

SITE DESIGN GUIDELINES



UNIVERSITY OF TENNESSEE KNOXVILLE

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**Document modified 7/7/08 to update blue light phone,
pole light fixture, and site irrigation.**



The Campus Master Plan adopted by the University of Tennessee in 2001 identified long-term strategies to enhance the overall character of the campus and establish a high quality pedestrian-friendly environment. In order to achieve these goals, the Campus Planning Advisory Committee has collaborated with landscape architects from Ross/Fowler, P.C. to develop Site Design Guidelines for a unified campus appearance. The objective of these guidelines is achieved through a consistent and coordinated use of site materials, site furniture and landscaping throughout the campus. The materials in the Site Design Guidelines have been chosen for their classic and timeless appeal, durability, ease of maintenance, and their harmony with existing campus buildings and elements.

Over the last two years, a task force representing students, staff, faculty, and administration from the University community has worked with Ross/Fowler, in a coordinated approach for the design development of the University Mall, University entries, and the Campus Site Design Guidelines. In making their recommendations, the consultants carefully considered user input, as well as security, technical specifications, cost, and maintenance issues.

The Site Design Guidelines are a guide for all site and landscape improvements on the Knoxville campus of the University of Tennessee, to be used in the following ways:

- These guidelines should be included as part of the design requirements for all architects, landscape architects, engineers, and designers working on projects for the Knoxville campus.
- All site changes and improvements made throughout the campus should be based on the campus design guidelines, regardless of the funding sources.
- The guidelines should be used in all projects supervised by either the Department of Physical Plant and/or the Department of Facilities Planning.
- The Department of Physical Plant should identify and prioritize necessary site changes that should be made throughout the campus, in order to be consistent with the design guidelines.
- The University of Tennessee should work with the City of Knoxville to assure that physical changes to public property, such as roads, sidewalks, and utilities, will be consistent with the design guidelines.

It should be noted that, although the goal is one of consistency and coordinated use of materials, these guidelines are meant to encourage both creativity and a variety of design expressions.



The goal of the Site Design Guidelines is to establish a visually cohesive campus character that is reflective of the priorities, aspirations and history of the University of Tennessee. The purpose of these guidelines is to insure that future site related projects reflect this sensibility. To this end, these Site Design Guidelines establish a standardization for future projects on the University campus. As projects are developed on campus and as existing inventories need replacement, the following site elements have been adopted as the approved standard. All future projects shall be designed in conformance with the following goals:

- Strengthen campus identity and sense of place.
- Enhance campus character for use as a recruiting and retention tool.
- Foster physical continuity and unified character which respects the history of the campus.
- Promote accessibility for those with disabilities through elements that comply with ADA guidelines.
- Reinforce the teaching and research value of the plant collection found on campus.
- To provide clear standardization for campus signage.
- Establish landscape treatment and screening principles for surface parking facilities.



3.1 Benches

Timberform Renaissance bench with armrests or approved equivalent*
Manufacturer: Columbia Cascade
Product Number: 2806-6
Color: Black
Contact: (800) 547-1940

* See appendix for quality standards.

Application

The Renaissance bench shall be positioned at appropriate locations throughout campus for directional seating to enhance outdoor interaction and contemplation.



Timberform Renaissance seat with armrests or approved equivalent*
Manufacturer: Columbia Cascade
Product Number: 2802-6
Color: Black
Contact: (800) 547-1940

* See appendix for quality standards.

Application

The Renaissance seat shall be positioned at appropriate locations throughout campus for multi-directional seating to enhance outdoor interaction and contemplation.



3.2 Table Sets

Timberform Renaissance round table with center support and direct embedment or approved equivalent*

Product number: Round - 2912-0042-E (3'6" Dia.)

Square - 2912-4242 (3'6" Width)

Timberform Renaissance seat

Product Number: 2910-20

Manufacturer: Columbia Cascade

Color: Black

Contact: (800) 547-1940

* See appendix for quality standards.

Application

The Renaissance table set shall be appropriately located throughout campus in outdoor spaces associated primarily with food service and study.



3.3 Seatwalls



Application

Seatwalls shall be the predominant method of providing outdoor seating as they are permanent in nature, help define outdoor space and also direct pedestrian movement.

- Seatwalls shall be brick, stone, or concrete to enhance the existing architecture.
- All seatwalls and pilasters shall have brick, stone or pre-cast caps.
- Walls shall emulate character of the existing wall vernacular.
- Walls and pilasters shall be designed to relate to the pedestrian scale of the campus.
- Seatwalls shall be used in high pedestrian circulation/concentration areas to aid pedestrian flow.
- Existing limestone walls are an important campus feature and shall be protected. When removal of limestone walls is required by new construction, they shall be replaced in kind to blend with the existing wall. Limestone walls are located at the following: Walters Life Sciences, Sophronia Strong Hall, Tyson Alumni Center, Andy Holt Avenue West, and at the Interior Design Program building.



3.4 Bike Racks

Manufacturer: Dero Bike Rack Company or approved equivalent*

Product name: Dero Hoop Rack, Imbed or surface mount

Color: Black

Contact: (888) 337-6729

* See appendix for quality standards.

Application

Secure bicycle parking shall be provided in convenient but visually discrete locations.



3.5 Planters

Manufacturer: Wausau or approved equivalent*

Model Numbers: TF4095 w / Level Ring – 36" Dia. x 26"

TF4110 (shown) - 48" Dia. x 24"

TF4115 w / Level Ring – 48" Dia. x 26"

TF4125 – 60" Dia. x 17"

Color: Grey Weatherstone

Contact: (800) 388-8728

* See appendix for quality standards.

Application

The Wausau planter with leveling ring, shall be used to define building entries and to direct both pedestrian and vehicular movement. These planters shall be installed and planted with appropriate seasonal color. Refer to Section Eleven: Seasonal Color Beds



3.6 Litter Receptacles



Application

The Renaissance litter receptacle has been provided in a 23 gallon size and also a 32 gallon size for the more heavily populated areas of the campus. Their placement shall follow logical gathering spots near building entries, outdoor seating areas, intersections of pathways, outdoor recreation areas and along pedestrian ways.

Timberform Renaissance litter receptacle with flat top lid and direct embedment

Manufacturer: Columbia Cascade or approved equivalent*

Product Number: 2811-FT-E (23 Gal)

2817-FT-E (32 Gal)

Color: Black

Contact: (800) 547-1940

Note:

Method of attachment shall be either of the following:

1. Direct embedment with footing sized per manufacturer's recommendations.
2. Attached to pavement with expansion anchor per manufacturer's recommendations.

* See appendix for quality standards.



3.7 Ash Receptacles

Application

Ash receptacles shall be discretely located at designated outdoor smoking areas. The receptacle is available in pole and wall mount models.

Pole mounted classic Butler

Manufacturer: Site Form or approved equivalent*

Color: Black

Contact: (800) 451-0410

* See appendix for quality standards.



3.8 Emergency Phones

Manufacturer: Ramtel
or approved equivalent*
(07/07/08 – Code Blue)
Product Number: Model PLC-9
Color: Black
Contact: (401) 231-3340
* See appendix for quality standards.

Application

The approved emergency phone shall be used when existing inventories need replacement or when additional phones are required. They shall be placed at highly visible and accessible pedestrian key points across campus. Existing emergency phones shall be painted black to match newly installed phones.

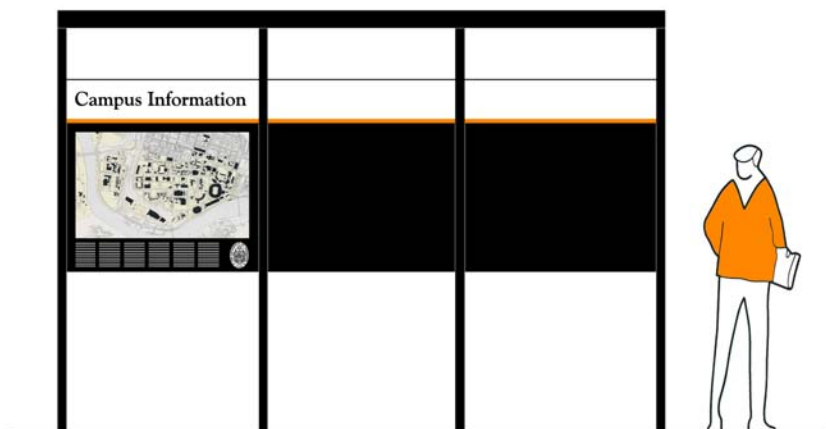


3.9 Kiosks

Aluminum post and panel signs with square outbound post.
Manufacturer: ASI Sign Systems or approved equivalent*
Product Number: 2300 series
Panel Thickness: 3"
Contact: (615) 399-2742

Application

The existing information kiosk shall be refurbished to include the campus map as well as adequate bulletin board space for announcements. The refurbished information kiosk shall coordinate with the new color and graphic signage system.



