265000 Lighting

Sections Included In This Section:

1.1 GENERAL

A. In new construction, all lights and fixtures shall be LED. Anything other type of light needs approval from Facilities Services

~~B.~~ All fuses shall be GLR type~~. Not in-line style.~~

1.2 EXTERIOR LIGHTING

A. GENERAL PROVISIONS – :

i. It is the responsibility of each project to provide all security, walkway, plaza, and parking lot lighting necessitated by that project. Such exterior lighting shall utilize down-lighting techniques and produce lighting power densities 20% below those defined in ASHRAE/IESNA Standard 90.1-2004, Exterior Lighting Section.

ii. New exterior lighting installations should be in character with the architecture and its surroundings. Attention shall be given to established historic districts or buildings.

iii. For energy conservation and light pollution reduction, non-essential exterior lighting (landscape and architectural) shall be kept to a minimum and in no instance exceed 50% of the lighting power densities defined by AHRAE/IESNA 90.1-2004, Exterior Lighting Section.

~~iv.~~ All conductors for exterior lighting shall be installed underground. In writing permission from the Facilities Services Supervisor that oversees exterior lighting shall be obtained for any other type of installation.

v. All exterior lighting shall be weatherproof. For example, if fixtures are provided with an individual photocell receptacle, and the lights are controlled by another device (other than a photocell), a "dummy" photocell shall be installed to weatherproof the fixture.

b. Exterior lighting including security lighting, shall be cut-off fixtures and shall document that no more than five percent of the total designed fixture lumnes (sum total of all fixtures on site) are emitted at an angle of 90 degrees or higher from nadir (straight down). Luminaires shall be selected and designed to prevent visibility of the light source. Sag lenses, convex lenses and drop lenses are prohibited. Luminaires, including wall-mounted fixtures, shall not be tilted but shall be installed at 90 degrees horizontal. Exterior lighting fixtures should be approved by the International Dark Sky Association (www.darksky.org).

B. FIXTURES: All fixtures shall be identified inside of hand hole cover with name of fixture, manufacturer, and model number. All new light poles shall receive a number assigned by Facilities Services and installed by contractor. On smooth metal poles contractor will use Brother P-touch #TZ-251 or equal. On concrete, wood, or fluted metal poles the contractor shall use ALMETEK aluminum tag holder with 1 ½" x 1" UV tag or equal.

The following indicates the fixture type, by application.

1. Core Campus Walkways and Plazas:

   a) Type: Fixture shall be post-top acorn globe style.

   b) Use: Core campus walkways and plazas (see Drawing 16500-A).

   c) Manufacturer: Moldcast, King, Antique, Lumec, Sun Valley

   d) Model: Moldcast-PCC Series

   e) Luminaire: Optical system shall provide reduced glare greater than 75 degrees above vertical and contain an internal multi-tiered reflector element. Globe shall be non-yellowing patterned clear acrylic with minimum 3-year warranty against yellowing. Luminaire dimensions; 14 inches in diameter by 33 inches high (nominal). Luminaire housing shall include a black cast aluminum finial top.

   f) Lamp: 85-150 watt clear metal halide, pulse-start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

   g) Pole: The pole shall be extruded aluminum upper shaft welded to a cast aluminum decorative base. Pole height shall be 10'. Posts are to be 4 inch, smooth, with round cross-section and straight shaft. Pole base shall be Moldcast type DB1 Series.

   h) Finish: Premium abrasion and fade resistant black polyester powder coat.

   i) Comments: To reduce light spillage and improve light distribution, optical systems may be adapted with light deflection devices provided that the device allows nighttime visibility of the entire luminaire rather than making the upper portion appear dark. Such a device may include the Moldcast Dark Skies Shield or Moldcast House Shield.

2. Core Campus Parking Lots and Streets:

   a) Type: Fixture shall be post-top acorn globe style. Where used in roadway medians and internal parking lot medians, the fixture shall be a twin arm post-top acorn globe style.

   b) Use: Core campus parking lots and streets (see Drawing 16500-A).

   c) Manufacturer: Moldcast, King, Antique, Sun Valley

   d) Model: Moldcast- Federal Globe FGL Series

   e) Luminaire: Optical system shall provide reduced glare greater than 75 degrees above vertical and contain an internal multi-tiered reflector elements. Globe shall be non-yellowing, patterned clear acrylic with minimum 3 year warranty against yellowing. Luminaire dimensions; 16 inches diameter by 41 inches high (nominal).

   f) Lamp: 150 - 250 watt clear metal halide, pulse-start. Comparable induction, LED,

High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Pole: The pole shall be extruded aluminum upper shaft welded to a cast aluminum decorative base. Mounting height shall be 14'. Posts are to be 4 inch (minimum), smooth, round cross-section and straight shaft. Pole base shall be Moldcast type DB1.

