based fire extinguishing system and shall be the installing contractor or site representative with the required license. No subcontracting is allowed. The contractor must be NICET level III certified and must possess the appropriate class I or class II fire sprinkler license as required by the State of Florida.
- Fire water based systems shall be installed, inspected, tested and certified per appropriate NFPA 13, 14, 20, 24, 25, including NFPA 101.
- The fire system contractor shall be responsible for equipment, materials and workmanship of the system for one year. The warranty shall be enforced 24

MECHANICAL SYSTEMS

hours a day, seven days a week including weekends and holidays during this period of time. The contractor will also respond after being advised of his responsibility and the nature and/or condition of the equipment that has failed by the County within two hours of notification.

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

Air Conditioning

- All air conditioning condensate lines shall be of insulated type "L" copper or approved equal. Provide insulation details to insure vapor proof covering.
- All chilled water piping shall be installed with shut-off valves at each floor and at each AHU.
- All major air handling unit coils shall be designed for not less than 15 degrees Fahrenheit temperature rise, and be provided with two way control valving.
- A/C Air Handling Units shall be double wall construction with a solid inner liner (no insulation exposed to airstream).
- Air Handling Units shall have fans mounted on internal vibration isolators (2" static deflection).
- 14. Air Handling Units shall have double wall insulated drain pan.
- 15. Air handling units installed in spaces exposed to outdoor air conditions (such as attics) must be sufficiently insulated to prevent surface condensation.

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Building Automation Systems

- <reserved>

Commissioning

- <reserved>

Electrical Systems

General Electrical Guidelines

- The Contractor shall pay for all electric energy consumed during construction.
- All electrical materials and equipment shall be UL or ETL listed. CSA is not considered equivalent.
- All materials and types of construction shall meet or exceed the requirements of UL, ANSI, NEMA, IEEE, and the NEC as well as conform to manufacturer's written recommendations.

County staff shall be completely instructed in the operation and maintenance of installed equipment and systems.

Basic Materials And Methods

Conduits

- Schedule 40 PVC is permitted for exterior lighting, minimum 1", and buried to a depth called for by the NEC. PVC bends shall be made with a hot box.
- PVC shall be converted to metallic where exposed to physical damage. Buried metallic conduit must have, minimum, two coats of bitumastic or have factory applied PVC coating.
- All empty conduits shall have a 200-pound test pull cord. Conduit shall be manufactured in the United States.

Wires And Cables

- Conductors shall be copper. Insulation shall be Type THHN/THWN. Minimum power conductor size is #12AWG. Control conductor sizes and color-coding shall be as governed by approved wiring diagrams or schematics. Power conductors shall be sized for maximum 5% voltage drop from source to point of utilization. Wire #10AWG and smaller shall be solid, larger-stranded.

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Panelboards

- Panelboards shall be identified using permanently attached machine engraved phenolic nameplates.
- Standard color shall be white letters on black background. Emergency panels shall have white letters on a red background. Panelboard busses shall be copper. Lighting and receptacle panelboard neutral busses shall be rated 100%. Panelboards shall be sized for minimum 20% spare above calculated diversified demand loads.
- Circuit breakers shall be bolt-on construction. Overcurrent devices shall be rated for the calculated available bolted fault short circuit currents.

Switches and Receptacles

- Switches and receptacles shall be specification grade and rated 20 amperes. Standard color shall be ivory with stainless steel plates. Devices assigned to the emergency system shall be distinctive in color. Red is considered standard unless another color code has already been established in an existing facility.
- Automatic motion sensor switches are preferred for lighting systems in office spaces.
- Vending areas shall have outlets mounted no greater than 48" on center. Hallways shall have outlets mounted 50 feet on center, maximum.
- Outlets shall be provided on the exterior of facilities located according to the geometry of their footprint and good design so that their spacing does not exceed 100 feet on center.
- Device mounting heights shall conform to the latest applicable edition of ADA standards. Floor outlets shall be flush with finished floor or floor covering, as applicable.
- When required for conference rooms or other spaces, receptacles for overhead LCD projector shall be mounted flush with ceiling.

Motors And Starters

- Motors shall be high efficiency and have an operating power factor of 90% or greater. Provide reduced voltage starters or variable speed drives for all motors 15 horsepower, or larger.

Power Generation

- Where required for life safety per NFPA-101 and/or for continuity of function in certain facilities, provide a standby rated emergency power engine generator set. The addition of battery powered lighting to meet NFPA-101 exit/egress requirements is highly discouraged.
- Engine generator set shall be diesel fueled unless so small that diesel prime mover is not commercially available. Natural gas and LP fueled sets are unacceptable. Fuel tank shall be sized for minimum 24 hours of operation at full load. Larger tanks may be required to serve facilities where continuity of

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function is mandatory. The operation and fueling requirements for those types of facilities shall be handled on a project-by-project basis as design criteria through the County. Fuel tanks shall be above ground and approved by EPA. If fuel tank is of such dimension that the top of the mounting skid is 30" or greater AFG, installation shall include an elevated access/maintenance platform around all sides. Platform shall be OSHA compliant.