3.10 Traffic Bollards

Traffic bollards shall be connected together with heavy duty painted steel chains with pad locks to allow service and emergency vehicle access

Manufacturer: Antique Street Lamps, Inc. or approved equivalent*

Model Number: BCA BCH12DT ANBK EBB

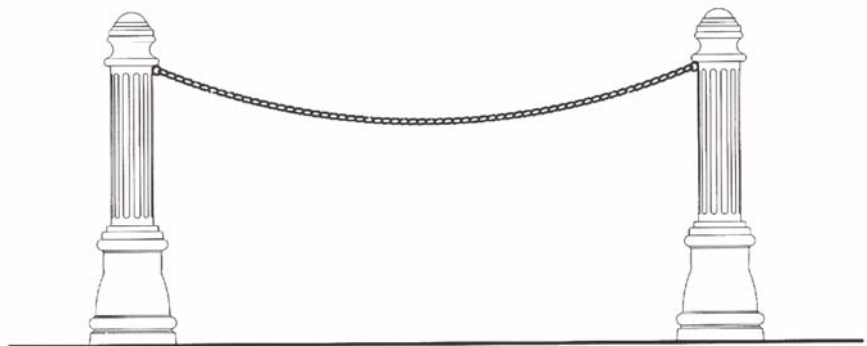
Color: Black

Contact: (512) 977-8444

* See appendix for quality standards.

Application

Traffic bollards shall be limited to vehicular applications where infrequent service / emergency access is required.



3.11 Pedestrian Bollards

Pedestrian bollards shall be connected together with painted steel chains

Manufacturer: Columbia Cascade or approved equivalent*

Model Number for Direct Embedment: 2193
2196

Model Number for Removable Mount: 2193-RC
2196-RC

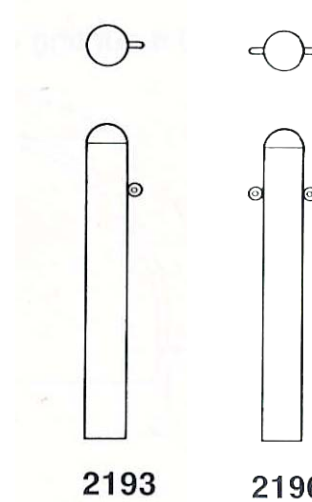
Color: Black

Contact: (800) 547-1940

* See appendix for quality standards.

Application

This pedestrian scaled bollard shall be used to direct pedestrian movement from planted areas and shall replace the small wood post and chain system currently being utilized on campus.

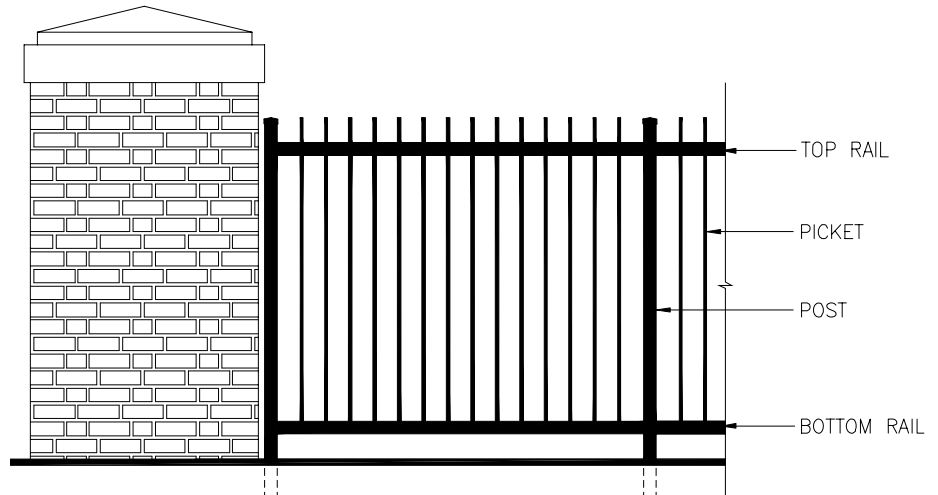


3.12 Fences

- Where required to reinforce the boundary of the campus.
- Design:
 - A. Height (8'-12')
 - B. Simple timeless design in character with campus.
 - C. 3/4" vertical pickets at 4" max. o.c.
 - D. Posts – size: 2" x 2" at 5' O.C., evenly spaced.
 - E. Rails top and bottom – size: 2" x 2".
 - F. Material: Painted Metal
 - G. Color: Black
- Brick pilasters shall have a limestone or pre-cast concrete cap.
- In low pedestrian traffic situations a manufactured fencing system will be allowed, provided it visually matches tubular steel fence design.

Application

Fencing height shall range from 8' to 12', depending upon the amount of security required.

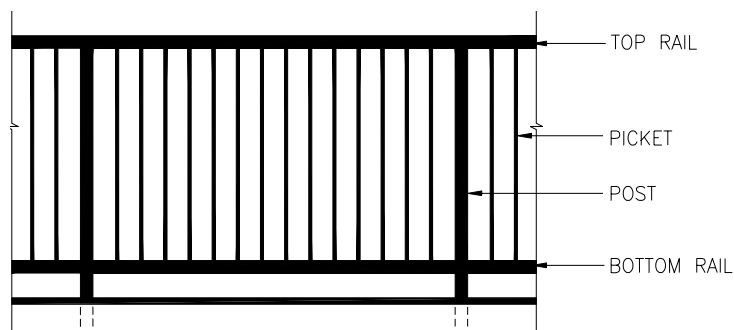


3.13 Guardrails

- Where required due to elevation changes adjacent to pedestrian ways.
- Design:
 - A. Height (42").
 - B. Simple timeless design in character with campus.
 - C. 3/4" vertical pickets at 4" max. o.c.
 - D. Posts – size: 2" x 2" at 5' O.C., evenly spaced.
 - E. Rails top and bottom – size: 2" x 2".
- Material: Painted Metal
- Color: Black

Application

To insure the safety of the pedestrian, 42" high guardrails shall be used where required by code.

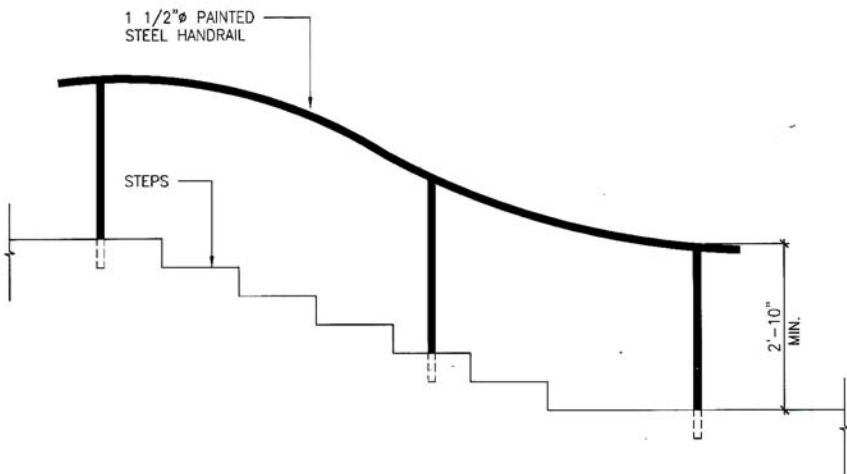


3.14 Handrails

- Application: Where required at steps and ramps.
- Design:
 - A. Height (34").
 - B. Simple timeless design in character with campus.
 - C. Posts – size: 1 1/2" Dia. at 5' O.C., evenly spaced.
 - D. Rails top and bottom – size: 1 1/2" Dia.
- Material: Painted steel.
- Color: Black

Application

Use at steps and changes in elevation as required by code to insure pedestrian safety.



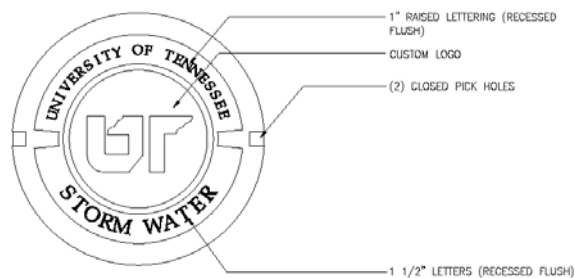
3.15 Utility Manhole Cover

Manufacturer: East Jordan Iron Works, Inc. or approved equivalent*

* See appendix for quality standards.

Application

To help reinforce a 'sense of place' the university seal shall be applied to manhole covers on the campus.



3.16 Newspaper Boxes

Manufacturer: Rak Systems or approved equivalent*
Product number: Model 100 Coin Operated Newsrack w/Dome Top
Color: Black
Contact: (800) 527-1134
* See appendix for quality standards.

Application

The approved newspaper box shall be positioned at convenient and unobtrusive locations away from building entries.



3.17 Sawhorses

Manufacturer: Tapco or approved equivalent*
Product number: SP-433-AFM w/8' Resin Board
Color: White
Contact: (800) 236-0112
* See appendix for quality standards.

Graphics: Vinyl graphics to be applied by the University Physical Plant.
A. University seal and logo shall be black
B. Stripe shall be university orange

Application

Replace existing varied sawhorse inventories with new sawhorses that coordinate with the new signage system.



3.18 Portable Signs

Manufacturer: Roadtech or approved equivalent*
Product Number: Marquee
Color: Black
Contact: (800) 880-3073
* See appendix for quality standards.