Pole for post top twin-arm installations shall be 5 inch (minimum), smooth, round cross-section and straight shaft. Poles shall be Moldcast type DB2. Twin-arm mounts are to be Antique WTA28 series.

h) Finish: Premium abrasion and fade resistant black polyester powdercoat.

i) Comments: To reduce light spillage and improve light distribution, optical systems may be adapted with light deflection devices provided that the device allows nighttime visibility of the entire luminaire rather than making the upper portion appear dark. Such a device may include the Moldcast Dark Skies Shield or Moldcast House Shield.

3. General Campus Walkways and Plazas:

a) Type: Round cutoff, post top.

b) Use: Walkways and plazas beyond the core campus area (see Drawing 16500-A).

c) Manufacturer: Kim, Gardco with Type III distribution.

d) Model: Kim CCS Series, Gardco – CP Series

e) Luminaire: Fixture shall have round shape, flat top, with flat, tempered glass lens in a hinged aluminum frame. Housing material shall be spun aluminum with all welds and fasteners concealed. Optical system is to be 90 degrees rotatable, segmented aluminum reflector, electrochemically brightened and sealed. Luminaire dimensions; 17 inches in diameter and 8 inches in height (nominal).

f) Lamp: 85-150 watt clear metal halide, pulse-start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Pole: Pole height; maximum 16 feet. Pole shall be extruded aluminum, black, with round cross-section, straight shaft, smooth and 4 inch (minimum) in diameter.

h) Finish: Premium abrasion and fade resistant black polyester powdercoat.

i) Comments: The round shape, dome top version of this fixture (Gardco – MP Series; 17" diameter and 11' height) may be used if located in proximity to installations of the round shape dome top fixture (Gardco MA or MW series) for street, parking lot and wall-mounted area lighting per items #6 and #9 below. The round shape, dome top fixtures are recommended for University Athletic

Association installations.

4. Streets and Parking Lots – Option One:

   a) Type: High mast cutoff cobrahead light.

   b) Use: Enhancements or additions in streets and parking lots beyond the core campus that currently have this fixture type.

   c) Manufacturer: General Electric.

   d) Model: GE MDCL Series

   e) Luminaire: Luminaire dimensions; 15 inches by 31 inches.

   f) Lamp: 400 watt clear metal halide, pulse-start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

   g) Pole: Aluminum octaflute pole. Union metal-aluminum octaflute-101A-HJ-340-A2B/2C. Mounting height: 23 feet to 35 feet, lower where tree cover needs to be preserved and near the campus observatory. Arm length shall be a minimum of 4 feet.

   h) Finish: Grit blast aluminum.

5. Streets and Parking Lots – Option Two:

   a) Type: Black high mast cutoff cobrahead light.

   b) Use: Replacements or new installations in streets, service drives and parking lots beyond the core campus. This fixture should not be intermixed with existing cobrahead fixtures of a different design.

   c) Manufacturer: General Electric, American Electric

   d) Model: GE MDCL Series

   e) Dimensions: Luminaire dimensions – 15 inches by 31 inches, black.

   f) Lamp: 400-Watt clear metal halide, pulse start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

   g) Ballast: Cold Weather rated

   h) Pole:
      - Description: Octagonal black aggregate concrete
      - Type: Direct buried
      - Color: Black/black (6P3K colorized finish on a black aggregate, centrifugally spun concrete pole. Note: Color consists of a black Amershield polyurethane

coating and shall contain antigraffiti characteristics with a 10-year warranty.)

- Style: Pole is to be tapered at a rate according to manufacturer's recommendations per pole height.
- Access: Above Ground – handhold is to have a cover painted with black polyester powder coat finish; Below Ground – two conduit entrance points 180 degrees apart to allow conduit entrance. Pole top – tenon to be painted to match pole and handhold cover paint.
- Mounting height: 23 to 35 feet, lower where treecover needs to be preserved and near the campus observatory.
- Arm length: A minimum of 4 feet, painted to match pole and handhold cover.
- Manufacturer is Ameron.

i) Finish: Black polyester powder coat luminaire.