- The set shall be started electrically using its own properly rated and sized batteries. Air start is unacceptable.
- Engine generator set shall connect to building power distribution system through coil and contactor operated automatic transfer switches. "Walking Beam" switches are unacceptable. Transfer switch shall have an integral, field adjustable automatic exerciser clock.
- In addition to NFPA-101 requirements, the generator set shall have the capacity to serve, as a minimum, one elevator, all building data gathering panels used for HVAC control and management systems, steam condensate return pumps, and sump pumps.
- Generator shall conform to ISO-9001; have Class H insulation, and permanent magnet excitation for production of sufficient current under fault conditions to allow downstream phase over-current coordination.
- Generator set on-site acceptance testing shall be performed in accordance with NFPA-110 and at 80% and 100% power factors. Motor shop personnel shall be notified of the test schedule so that they may attend. Equipment supplier shall supply two operations and maintenance manuals.
- Generator set shall be cooled with self-contained coolant and radiator system. Remote coolers are unacceptable.
- Unit shall be located and physically protected in such a manner as to reduce the vulnerability of the installation to damage by severe storms or hurricanes.
- Engines utilizing Keystone rings are unacceptable.
- All systems shall have a one-year warranty. Specify that the supplier give a separate price for a five-year warranty.
- Caterpillar and Cummins/Onan are considered acceptable manufacturers.

Service And Distribution

- If a building is not served from an existing sectionalizing device, a new SF6 gas insulated vacuum fault interrupter device shall be installed. Interrupters shall have 600ampere separable Quik Change bushings. Acceptable manufacturer is G & W.
- Service to buildings shall be supplied with pad-mounted transformers as described below. The transformers, service entrance conductors or bus, and main electrical panel or equipment shall be of adequate size for the demand expected in the facility and to allow for future growth of 25% based on calculated diversified demand.

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- Transformers shall be located as close as possible to the main electric service room. Future servicing or replacement of transformers shall be a consideration when selecting a location. The transformer shall be protected from vehicular and pedestrian traffic.
- The location of the building electric service apparatus shall be incorporated in the landscaping as much as possible.
- A watt-hour meter with a demand register shall be provided for each building.
- All grounding for building services, standby generators, and transformers shall achieve a maximum 25ohm reading using the three-point test method. Multiple rods shall be driven to achieve the 25-ohm reading, if necessary. All grounds shall be connected with a properly sized copper conductor. All ground bus shall be connected to ground rods by either (1) an approved exothermic welding process as manufactured by Erico or (2) a compression system as manufactured by Burndy as 'Hyground'.
- Medium-Voltage Transformers: Factory assembled and tested, general purpose, air-cooled, liquid filled as indicated, and having characteristics and capacities as indicated, designed for operation with high-voltage windings connected to a 3-phase, 3-wire, 60 Hz, system.
- Transformer windings may be either copper or aluminum. Transformers shall be Cooper - Waukesha, Wisconsin; Howard - Laurel, Mississippi; or, General Electric - Shreveport, Louisiana.
- Pad-Mounted Transformers: High-molecular-weight, mineral-oil-based or silicone insulation, UL listed as "Less Flammable" transformer liquid application, listed and labeled by a nationally recognized testing laboratory for installation and location of same type as required. Liquid shall have the ability to extinguish small arcing and shall have a minimum fire point of 305°C and a minimum dielectric strength of 35 KV. Insulation Temperature Rise: 65 deg C. Basic Impulse Insulation level: 95 KV Full-Capacity Voltage Taps: Four nominal 2.5 percent taps, two above and two below rated high voltage, with externally operable tap changer for de-energized use, with position indicator. High-Voltage Terminals: Arranged for radial feed (U.O.N.) with 3-phase, 2-position, gang-operated load-break switch, oil immersed in transformer tank, with hook-stick-operated handle in the primary compartment. Primary Fuses: Current limiting type in oil-immersed Bay-a-Net holders, mechanically interlocked with oil switch to prevent disconnect under load. Surge Arresters: Distribution class MOV deadfront arrestor completely shielded, varistor type, sealed in fully insulated elbows, supported from tank wall within high-voltage compartment, one for each primary phase. Arrestors shall be connected to incoming line.
- Medium voltage cable shall be copper, 350 kcmil and #2 minimum EPR with 133% insulation. Cable shall be manufactured by Okonite.

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Special Systems

- All buildings/structures shall have appropriate lightning protection systems designed and installed in accordance with NFPA-780. Installer shall be LPI certified. Installed system shall bear a Master Label.
- Expansions of existing facilities shall upgrade the existing lightning protection system as required to obtain a Master Label for the envelope.

Lighting

- All lighting designs shall comply with the current edition of the Illuminating Engineers Society (IES) standard.
- The standard lighting system shall utilize fluorescent T8 lamps with electronic ballasts having a total harmonic distortion (THD) of less than 10%. Interior systems that are not dimmed shall employ 28W lamps where ambient temperatures, etc are suitable for their application; dimmable systems-32W lamps. Wherever possible, four-foot lamps are to be used. T5 lamps may be used when required by project design.
- Light fixtures in stairways shall be above the landings and not above the steps.
- Emergency lighting shall be provided at all exits and in all stairways, hallways, mechanical rooms, elevators, and the like according to NFPA-101. Emergency lighting shall be powered from the building emergency generator system. Battery powered emergency lighting shall not be used unless there is no emergency generator associated with the project.
- If possible, no lights shall be installed that require scaffolding for re-lamping.
- Exit lights shall be of the Light Emitting Diode (LED) type.
- Outdoor lighting shall be attractive and in keeping with the standards set forth in this section. The lighting plan shall be energy efficient while maintaining appropriate light level(s) as prescribed in the latest edition of the NFPA codes and IES handbook for high activity facilities.
- When outdoor lighting is associated with a building project, security lighting and parking lot lighting shall be included in the building design.
- No lights are to be installed that require scaffolding for re-lamping. Pole mounted parking lot lights shall be bucket truck accessible.
- Walkway and exterior security lighting shall be controlled by a photoelectric cell and contactor, with a manual override for maintenance.
- Parking Lot Fixtures: Gardco - Gullwing Series (G18 series)