Graphics: Vinyl graphics to be applied by the University Physical Plant.
A. University seal and logo shall be black
B. Stripe shall be university orange

Application

The portable sign shall be used by faculty and students to post news and campus events.



3.19 Metal Bed Edges

Manufacturer: Collier Metal Specialties or approved equivalent*
Product Number: 1007-6
Color: Black
Contact: (865) 546-9608
* See appendix for quality standards.

Application

The transition between lawn areas and planting beds shall be either a prefabricated metal, brick or stone edge.



4.1 Evergreen Planting Screen

Application

Where sufficient space is available, evergreen screening shall be utilized. Evergreen screen material shall be of a mature size capable of providing immediate screening of campus utilities and service areas. Refer to the tree list in Section Eight for selection of plant material.



4.2 Masonry Screen

Application

Where space is more restrictive, or when required to fit architectural character, screen walls made of brick (with a basketweave or solid pattern), masonry or stone shall be utilized. Wall height shall be as required to provide proper screening of objectionable views.



4.3 Pre-Fabricated Screens

Application

Where space is restrictive and it is not possible to screen with architectural walls or landscaping, then a metal screen enclosure shall be used. Screen height shall be as required to provide proper screening of objectionable views.

Manufacturer: Orsogril or approved equivalent*
Product number: Louver Style Talia , Vertical or Horizontal
Color: Black
Contact: (800) 523-0973
* See appendix for quality standards.



Horizontal View



Vertical View

4.4 Dumpster Gates

Application

Use with either pre-fabricated screening or brick screen walls to enclose dumpster pads.

Manufacturer: Orsogril or approved equivalent*
Product number: Talia 100 Gate
Color: Black
Contact: (800) 523-0973
* See appendix for quality standards.



5.1 Pole Light Fixtures

The pole light fixture shall be used for pedestrian and vehicular situations to include but not limited to parking lots, plazas, open spaces, and street lighting.

Antique Street Lamps
Key West Series (Aluminum Post)
Catalog #PX KW12 14 S4 FG-S ANBK
RGA W 165QL ARF R5 TB FPF LS
W/BAND ANBK
Dwg # L-7626AR4, Dated 3/15/08

* See appendix for quality standards.



5.2 Bollards

Manufacturer: KIM Lighting or approved equivalent*

Model Number: VRB1-100MH208-BL-P

Type: Metal Halide

Finish: Black

Application: Pathways or pedestrian locations

Contact: (626) 968-5666

* See appendix for quality standards.

Application

The bollard light shall be used in a pedestrian application where the pole light fixture is not appropriate.



5.3.1 In-grade Architectural Light Fixtures

Manufacturer: Hydrel or approved equivalent*

Model number: 9100 series – wall wash Lamp

Type: Metal Halide

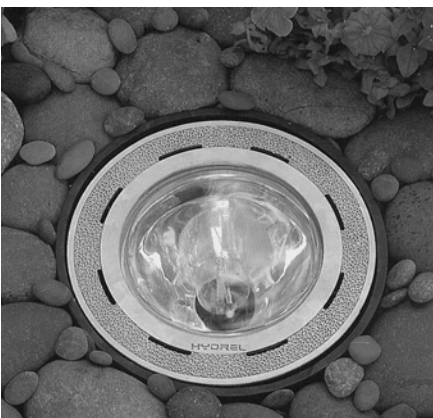
Application: Up light walls, signs, trees and sculpture

Contact: (800) 750-9773

* See appendix for quality standards.

Application

This light fixture shall be utilized where accent lighting is required and where the light source should be de-emphasized. In walk over positions a double-lens shall be specified and the lamp voltage shall not exceed 100 watts.



**5.3.2 In-grade Architectural
Light Fixtures Cont.**

Manufacturer: Kim Lighting or approved equivalent*
Model Number: 6350-PAR38
Color: Black
Lamp type: Metal Halide
Application: Up light walls, signs, trees and sculpture
Contact: (626) 968-5666
* See appendix for quality standards.



5.4 Flood Light

Manufacturer: Kim Lighting or approved equivalent*
Model Number: AFL10 Series
Color: Black
Lamp type: Metal Halide
Application: Buildings, walls, signs, and sculptures
Contact: (626) 968-5666
* See appendix for quality standards.

Application

This light fixture shall be used where flood lighting is required. The fixture shall be integrated into the landscaping to screen the light source from view.



5.5 Low Level Flood Lights

Low Level Flood Light or approved equivalent*
Manufacturer: Kim Lighting
Model Number: LLF-10
Color: Grey or Black depending on application.
Lamp Type: Metal Halide
Application: Steps or walls
Contact: (626) 968-5666
* See appendix for quality standards.

Application

The wall lights shall be utilized in pedestrian applications.



5.6 Recessed Wall Lights

Manufacturer: Bega Lighting or approved equivalent*
Model Number: 2855 or 2866
Color: Black
Lamp type: Metal Halide
Application: Steps or walls
Contact: (805) 684-0533
* See appendix for quality standards.

Application

This light fixture shall be used for low mounting heights for the illumination of steps, ramps and other outdoor locations where guidance security lighting is required.

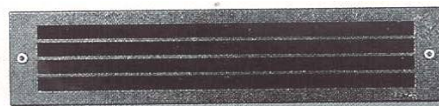


5.7 Step Lights

Manufacturer: Bega Lighting or approved equivalent*
Model Number: 2286P
Color: Black
Lamp Type: Fluorescent
Application: Steps
Contact: (805) 684-0533
* See appendix for quality standards.

Application

This light fixture shall be embedded in step risers as required for the safety of the pedestrian.



6.1 Concrete

Concrete - Shall be the standard pedestrian walking material used throughout campus for all projects.

- Concrete shall be 4" thick natural grey with reinforcing. All joints shall be 3/8".
- Edges and joints shall have 3" wide smooth trowel edges.
- Finish shall be a heavy raked finish, perpendicular to the longitudinal axis.
- Score joints shall be 10' o.c. maximum.
- Expansion joints shall be 40' o.c. maximum and shall be constructed with smooth internal dowels at the joints to prevent vertical movement.
- All concrete paving shall be sloped to drain at 1% minimum.
- Material and design shall be ADA compliant

Application

Applications for concrete shall be sidewalks, plazas, accent paving, banding and parking lot accent paving.



6.2 Brick

- Brick paver system shall consist of pavers on a reinforced concrete slab with a 1" thick mortar bed. Herringbone, Running Bond, and Basketweave are all acceptable brick patterns.
- Brick paving shall be constructed with tight joints.
- Expansion joints shall be as required with an expandable joint compound with color to match joints.
- Brick paver color shall match surrounding building architectural color and shall be approved by the university.
- Brick pavers shall be a standard 4" x 8" rectilinear shape. Paver thickness shall be 2" minimum.
- Material and design shall be ADA compliant

Application

Applications for brick paving shall be accent paving areas and banding. This material shall be reserved for high impact and important pedestrian gathering areas.



6.3 Concrete Pavers

- Concrete paver system shall consist of a concrete paver on a reinforced concrete subbase with a mortar bed.
- The paver shall be minimum 2 3/8" thick.
- Paving pattern shall be Appian Stone or equal with 5 1/2 x 5 1/2 sq. unit and a 5 1/2 x 8 1/4 rectangular unit available from Paver Systems.
- Color shall be a granite blend.
- Unit pavers shall have 1/8" swept joints butted together.
- Material and design shall be ADA compliant

Application

Applications for concrete pavers shall be pedestrian accent paving areas and banding. This material shall be reserved for high impact and important pedestrian gathering areas.



6.4 Native Stone Pavers

- Stone Paver system shall consist of a native stone paver installed on a reinforced concrete subbase.
- The stone paver shall be minimum 1 1/2" thick.
- Paving pattern shall be a random ashlar.
- Color - mix of dark and light grey.
- Stone sizes shall vary. Minimum size shall be 12" x 12". Maximum size shall be 24" x 36".
- Joints shall be 3/8" mortar joints. Color to be grey.
- Material and design shall be ADA compliant

Application

Applications for stone pavers shall be banding, accent areas and plazas. This material shall be reserved for high impact and important pedestrian gathering areas.



7.0 Signage

Wayfinding signage shall be designed to assist both vehicular and pedestrian traffic to locate on-campus destinations. The vehicular and pedestrian directional, as well as the parking lot and building identification signage, shall be of free standing and uniform elements.

Application

Signage should be consistently positioned in front of buildings, adjacent to parking lots or in predictable prominent locations.



7.1 Campus Entry Walls

Wall and pilaster elements shall be utilized to identify the important portals into the academic campus and provide a sense of arrival. Entry portals shall be designed in conformance with the following standards:

- Walls and pilasters shall be brick with stone or precast caps and bases.
- Design of walls shall emulate existing historical character and scale.
- The University identification shall be incorporated on each wall element with inscribed lettering in pre-cast concrete or stone.
- Landscaping and seasonal color shall be incorporated with entry elements to further define these important markers.
- Two sixteen foot pilasters shall be located on each side of the sign wall and contain internally illuminated lanterns.