6. Streets and Parking Lots - Option Three:

a) Type: Round cutoff, arm mount.

b) Use: Replacements or new installations in streets, service drives and parking lots beyond the core campus. This fixture should not be intermixed with existing cobrahead fixtures of a different design. The appropriateness of applying the "Streets and Parking Lots: Option Three" standards shall be confirmed during the design phase based upon the area's prominence, existing use of this fixture in the vicinity, and alternatives analysis. This is the recommended fixture for University Athletic Association installations.

c) Manufacturer: Kim, Gardco with Type III distribution.

d) Model: Gardco MA Series for projects of the University Athletic Association (UAA); Gardco CA Series for all other locations

e) Luminaire: Fixture shall have round shape, flat top (dome top for UAA installations), with flat, tempered glass lens in a hinged aluminum frame. Housing material shall be spun aluminum with all welds and fasteners concealed. Optical system is to be 90 degrees rotatable, segmented aluminum reflector, electrochemically brightened and sealed. Luminaire dimensions; 17 inches in diameter and 11 inches in height (nominal).

f) Lamp: 150 watt clear metal halide, pulse-start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase. At 30 foot mounting height, a 250 watt clear metal halide, pulse start lamp may be acceptable as needed to meet illumination standards.

g) Pole: Mounting height 20-30 feet. Pole shall be aluminum, smooth, round cross-section. The pole shall be tapered with an 8 inch base and 4 inch top. Arm mount shall be a minimum of 4 feet length.

h) Finish: Premium abrasion and fade resistant black polyester powdercoat.

7. Parapet Mounted Area Light:

a) Type: The use of parapet mounted area lights is discouraged.

b) Use: Green Areas (i.e. lawns, softscape) only with an approved Standards Deviation Request Form.

c) Manufacturer: Sterner, Hydrel.

d) Model: Sterner 872 Series

e) Luminaire: Luminaire dimensions; 9 inches deep by 20 inches high by 23 inches wide.

f) Lamp: 400 watt clear metal halide, pulse-start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Mounting: Mounting height: 5 to 8 building stories above surface to be lighted.

h) Finish: Premium abrasion and fade resistant black polyester powdercoat.

i) Comments: For mounting height of 3 to 4 building stories above surface to be lighted, a 250 watt, metal halide, pulse start, lamp shall be used. The luminaire shall provide glare control.

8. Wall Mounted Cutoff Entry and Area Light – Option One:

a) Type: Wall mounted cutoff.

b) Use: Entrances and small areas with low mounting heights. Area lights only with justification by the design professional and approval during the design phase.

c) Manufacturer: McPhilben, Gardco.

d) Model: McPhilben 101 Series

e) Luminaire: Luminaire dimensions; 9 inches deep x 7 inches high x 16 inches wide.

f) Lamp: 50-150 watt, metal halide, pulse-start, 4-pin. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Mounting: Depends on application; install at 6 feet to 12 feet above grade. Mounting angle shall be 90 degrees horizontal such that the light source is not visible.

h) Finish: Premium abrasion and fade resistant black polyester powdercoat.

9. Wall Mounted Cutoff Entry and Area Light – Option Two:

a) Type: Wall mounted cutoff.

b) Use: Entrances and small areas with low mounting heights. This is the recommended fixture for University Athletic Association installations. Area lights

only with justification by the design professional and approval during the design phase.

c) Manufacturer: Gardco

d) Model: Gardco MW Series for projects of the University Athletic Association (UAA); Gardco CW Series for all other locations

e) Luminaire: Fixture shall have round shape, flat top (dome top for UAA installations), with flat, tempered glass lens in a hinged frame. Luminaire dimensions; 17 inches in diameter and 11 inches in height (nominal).

f) Lamp: 50-150 watt metal halide, pulse-start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Mounting: Depends on application; install at 6 feet to 12 feet above grade. Mounting angle shall be 90 degrees horizontal such that the light source is not visible.

h) Finish: Premium abrasion and fade resistant black polyester powdercoat.

10. Facade (Sign) and Landscaping Light:

a) Type: The use of ground mounted uplights is discouraged.

b) Use: Low walls (such as for signs) and landscaping only with an approved Standards Deviation Request Form.

c) Fixture Manufacturer: Omegalux, Design Plan

d) Model: Omegalux - 1200 series

e) Luminaire: Luminaire dimensions; 3.75" deep by 6.5" high. Width varies, may be 10 inch or 19 inch wide.

f) Lamp: For 10 inch wide luminaries: 26 watt compact fluorescent quad tube, 4-pin. For 19 inch wide luminaries: Two (2) 26-watt compact fluorescent quad tubes, 4-pin. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Mounting: Mounting height, varies.

h) Finish: Black or dark bronze

i) Comments: Requires additional ingrade wiring compartment.

11. Building Facades - Ground Mounted:

a) Type: Ground mounted uplight.

b) Use: Building facade only with justification by the design professional and approval during the design phase.

c) Manufacturer: Sterner, Gardco, Hydrel, Kim.

d) Model: Gardco DF7 Series.

e) Luminaire: varies.

f) Lamp: 150 watt, metal halide, pulse-start. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Mounting: height varies.

h) Finish: Premium abrasion and fade resistant black polyester powdercoat.

12. Building Facades - Pole Mounted:

a) Type: Floodlighting pole.

b) Use: Building facades only with justification by the design professional and approval during the design phase.

c) Manufacturer: Sterner, Gardco, Hydrel, Kim.

d) Model: as required by application.

e) Lamp: varies

f) Pole: Mounting height shall be 20 feet to 30 feet. Pole shall be aluminum, round cross section, smooth, tapered with 8” base and 4” top.

g) Finish: Premium abrasion and fade resistant black polyester powdercoat.

13. Trees:

a) Type: Ground mounted uplight or pole mounted downlight.

b) Use: Trees and sculpture.

c) Manufacturer: Sterner, B.K. Lighting, Inc., Lumiere, Hydrel

d) Model: Sterner VE6 Series

e) Luminaire: varies

f) Lamp: 35-39 watt metal halide PAR20, Flood or spot. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets UF illumination standards is encouraged and may be acceptable pending justification by the design professional and approval during the design phase.

g) Finish: Premium abrasion and fade resistant black or dark bronze polyester powdercoat.

h) Comments: Requires additional ingrade wiring compartment and electronic ballast. Downlight is preferrable to reduce light pollution and should have a discretely placed pole that blends into the landscaping. Pole placement must not be attached to the tree or so close that tree trunk growth may eventually engulf the pole. Consult PPD Grounds for questions regarding pole placement next to trees.

14. Close to Observatory:

a) Type: square, cutoff, arm mount

b) Use: Areas within direct sight line of the observatory. Direct sight line is defined as those places not obscured by buildings or tree groves when viewed from the observatory at ground level. Building sites on higher elevations or with light installations at higher elevations (such as roof-top decks), shall also be considered within direct site line of the Observatory.

c) Manufacturer: Emco, Gardco.

d) Model: Infinity – LA Series

e) Lamp: Low Pressure Sodium. Amber LED lamps may be acceptable pending justification by the design professional and approval during the design phase and consultation with UF's Department of Astronomy.

f) Mounting: 20 – 30 feet

g) Finish: Premium abrasion and fade resistant black polyester powdercoat.

h) Comments: Within areas close to the observatory, lower pole heights shall be used for all lighting installations. This shall include the selection of fixtures with lower pole heights, as appropriate, and/or lighting design that utilize the lower-end of the range of acceptable mounting heights. For pole height considerations, the use area close to the observatory is defined as above plus any lighting installations an elevation higher than the observatory where building and landscape features do not provide the necessary obstruction. All lighting fixtures utilized in these areas shall be full cutoff and shall be designed in consultation with UF's Department of Astronomy.

15. North of University Avenue and West of SW 13 Street:

a) Projects that include street lighting and are on university lands that lie north of University Avenue or west of SW 13 Street shall be lighted in consultation with the City of Gainesville (Public Works Department and Gainesville Regional Utilities). City of Gainesville standard fixtures shall be used for roadway and pedestrian lighting along public streets. Refer to Drawing 16500-A for the areas to be illuminated according to City of Gainesville/Community Redevelopment Agency district standards.

C. LIGHT LEVELS - ILLUMINANCE AND UNIFORMITY RATIO:
Campus lighting shall provide security and comfort to nighttime campus users. The lighting shall

be uniform and of a high quality, which the human eye can efficiently use. Careful design is required to address the issues of glare, light trespass, and light pollution while providing adequate and efficient lighting. The following lighting standards table provides fixture and illumination requirements to be applied in different campus settings based on IESNA standard applications. If IESNA adopts revised standards for these applications, the latest version of IESNA standards will apply. A photometric plan shall be provided that clearly demonstrates conformance with these standards. Deviations from these standards require approval of the University's Lighting Committee. This approval may be obtained from the Lighting Standards Subcommittee (contact the Design and Construction Standards Subcommittee Chair).