Application

These entry portals shall be located at:

- The intersection of Neyland Drive and Lake Loudon Boulevard.
- The intersection of Cumberland Avenue and Estabrook Road.
- The intersection of Cumberland Avenue and Volunteer Boulevard (west entrance)
- The intersection of Neyland Drive and Joe Johnson Drive.

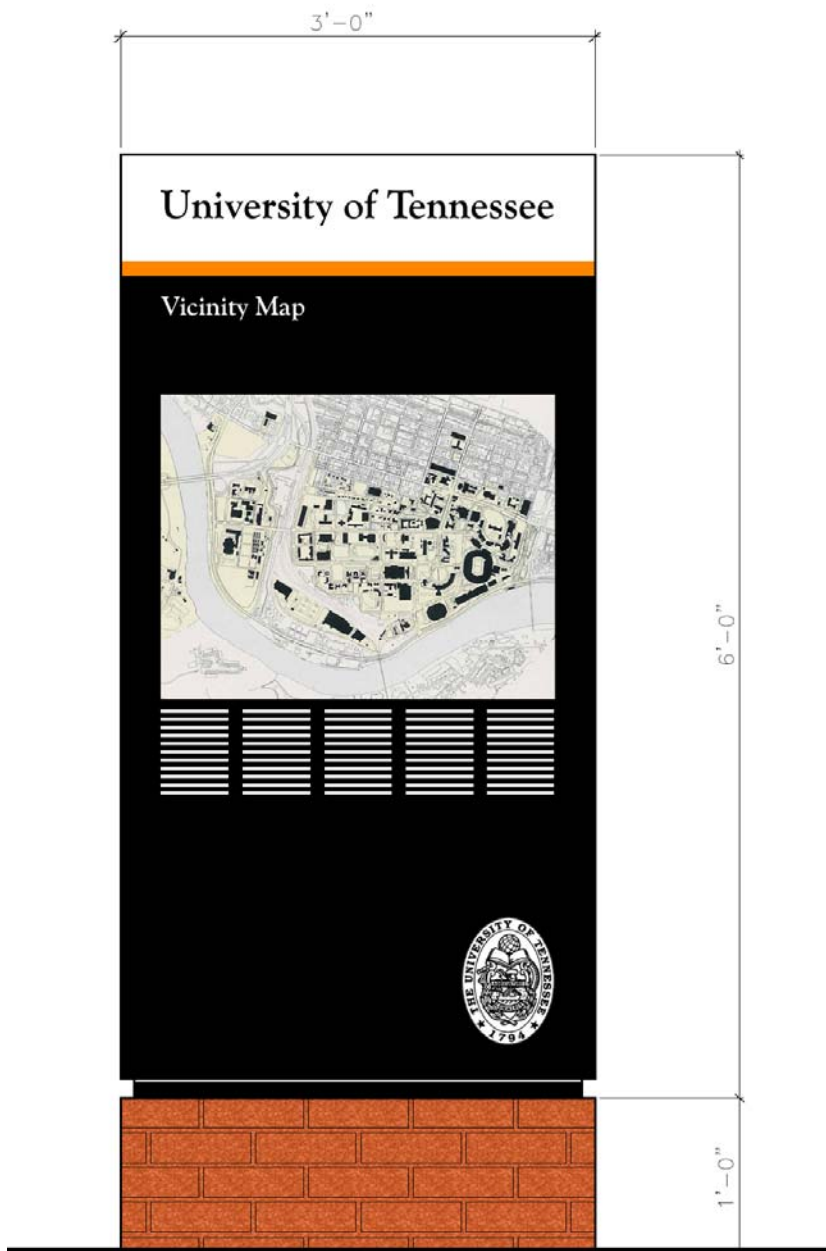


7.2 Pedestrian Directional

2-Sided Internally Illuminated Fiberglass Monolith w/ brick base.
Manufacturer: ASI Sign Systems or approved equivalent
Product Number: 1120 Series
Panel Thickness: 12"
Contact: (615) 399-2742
Type Face: Goudy

Application

The University of Tennessee vicinity map shall be located at selected campus entry positions and pedestrian gathering areas.

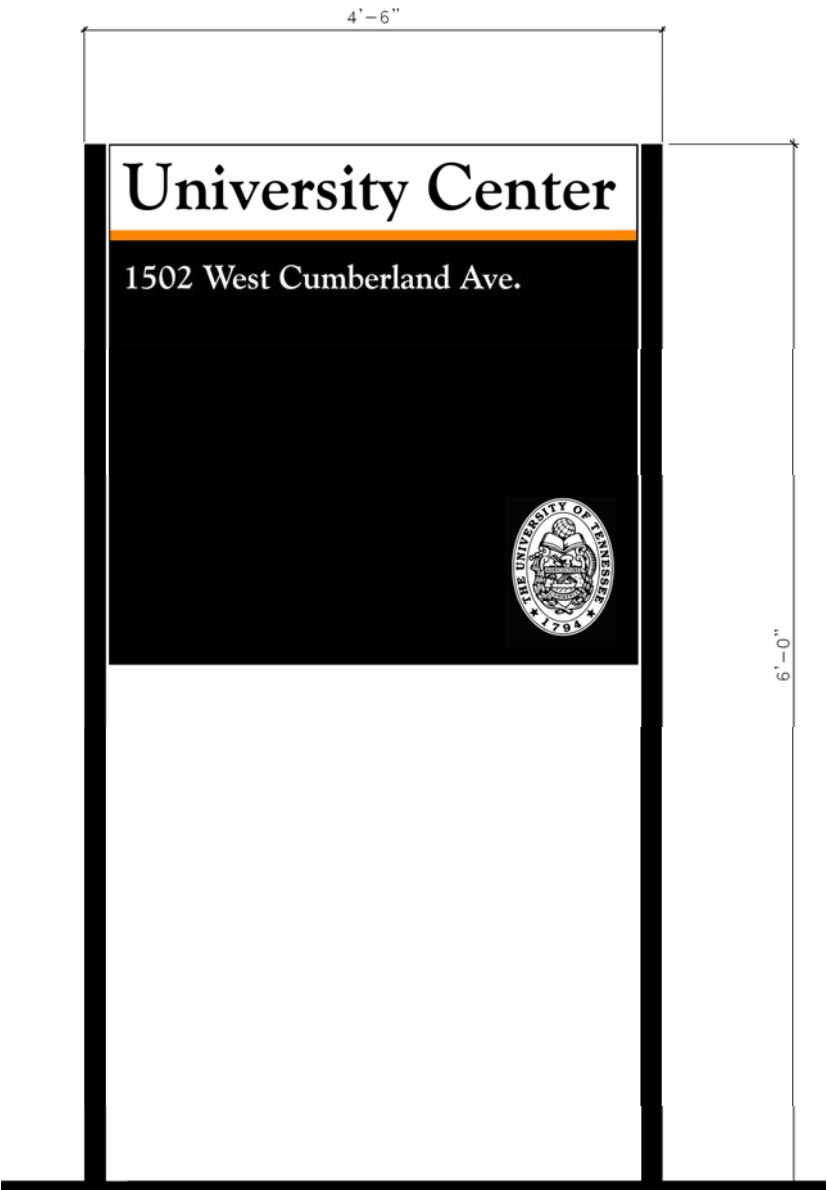


7.3 Building Identification

Aluminum Post and Panel signs with square outbound post.
Manufacturer: ASI Sign Systems or approved equivalent
Product Number: 2300 Series
Panel Thickness: 3”
Contact: (615) 399-2742
Type Face: Goudy

Application

The new building identification sign shall replace all existing building signs across campus as the approved standard.