1. Design Areas and Spill Light

    a) At the initial design phase, the light fixture category and design area shall be identified. The lighting design area shall be confirmed with the project manager to be used for illumination standards and LEED site evaluation.

    b) The lighting design area shall consider adjacent areas and their relation to illumination within the project site. Spill light (e.g. light that falls outside the project site where the luminaire is installed) shall be evaluated in the context of adjacent areas. Project sites adjacent to built areas must ensure that illumination on the project periphery provides an acceptable transition or uniformity to illumination levels in adjacent areas. Project sites adjacent to undeveloped natural areas shall ensure that a gradual transition exists between the project site edge and the darker undeveloped site. Care should be taken to ensure that light trespass does not interfere with natural habits or attract pedestrians into areas where their presence is discouraged. Project sites adjacent to public roads and non-university property should consult the appropriate local government codes regarding light spillage.

    c) Lighting applications in "green areas" (i.e. lawns, softscapes) should assume that the design area includes only the walkways and plazas within the "green area" unless otherwise directed by the project manager.

    d) Illuminating footpaths through natural areas is generally discouraged. However, when a formal walkway exists through the natural area for use during nighttime hours, it shall be illuminated according to the standards for General Campus walkways.

    e) Isolated Sites and Locations Away from Main Campus: Exterior luminaries, including all site and wall-mounted fixtures, shall produce no more than 0.20 horizontal and vertical footcandles at the LEED site perimeter and 0.01 horizontal footcandles 15 feet outside of the LEED site ("LEED site" identified by the project manager and design team for the purposes of certification from U.S. Green Building Council's Leadership in Energy and Environmental Design.)

2. Other Applications:

    a) Lighting intensities for projects or locations not specifically identified in this section (for example athletic fields and courts, bikeways, and parking garages) shall be designed as recommended by the Illuminating Engineering Society of North America (IESNA).

    b) Lighting at Automated Teller Machines is governed by the Florida Building Code and IESNA.

c) Special attention should be given to illumination levels at bicycle parking facilities, crosswalks and bus stops on night routes to ensure visibility, security, and uniformity. Illuminance at these locations should be consistent with that achieved in the surrounding area, whether it be a parking lot, building entry, sidewalk or road edge.

d) Bus shelters are required to be internally lighted. Consult the Transportation and Parking Services Director for information on bus shelter lighting.

e) Energy efficient technology, such as induction, LED, and High Intensity Fluorescent is encouraged in these "other" applications if the fixture provides similar white light quality and adequate illumination, pending justification by the design professional and approval during the design phase.

3. Uniformity

All exterior lighting applications shall provide a maximum 4:1 average-to-minimum uniformity ratio unless IESNA standards require a different uniformity ratio specific to a certain application. When a uniformity ratio is specified by IESNA, that ratio shall prevail.

LIGHTING STANDARDS				
CATEGORY	**HEIGHT**	**TYPE**	**LAMP [5]**	**IESNA ILLUMINANCE [1] STANDARD APPLICATION**
CORE CAMPUS WALKWAYS AND PLAZAS [2]	10'-0"	Acorn Globe	Metal Halide (Pulse Start) 100-150 watt	Pedestrian Way
GENERAL CAMPUS WALKWAYS AND PLAZAS [3]	16'-0"	Cutoff Round (Post-Top)	Metal Halide (Pulse Start) 150 watt	Pedestrian Way
CORE CAMPUS PARKING LOTS [2]	14'-0"	Acorn Globe (Post-top or Twin-Arm)	Metal Halide (Pulse Start) 150-250 watt	Medium Security Parking Lots unless otherwise directed by Project Manager
PARKING LOTS [4] Option One and Two	23' – 35'	Cutoff Cobrahead (black or aluminum)	Metal Halide (Pulse Start) 400 watt	Medium Security Parking Lots unless otherwise directed by Project Manager
PARKING LOTS [4] Option Three	20 – 30'	Cutoff Round (Arm-Mount)	Metal Halide (Pulse Start) 150-250 watt	Medium Security Parking Lots unless otherwise directed by Project Manager
CORE CAMPUS STREETS [2]	14'-0"	Acorn Globe (Post-top or Twin-Arm)	Metal Halide (Pulse Start) 150-250 watt	Collector Streets in Commercial Areas
STREETS [4] Option One and Two	23' – 35'	Cutoff Cobrahead (black or aluminum)	Metal Halide (Pulse Start) 400 watt	Collector Streets in Commercial Areas

STREETS [4] Option Three	20 – 30’	Cutoff Round (Arm-Mount)	Metal Halide (Pulse Start) 150-250 watt	Collector Streets in Commercial Areas

NOTES:

1. Illuminance is measured as Maintained Foot candles of horizontal illuminance at grade.

2. For the purpose of lighting standard application, the Core Campus Area is depicted on Drawing #16500-A at the end of this Section.