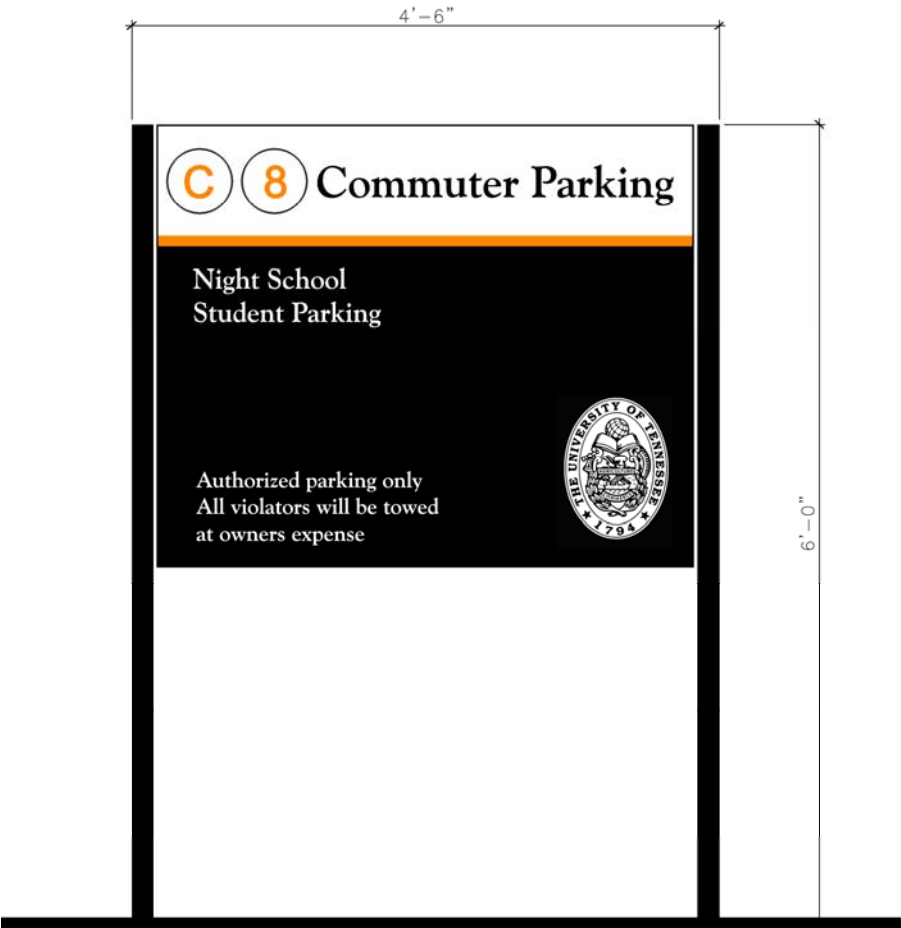


7.4 Parking Lot Identification

Aluminum Post and Panel signs with square outbound post.
Manufacturer: ASI Sign Systems or approved equivalent.
Product Number: 2300 Series
Panel Thickness: 3”
Contact: (615) 399-2742
Type Face: Goudy

Application

The parking lot identification sign shall be the predominate parking lot identification and shall replace existing inventories.

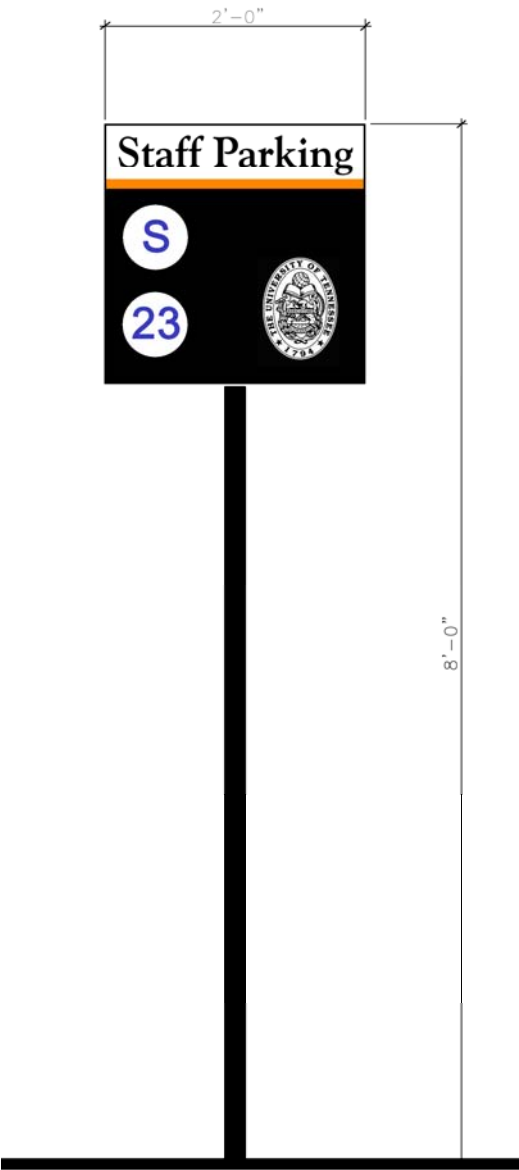


7.5 Parking Lot Identification

Aluminum Post and Panel signs with square outbound post.
Manufacturer: ASI Sign Systems or approved equivalent.
Product Number: 2300 Series
Panel Thickness: 3”
Contact: (615) 399-2742
Type Face: Goudy

Application

The parking lot identification sign shall be used for designation of parking spaces within a lot.



7.6 Regulatory

Aluminum Post and Panel signs with square outbound post. Face graphics to conform to MUTCD standards.

Manufacturer: ASI Sign Systems or approved equivalent.

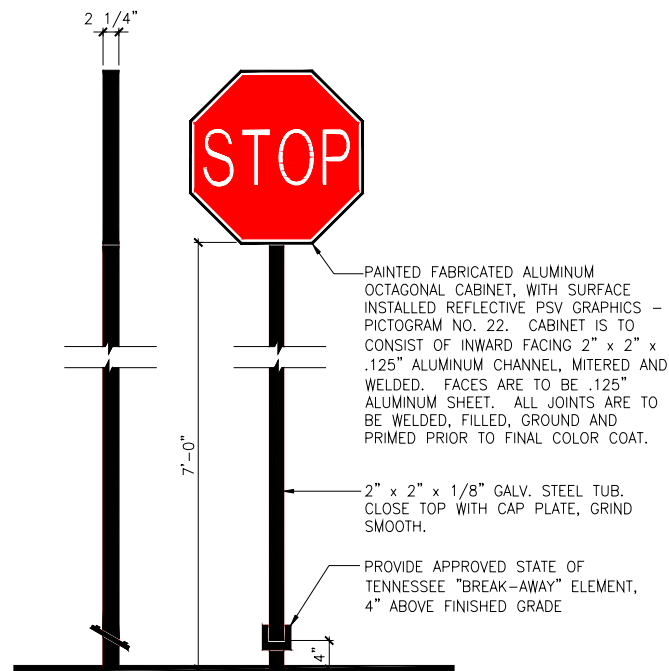
Product Number: 2300 Series

Panel Thickness: 3"

Contact: (615) 399-2742

Application

Existing inventories of regulatory signs across campus shall be replaced with the approved standard. Coordinate with City of Knoxville and TDOT as required.



7.7 Tree Identification

A plaque shall be developed to contain scientific and common names as well as specific characteristics of the species.

Application

These markers shall be used to identify the heritage and other important plant collections across campus.



Sugar Maple

Acer saccharum



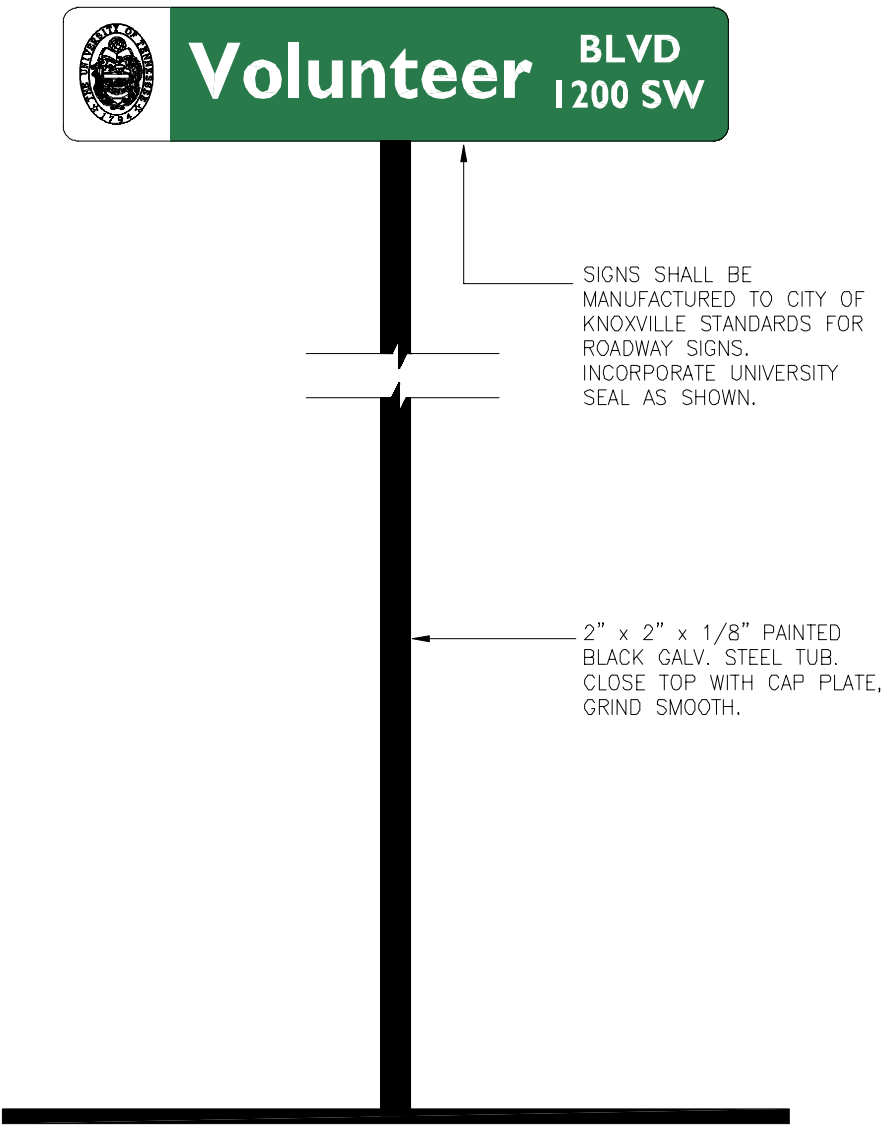
Large tree with rounded, dense crown and brilliant, many colored foliage in Fall
Height: 70' - 100' Diameter: 2' - 3'
Leaves: dull dark green above; paler and often hairy beneath, turning deep red, orange, and yellow in Fall

7.8 Street Signs

Aluminum Post and Panel signs with square outbound post. Face graphics to conform to MUTCD standards.
Manufacturer: Per City of Knoxville Standards

Application

Existing inventories of street signs across campus shall be replaced with the approved standard. Coordinate with City of Knoxville and TDOT as required.



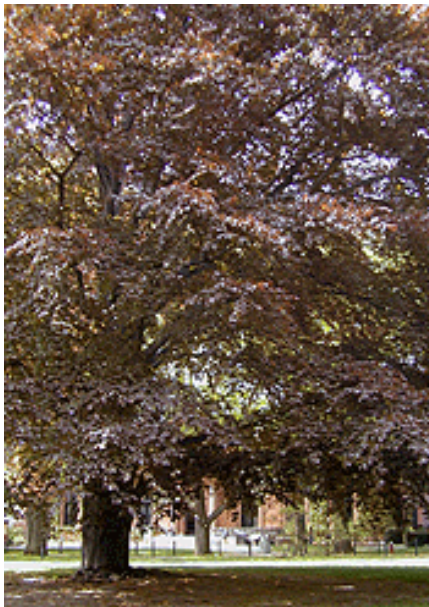
SIGNS SHALL BE MANUFACTURED TO CITY OF KNOXVILLE STANDARDS FOR ROADWAY SIGNS. INCORPORATE UNIVERSITY SEAL AS SHOWN.

2" x 2" x 1/8" PAINTED BLACK GALV. STEEL TUB. CLOSE TOP WITH CAP PLATE, GRIND SMOOTH.

8.0 Trees

Planted areas in conjunction with buildings serve to establish a campus identity, help reinforce open space, and create a comfortable environment. Landscape planting also establishes continuity for the campus, helping to tie old and new sections with the varying architectural styles into a cohesive whole. Trees give the campus a sense of place, identity and permanence. Lawn is the unifying element that links one space to another and is the main component of open space. It shall be the University's goal to plant or retain the specimen, long-lived trees and the creation of large open lawn areas.

8.1 Application



- A. Lawn and street tree planting shall conform to the following uses:
 - Single specimen tree species should be established consistently along each street.
 - Trees shall be planted based upon longevity, ease of maintenance and appropriateness for the condition.
 - A landscape architect will be consulted for spacing and location of trees.
- B. Evergreen and screen trees shall conform to the following uses.
 - To accentuate architecture and cool season interest.
 - Evergreen trees shall be interspersed with lawn trees to enhance the landscape.
 - Evergreen trees shall also be used to provide year round visual screening. Refer to Section 4.1, Evergreen Planted Screen.
 - Evergreen trees shall be used to provide buffering between incompatible uses.
- C. Small scale / flowering trees shall be used in the following conditions:
 - To emphasize building entries.
 - To accent pedestrian intersections and plazas.
 - To provide under story scale for specimen shade trees.
 - Where overhead power lines are encountered which prevent planting of large scale trees, small scale / flowering trees shall be utilized.

8.2 Installation

The planting of trees is recommended during the dormant season of November 15th through March 15th. Soil testing will be required before any planting operations are started. A licensed landscape architect should be retained for the design of landscape improvements.

8.3 Tree List

The prototypical tree list seeks to establish the quality and character of plantings on campus and is not meant to be an all inclusive list. The list is comprised of both native and adaptive species.

Minimum allowable Planting Sizes:

- Shade trees – 4” caliper
- Street trees – 4” caliper
- Flowering trees – 3” caliper
- Evergreen trees – shall be branched to ground with minimum height of 8’
- Screen trees – shall be branched to ground with minimum height of 8’

Evergreen and Screen Trees:

1. *Cedrus deodara* – Deodar Cedar
2. *Ilex x attenuata* – Foster’s Holly
3. *Ilex x ‘Emily Bruner’* – Emily Bruner Holly
4. *Ilex ‘Nellie R. Stevens’* – Nellie R. Stevens Holly
5. *Ilex opaca* – American Holly
6. *Tsuga canadensis* – Hemlock

Lawn Trees:

1. *Acer saccharum* – Sugar Maple
2. *Acer rubrum* – Red Maple
3. *Aesculus x carnea* – Red Horsechestnut
4. *Aesculus octandra* – Yellow Buckeye
5. *Betula nigra ‘Heritage’* – River Birch
6. *Carpinus betulus* – American Hornbeam
7. *Carya ovata ‘Shagbark Hickory’* – Shagbark Hickory
8. *Fagus grandifolia* – American Beech
9. *Fagus sylvatica* – European Beech
10. *Ginkgo biloba ‘Autum Gold’* – Ginkgo
11. *Gymnocladus dioica* – Kentucky Coffee tree
12. *Liquidambar styraciflua ‘Rotundiloba’* – Sweetgum (fruitless)
13. *Liriodendron tulipifera* – Tulip Poplar
14. *Magnolia acuminata* – Cucumber tree Magnolia
15. *Nyssa sylvatica* – Black Tupelo
16. *Plantanus occidentalis* – American Sycamore
17. *Quercus acatissima* – Sawtooth Oak
18. *Quercus alba* – White Oak
19. *Quercus coccinea* – Scarlet Oak
20. *Quercus hemisphaerica* – Darlington Oak
22. *Quercus imbricaria* – Shingle Oak
23. *Quercus macrocarpa* – Bur Oak
24. *Quercus nigra* – Water Oak
25. *Quercus palustris* – Pin Oak
26. *Quercus phellos* – Willow Oak
27. *Quercus robur* – English Oak
28. *Tilia cordata* – Littleleaf Linden

- Columnar Trees
 1. Acer Rubrum ‘Armstrong’ - Red Maple
 2. Acer Rubrum ‘Columnare’ - Red Maple
 3. Acer Rubrum ‘Red Rocket’ - Red Maple
 4. Acer Saccharum ‘Endowment’ – Sugar Maple
 5. Acer Saccharum ‘Greencolumn’ - Sugar Maple
 6. Acer Saccharum ‘Newton Sentry’ - Sugar Maple
 7. Carpinus betulus ‘Columnaris’ - European Hornbeam
 8. Carpinus betulus ‘Fastigiata’ - EuropeanHornbeam
 9. Carpinus betulus ‘Franz Fontaine’ - European Hornbeam
 10. Quercus robur ‘Regal Prince’ - English Oak
 11. Quercus robur ‘Rosehill’ - English Oak
 12. Quercus robur ‘Skyrocket’ - English Oak
- Street Trees
 1. Acer rubrum – Red Maple
 2. Acer saccharum – Sugar Maple
 3. Liquidamber styraciflua ‘Rotundiloba’ – Sweetgum (fruitless)
 4. Platanus x acerifolia ‘Bloodgood’ – London Planetree
 5. Quercus nigra – Water Oak
 6. Quercus nuttallii – Nuttall Oak
 7. Quercus phellos – Willow Oak
 8. Quercus rubra – Red Oak
 9. Tilia cordata – Littleleaf Linden
 10. Ulmus parvifolia ‘Emer II’ – Allee Elm
- Flowering and small scale Trees
 1. Acer buergeranum – Trident Maple
 2. Acer palmatum – Japanese Maple
 3. Amelanchier species & hybrids – Serviceberry
 4. Cercis canadensis – Redbud
 5. Cladrastis kentukea – Yellowwood
 6. Cornus florida – Flowering Dogwood
 7. Cornus kousa – Kousa Dogwood
 8. Crataegus viridis ‘Winter King’ – Winter King Hawthorn
 9. Koelreuteria paniculata – Goldenrain tree
 10. Magnolia x soulangiana – Saucer Magnolia
 11. Magnolia stellata – Star Magnolia
 12. Magnolia virginiana – Sweetbay Magnolia
 13. Oxydendrum arboreum – Sourwood
 14. Prunus x yedoensis – Yoshino Cherry

9.0 Shrub / Groundcover

Shrub and Groundcover plantings shall be kept to a minimum. General foundation planting should be avoided. Shrub species shall be selected which do not require periodic pruning. Shrub and Groundcover plantings shall conform to the following uses:

9.1 Applications

Shrubs:

- Define entrances to building
- Used as screening
- Pedestrian directional masses
- Accent / emphasize entrances to campus
- Used as a background

Groundcovers:

- Use of groundcovers shall be minimized for ease of maintenance.
- Groundcovers shall be used on steep slopes where use of lawn mower is impractical or unsafe, such as slopes which exceed 3:1 (33%).
- Groundcovers shall be utilized in high shade locations where lawn can not be established
- Groundcovers may also be used where space is limited and it is impractical to maintain turf.