3. General Campus Walkways fixture and illuminance standards apply outside the Core Campus Area as depicted in Drawing #16500-A. The General Campus Walkways illuminance standard also applies to all sidewalks adjacent to campus or public roadways.

4. Standards for Streets and Parking Lots apply outside the Core Campus Area as depicted in Drawing #16500-A at the end of this Section.

5. Comparable induction, LED, High Intensity Fluorescent or other energy efficient technology that provides similar white light quality and meets all other UF Exterior Lighting Design and Construction Standards is encouraged and acceptable pending justification by the design professional and approval during the design phase.

D. FIXTURE MOUNTING:

Fixtures shall be fastened with galvanized hardware through cast holes. Field cut holes are not acceptable. All hardware shall be made of non-rusting, non-corroding material.

E. GROUNDING:

Steel and aluminum poles shall have all conductive metal parts bonded together and connected to an equipment-grounding conductor, and connected to the fixture at the top. Also connect to the branch circuit equipment-grounding conductor and to a ground rod at the bottom of each pole.

F. CONTROL:

1. See Specification Section 260900.

G. TIME CLOCKS:

1. All time clocks shall have a snap-out timing mechanism, such as with a Tork 1103.

2. For the Health Science, a digital clock with battery or capacitor back-up may be acceptable.

H. METERING:

The following is the Facilities Services policy for metering on exterior lighting projects:

1. Lighting installations do not need a meter if the connected load is less than one KVA.

2. New lights should preferably be connected to existing, metered, lighting circuits. If the existing lighting circuit is un-metered, and the subsequent connected load is greater than

one KVA, then the lighting project must include installation of a meter for the entire lighting circuit.

3. Alternatively, new lights in areas of general use may be connected to a building funded by the University's E & G (Education & General) budget, and new lights in non-E & G areas may be connected to a building funded by the benefiting non-E & G entity. If the new lighting load is less than 0.5 KVA, then it may be connected to an E & G or non-E & G circuit, regardless of who is the beneficiary.

I . POLES:

1. Concrete, stainless steel and wood poles shall only be used within less public areas of campus defined as IFAS, Veterinary Medicine research fields, barns and greenhouses, PPD warehouses, the Surge Area, and certain remote properties.

2. Concrete poles shall be pre-stressed, and shall have a 4" X 6" handhole located 18" above finished grade. Cover shall be stainless steel, fastened with stainless steel tamper resistant screws, and bonded to ground with flexible braid copper of the same size as the equipment-grounding conductor.

3. Wood poles shall be CCA treated. Specify ANSI-05.1 and AWPA C-1 and C-4. Bottoms of wood poled placed in concrete shall be wrapped with 'Osmose' felt barriers to prevent wicking of the preservative.

4. Poles shall have a wind-loading factor compliant with current codes, including any allowance for 'gusts.'

J. EXECUTION:

1. Joints shall be made in ~~"splice boxes" in the pole, or in~~ an oversized junction box located in the ground within 2' of the pole.
   a) Splices shall not be made in pole.

2. Locations of junction boxes shall be marked on as-built prints.

3. The ground rod for the light poles shall be located inside the oversize junction box.

   a) An individual bare conductor shall be run for bonding light pole to the ground rod. Mechanical type ground clamps are not allowed.

4. All exterior light poles (Street, parking lot, walkways) ... shall have the GLR type fuses located inside hand hole of all light poles.

5. Acceptable manufacturer of junction boxes is: CDR ~~(24" deep)~~ - Load Designation - AASHTO - H15.

1.3 INTERIOR LIGHTING

A. Interior lighting shall be designed so that direct beam illumination from interior luminaries remains within the building.

B. ACCESSIBILITY: All interior lighting fixtures shall be installed so that they are serviceable from

standard ladders or lifts used in a prescribed and safe manner.

1. If a lift is used, it must be able to enter and move throughout the building without structural modifications, and be able to set up under the fixture with all riggers installed and operator not leaning.
2. Above stairs or on stair landings, fixtures should be wall mounted between 7'-8" and 8'-0" high to allow use of 6' step ladders.
3. The installation of any fixtures that require scaffolding or unsafe use of extension ladders for access is not allowed.