9.2 Plant List

Allowable planting sizes:

- Shrubs – 3 gal. or equivalent in balled burlaped minimum size
- Groundcovers – 2 ½” container or larger
- Evergreen Shrubs:
 1. Buxus sempervirens – Boxwood
 2. Ilex cornuta ‘Burfordii’ – Burford Holly
 3. Ilex cornuta ‘Carissa’ – Carissa Holly
 4. Prunus caroliniana – Cherry Laurel
 5. Prunus laurocerasus ‘Magnolifolia’ –English Laurel
 6. Prunus laurocerasus ‘Otto Luyken’ – Otto Luyken Laurel
 7. Prunus laurocerasus ‘Schipkaensis’ – Schipkaensis Laurel
 8. Taxus x media ‘Densiformis’ – Densiformis Yew
 9. Taxus x media ‘Hicksii’ – Hicks Yew
 10. Viburnum rhytidophyllum – Leatherleaf Viburnum
 11. Viburnum rhytidophyllum – Willowood Viburnum
- Flowering Shrubs:
 1. Hydrangea quercifolia – Oakleaf Hydrangea
 2. Hydrangea species – Hydrangea
 3. Jasminum floridum – Showy Jasmine
 4. Jasminum rudeflorum – Winter Jasmine
 5. Kalmia latifolia – Mountain Laurel
 6. Pieris japonica – Pieris
 7. Rhododendron species – Azalea & Rhododendron

■ Groundcovers:

1. Hedera helix – English Ivy
2. Hypericum calycinum – St. John’s Wart
3. Liriope muscarii – ‘Big Blue’ Lily Turf
4. Ophiopogon japonicus – Mondo Grass
5. Pachysandra terminalis – Pachysandra
6. Vinca minor – Periwinkle
7. Vinca major - Periwinkle

■ Perennials:

High maintenance ornamental grass is not recommended. The following perennials are recommended:

1. Hemerocallis – Daylily
2. Hosta
3. Lenten Rose



10.1 Lawn

The main campus ground plane planting component shall be lawn, which will serve as the unifying landscape element across campus. Efforts shall be made to re-seed or re-sod as necessary to achieve a strong lawn and reinforce this desirable campus image.

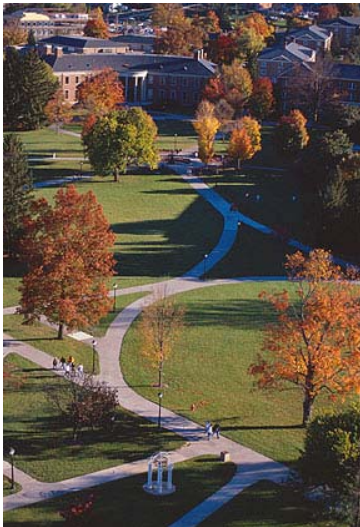
10.2 Application

Standard mix shall be used for general lawn conditions.

Heavy shade mix shall be used in areas of heavy shade.

- Seeding - A 50/50 blend of Rebel Fescue and Falcon Fescue
- Sodding - A blend of 90% fescues plus 10% Kentucky Bluegrass
- Seeding & Sodding – A blend of 75% Chewings Fescue plus 25% Kentucky Bluegrass

10.3 Installation



- Sod is the recommended lawn installation method due to the intensive use of the campus environment.
 - A. Installation of an approved nursery grown sod is recommended from March to December but can be planted year round if regularly irrigated.
- Seeding:
 - A. Spring or Fall Seeding - Plant between March 15th and May 1st or between August 15th and October 15th.
 - B. Temporary Winter Seeding - Plant between October 15th and March 15th.
 - C. Temporary Summer Seeding - Plant between May 1st and August 15th.

11.1 Seasonal Color Beds



11.2 Application

Due to the high maintenance costs of seasonal color beds, their use shall be limited to high impact areas only. Those areas will include concentrated pedestrian and vehicular use areas.

The installation of seasonal color beds shall be in conformance with the following standards:

- The seasonal color plant list shall be rotated two times per year:
 - A. Late spring / early summer planting may include summer annuals such as begonias, marigolds, lantana, and impatiens.
 - B. Fall planting shall include the installation of winter pansies as well as spring blooming tulips.
- Significant Intersections
- Entries to Campus
- High Pedestrian Locations
- Planters

12.1 Parking Lot Shade Trees

Vehicular parking lots shall be designed to be functional, while enhancing the visual qualities of the campus. Planting areas shall be provided for deciduous trees with large canopies to dominate the parking lots for shade and heat reduction. Existing parking lots shall be retrofitted and new lots constructed in conformance with the following standards:

- At a minimum, one perennial shade tree, which will grow to a minimum height of thirty feet and crown spread of no less than one-half the height of maturity, for each five thousand square feet of parking lot area. Such tree shall be no less than one and one-half inches caliper, measured four feet above the ground, and no less than eight feet high at the time of planting or no less than four inch caliper, measured six inches above ground, whichever is larger.
- All interior parking containing a minimum of 10 spaces shall be bordered on both sides by a landscape island.
- Ends of all perimeter parking bays shall be bordered by a landscape peninsula.
- Landscape islands shall be minimum of eight feet wide and a minimum of 200 square feet.
- Landscape islands and peninsula shall be planted with at least one shade tree.
- All landscape islands and peninsulas shall be bordered by a 6" high raised curb or wheel stop to protect trees and plant material.
- Additional planting strips are recommended along interior parking space interlock to allow for additional shade tree plantings as required.
- The city requires that a maximum distance between these planting strips shall be no greater than 200 feet.

12.2 Perimeter Screen Planting

- Evergreen landscape hedges shall be incorporated at the perimeter of parking lots with a height not to exceed 30" in height above the crown of the adjacent parking isle to provide a buffer. Shrubs shall not obscure sight lines.
- Perimeter landscape strips, no less than 10 feet wide, shall be provided between the parking lot and right of way of all adjoining streets.



12.3 Parking Lot Island Planting

Landscape areas shall be planted with natural plant materials which will not exceed 30" in height above the crown of the adjacent parking isle.

13.1 Underground Utilities

The existing campus condition contains overhead utilities and adds to the visual clutter. It is recommended that overhead utility lines be buried underground where possible.

- As future projects are developed, the university should work with local utility companies to relocate above ground street light utilities below grade.

13.2 Irrigation

- All new planting improvements shall be irrigated with an automatic irrigation system.
- The irrigation system shall be designed to provide 100% irrigation coverage for all trees, shrubs, turf and seasonal color beds.
- Turf, shrubs and color beds shall be irrigated on separate systems.
- All systems shall be designed compatible with a future central control system.
- Irrigation systems shall be designed efficiently for water conservation and shall include rain sensors. Plant beds shall be irrigated with drip systems and lawn areas shall be impact systems.
- It is recommended that existing non-irrigated areas be retrofitted to include automatic irrigation.
- All irrigation systems shall be separately metered with meters reading in cubic feet. If meters are located indoors a remote transmitter compatible with KUB meter reading shall be installed. Outdoor meters shall be installed in wells with recessed covers similar to what is shown below.
- It is recommended that new irrigation systems be designed to include remote controller operation through the use of radio control system.

Acceptable



Unacceptable



Bench Quality Standards

- **Materials:** Frames including armrests and legs shall be fabricated from smooth 1" x 1" square mild steel bar with edges uniformly eased. Seat and backrest assembly shall consist of smooth .188 inch thick x 1-1/2" wide formed mild steel straps whose edges are uniformly eased, 1" i.d. schedule 40 mild steel seamless pipe, and 3/8" x 3/8" mild steel bar. Set screw fasteners shall be stainless steel.
- **Construction:** Welds shall be smooth and continuous with no gaps or pin holes. Final product shall be free of weld spatters and burrs.
- **Finish:** Steel parts shall be coated with an opaque, UV resistant exterior grade polyester powder coating applied to a minimum thickness of 6 mils. Liquid, epoxy or lead-containing powder coatings are not acceptable.

Preparation of the mild steel substrate shall incorporate the phosphate system. Substrate preparation shall consist first of mechanical cleaning to remove heavy mill scale, rust, varnish, grease, etc., with surfaces uniformly abraded to promote quality of finish coating. Chemical cleaning in accordance with TT-C-490C, Methods I and III shall remove impurities from the surfaces.

After the two-step cleaning process, the metal substrate shall receive a corrosion-inhibiting iron phosphate pre-coating in accordance with TT-C-490C, Type II, prior to the application of the powder color coat. The color coating shall be applied by the electrostatic method and then oven-cured at 400 degrees Fahrenheit to chemically bond the coating to the substrate and to render the coated metal resistant to abrasion, impact, chipping, weathering, and rusting.

- **Appearance:** Straps shall be a simple design running in a parallel orientation separated by an even spacing.

Table Set Quality Standards

- A. **Round Table with Center Support**
 - **Materials:** Table top perimeter shall be constructed of formed 1" i.d. schedule 40 mild steel seamless pipe. Table surface shall be fabricated from .188" thick x 1-1/2" wide mild steel flat bar. Center support shall be 4" i.d. schedule 40 mild steel seamless pipe.
 - **Construction:** Table shall be assembled and welded into a one-piece unit. Welds shall be smooth and continuous with no gaps or pin holes. Final product shall be free of weld spatters and burrs. Installed table shall meet the U.S. Americans with Disability Act accessibility criteria.
 - **Finish:** Steel parts shall be coated with an opaque, UV resistant exterior grade polyester powder coating applied to a minimum thickness of 6 mils. Liquid, epoxy or lead-containing powder coatings are not acceptable.