C. FIXTURES: The project lighting designer/electrical engineer shall select the appropriate fixtures for the project. Selections shall be presented to the UF Project Manager early in the design phase for review. It is the University's goal to reduce electrical energy consumption while providing pleasing, sufficiently lit spaces. For example, consider reducing the average maintained footcandle (fc) level in offices and provide task lighting. This reduces building energy consumption while providing individual occupants with lighting control, both of which contribute to LEED points. Consider the use of occupancy sensors and daylight harvesting (see control section).

1. LED lights are to be used on Campus.
    i. LED lights shall be rated at a minimum of 80% light output at 10 years.
    ii. The Manufacturer's warranty shall last a period of not less than 10 ~~five~~ years from the date of substantial completion for repair or replacement of defective electrical parts, including light source and driver.
    iii. LED fixture shall have a two year warranty for mechanical defects.
    iv. LED lights other than standard in ceiling grid lights (2x2, 2x4, 1x4) shall have field replaceable LED modules and drivers.
    v. All fixtures shall be labelled as to when they were installed by the contractor.
    vi. Submit documentation that indicates specified products have been tested, or will be tested, for compatibility with the lighting controls being procured and will perform as specified. Control devices or systems shall be able to control luminaires with flicker free, continuous dimming, in range specified.
    vii. The CRI (color rendering index) of all lights shall be a minimum of 85.
    viii. The color temperature of all lights shall be 4100K +/- 100K.
    ix. Preferred Manufacturers: GE Current or Equivalent

D. CONTROLS:

1. See Specification Section 260900.

E. EGRESS (EMERGENCY ESCAPE PATH) LIGHTING:

Egress (Emergency Escape Path) lighting shall be provided for a minimum of ninety minutes after a power failure. Check with the facilities personnel to determine best practice for the installation location and for the amount of available power. Provide emergency power per one (or more) of the following methods, in descending order of preference:

1. Connect fixtures to emergency power provided from a generator fed system (preferred at HSC).
2. Power selected lamps with emergency battery packs in fluorescent fixtures.
3. Provide dedicated incandescent fixtures with maintenance free battery packs.
4. Push test buttons: For maintenance purposes, when push test buttons are installed and they cannot be reached by a standard 8 foot step ladder, the push to test switches shall be located

at typical wall switch height.

F. TEACHING AUDITORIUMS:

Refer to UF Academic Technology department ~~Section 115200~~ for special lighting requirements for teaching auditoriums relating to the installation and operation of audio-visual equipment.

A catwalk system is an option for access teaching auditorium lighting fixtures.

G. SHIELDED LIGHTING:

1. All interior fixtures where code requires safety shielded light bulbs (e.g., elevators, food preparation, etc.) shall be specified with guards or lenses to eliminate the need for special bulb coatings or sleeves.

H. ROUND RECESSED DOWN LIGHTS

1. Recessed can lights shall be permitted in all areas of a building if they meet the UF Standard 265000 1.3 B.1-3.
2. Recessed can lights 4" or greater are allowed in most areas, including hard and drop ceilings.
3. Recessed can lights less than 4" shall not be permitted in hard ceilings.

1.4 EXIT LIGHTING

A. GENERAL:

In buildings without emergency generators, provide exit lights with battery backup and charger. In buildings with emergency generators the exit lights shall be connected to the light safety circuits of the generator system.

B. TYPE:

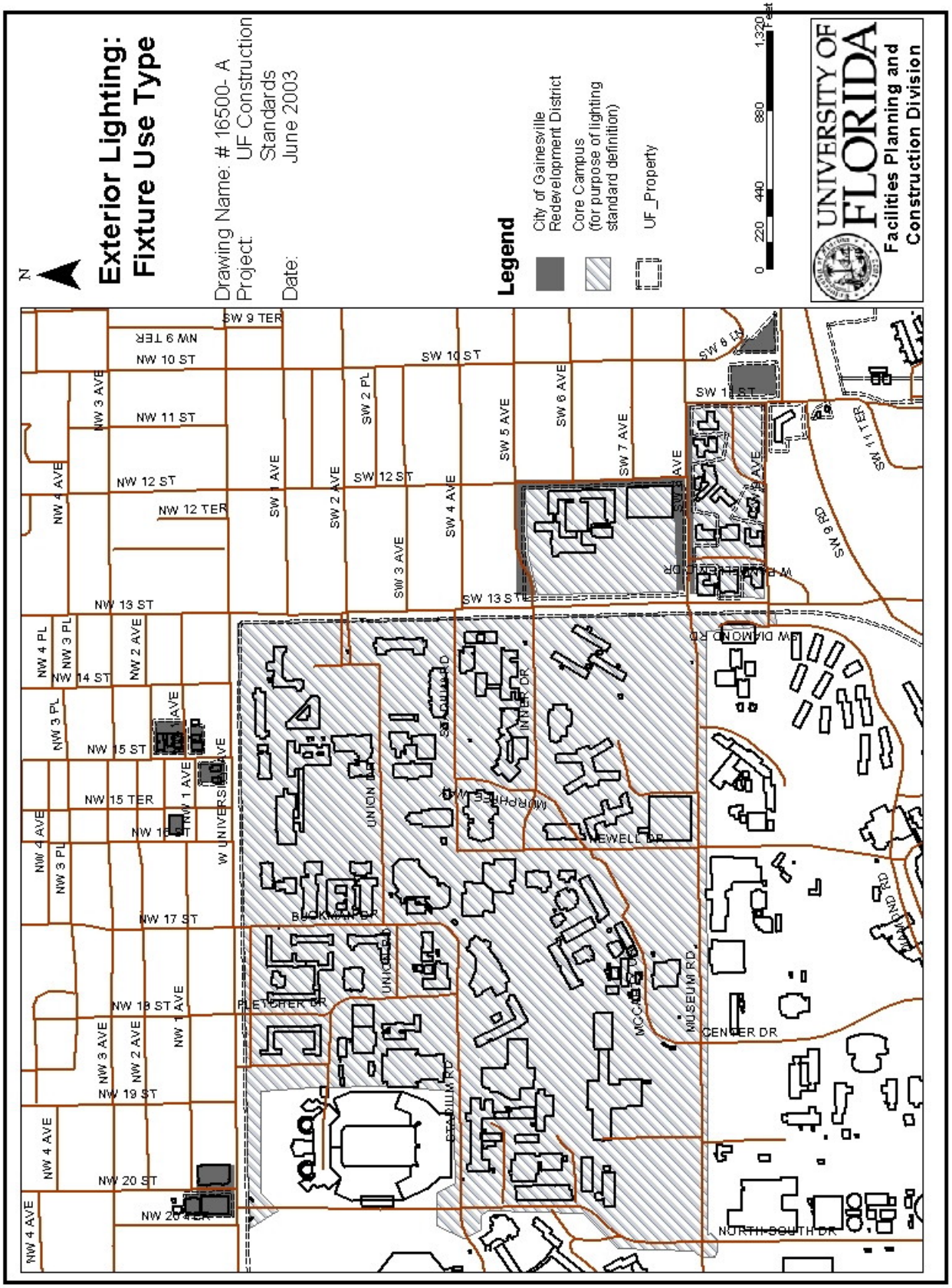
Exit lights shall be Photoluminescent type or Light Emitting Diodes (LEDs) with Red or Green lettering and a minimum 5-year warranty on fixture, batteries and lights. For minor renovations, matching existing fixtures are acceptable.

C. ACCEPTABLE MANUFACTURERS:

Trace, Dual-Lite, Prescolite, Evenlight, GE, Firefly

D. EXIT SIGNS:

All exit signs shall remain on continuously and shall not be switched.


Exterior Lighting:
Fixture Use Type
N
Drawing Name: # 16500- A
Project: UF Construction Standards
Date: June 2003
Legend
City of Gainesville Redevelopment District
Core Campus (for purpose of lighting standard definition)
UF_Property
0 220 440 880 1,320 Feet
UNIVERSITY OF FLORIDA
Facilities Planning and Construction Division
SW 9 TER
NW 9 TER
NW 10 ST
SW 10 ST
NW 11 ST
NW 12 ST
SW 12 ST
NW 12 TER
NW 13 ST
SW 13 ST
NW 14 ST
NW 15 ST
NW 15 TER
NW 17 ST
NW 18 ST
NW 19 ST
NW 20 ST
NW 1 AVE
NW 2 AVE
NW 3 AVE
NW 3 PL
NW 4 AVE
NW 4 PL
SW 1 AVE
SW 2 AVE
SW 2 PL
SW 3 AVE
SW 4 AVE
SW 5 AVE
SW 6 AVE
SW 7 AVE
SW 8 AVE
SW 11 TER
SW DIAMOND RD
SW 6 RD
W UNIVERSITY AVE
UNION RD
INNER DR
MORPHREE LN
NEWELL DR
BUCKMAN DR
FLETCHER DR
MUSEUM RD
CENTER DR
NORTH-SOUTH DR

END OF SECTION