Table Set Quality Standards Cont.

- **Finish Continued:** Preparation of the mild steel substrate shall incorporate the phosphate system. Substrate preparation shall consist first of mechanical cleaning to remove heavy mill scale, rust, varnish, grease, etc., with surfaces uniformly abraded to promote quality of finish coating. Chemical cleaning in accordance with TT-C-490C, Methods I and III shall remove impurities from the surfaces.

After the two-step cleaning process, the metal substrate shall receive a corrosion-inhibiting iron phosphate pre-coating in accordance with TT-C-490C, Type II, prior to the application of the powder color coat. The color coating shall be applied by the electrostatic method and then oven-cured at 400 degrees Fahrenheit to chemically bond the coating to the substrate and to render the coated metal resistant to abrasion, impact, chipping, weathering, and rusting.

B. Seat

- **Materials:** Frames, including legs, shall be fabricated from smooth 1" x 1" square mild steel bar with edges uniformly eased. Seat assembly shall consist of smooth .188" thick x 1-1/2" wide formed mild steel strap whose edges are uniformly eased, 1" i.d. schedule 40 mild steel seamless pipe and 3/8" x 3/8" mild steel bar.
- **Construction:** The seat assembly shall be welded into a one piece unit. Welds shall be smooth and continuous with no gaps or pin holes. Final product shall be free of weld spatters and burrs.
- **Finish:** Steel parts shall be coated with an opaque, UV resistant exterior grade polyester powder coating applied to a minimum thickness of 6 mils. Liquid, epoxy or lead-containing powder coatings are not acceptable.

Preparation of the mild steel substrate shall incorporate the phosphate system. Substrate preparation shall consist first of mechanical cleaning to remove heavy mill scale, rust, varnish, grease, etc., with surfaces uniformly abraded to promote quality of finish coating. Chemical cleaning in accordance with TT-C-490C, Methods I and III shall remove impurities from the surfaces.

After the two-step cleaning process, the metal substrate shall receive a corrosion-inhibiting iron phosphate pre-coating in accordance with TT-C-490C, Type II, prior to the application of the powder color coat. The color coating shall be applied by the electrostatic method and then oven-cured at 400 degrees Fahrenheit to chemically bond the coating to the substrate and to render the coated metal resistant to abrasion, impact, chipping, weathering, and rusting.

- **Appearance:** The table shall have a center support and both table and chairs shall have parallel straps that are evenly spaced.

Bike Rack Quality Standards

- Materials: 1.5" schedule 40 pipe (1.9" OD).
- Finish: Black TGIC polyester powder coating 8 to 10 mils thick.
- Setbacks:
 - a. Minimum 24" parallel to a wall, 36" recommended
 - b. Minimum 28" perpendicular to a wall, 36" recommended
 - c. Minimum 24" between racks, 36" recommended
 - d. Minimum 24" setback from streets, 36" recommended
- Appearance: Bike rack shall be of a simple design with evenly spaced hoops that support two bikes each as shown on page 8.

Planter Quality Standards

- Materials: Pre-cast reinforced concrete. Portland cement to meet ASTM C150 specifications. Aggregates to meet ASTM C33 specifications and to be cleaned of foreign matter and properly graded to size. Reinforcement shall be 3/8" dia. steel rebar.
- Wall Thickness: 2-1/2" at the top with a 2% pitch
- Finish: Pigments used shall be inorganic, resistant to alkalinity and used as per manufacturers recommendations.
- Leveling Ring: A ring of reinforced concrete of same material as the planter shall be included for areas containing slopes of 3% or greater.
- Drain Hole: (1) – 1-1/2" Diameter
- Appearance: Planter shall be a smooth round form.

Litter Receptacle Quality Standards

- **Materials:** Frame shall be fabricated from 1" i.d. schedule 40 mild steel seamless pipe. Side slats shall be .125" x 1-1/2" wide formed mild steel. Litter container shall include a matching .125" thick steel plate flat top with 12" diameter center hole and a coated steel liner. Each top shall include a keyed-cylinder lock.
- **Construction:** Entire litter container unit, except for separate liner, locking flat top and mounting hardware, shall be assembled and welded into a single unit. Welds shall be smooth and continuous with no gaps or pin holes. Final product shall be free of weld spatters and burrs.
- **Finish:** Steel parts shall be coated with an opaque, UV resistant exterior grade polyester powder coating applied to a minimum thickness of 6 mils. Liquid, epoxy or lead-containing powder coatings are not acceptable.

Preparation of the mild steel substrate shall incorporate the phosphate system. Substrate preparation shall consist first of mechanical cleaning to remove heavy mill scale, rust, varnish, grease, etc., with surfaces uniformly abraded to promote quality of finish coating. Chemical cleaning in accordance with TT-C-490C, Methods I and III shall remove impurities from the surfaces.

After the two-step cleaning process, the metal substrate shall receive a corrosion-inhibiting iron phosphate pre-coating in accordance with TT-C-490C, Type II, prior to the application of the powder color coat. The color coating shall be applied by the electrostatic method and then oven-cured at 400 degrees Fahrenheit to chemically bond the coating to the substrate and to render the coated metal resistant to abrasion, impact, chipping, weathering, and rusting.

- **Appearance:** Litter receptacle shall have vertical parallel slats.

Ash Receptacle Quality Standards

- Materials: Canister shall be a cast aluminum and the 6" dia. pole shall be stainless steel.
- Construction: The ash receptacle shall consist of two mating castings: a fixed upper portion and a lower portion that can be removed for servicing by use of flush set screw.
- Finish: The canister shall be a polished black powder coat finish and the pole shall be a black textured powder coat. A two step powder coat process with both a primer powder coat and color coating shall be applied. The powder coat shall contain a zinc-rich primer for protection against corrosion. The color coat shall contain TGIC polyester powder applied by electrostatic or tribo-charged spraying to a thickness of 3 mils.
- Capacity: Approximately 200 cigarette butts
- Appearance: The ash receptacle shall be a simple pill shaped form as shown on page 9.

Emergency Phone Quality Standards

(Emergency phone to be furnished by the University)

Unit includes two lights:

Combination Constant ON and Strobe
 Strobe Light- One million candle power.
 Housed in a blue Fresnel LEXAN Polycarbonate lens
 Light is protected by a Clear Dome cover and mounted on top of column.
 Strobe Flashes when Emergency call button is pressed and stops flashing when called party hangs up.
 Phone Panel Light- 5 Watt Fluorescent. Makes phone visible for easier use.

General Specifications of PLC-9 Column

Non Rusting, Non Magnetic Stainless Steel - .125" Thick
 Dimensions: 8 ft. High - 10" Square
 Phone is recessed 2"
 Pre-wired and assembled
 Vandal resistant and weatherproof
 Graffiti resistant
 Lettering 4 sides column.

Wiring:

Units are pre-wired in separate conduit for telephone line and 120 Volts AC
 Panel on back of unit provides access to electronics and wiring.

Finish: Powder coated
 Color: Black
 Graphics Wording: Emergency
 Graphics Colors: White

Traffic Bollard Quality Standards

- **Materials:** The bollard and top shall be heavy wall, copper free, cast aluminum produced from certified ASTM 356.1 ingot per ASTM B179-95a or ASTM B26-95. The castings shall be formed true to the pattern with complete detail. All exposed hardware shall be tamper resistant stainless steel. Anchor bolts to be completely hot-dip galvanized.
- **Construction:** The bollard shall be made from a one-piece casting with a cast dome top welded to the top. All exposed welds shall be ground smooth. All welding shall be per ANSI/AWS D1.2-90.
- **Dimensions:** Height shall be 3'-7.5" and the base shall be 11.5" dia.
- **Finish:** TGIC polyester powder electrostatically applied.
- **Appearance:** Style shall match design and dimensions of light pole base as shown on page 11.

Pedestrian Bollard Quality Standards

- **Materials:** Bollard post shall be 4" i.d. schedule 40 mild steel seamless pipe with a minimum wall thickness of .237". Thin wall tube is not acceptable. Top of bollard post shall be fitted with a cast aluminum hemi-dome end cap, permanently double monobolted in place. Easily vandalized friction fit end caps are not permitted. Hardened steel No. 2 pad eyes shall be welded to the 4-1/2" i.d. pipe with the weld ground smooth.
- **Construction for Embedment Mount:** Bollard shall include 2 each, 9/16" diameter thru holes for No. 4 re-bar.
- **Construction for Removable Mounting:** In-ground sleeve shall be 4 inch i.d. schedule 40 mild steel seamless pipe. Removable bollard insert shall be 3-7/8" o.d. mild steel tube. Bollard post and in-ground sleeve shall have interlocking tabs for padlock. Bollard post, sleeve and insert shall be assembled and welded into separate units. Welds shall be smooth and continuous with no gaps or pin holes. Final product shall be free of weld spatters and burrs.
- **Finish:** Bollard shall be coated with an opaque, UV resistant exterior grade polyester powder coating applied to a minimum thickness of 6 mils. Liquid, epoxy or lead-containing powder coatings are not acceptable.

Preparation of the mild steel substrate shall incorporate the phosphate system. Substrate preparation shall consist first of mechanical cleaning to remove heavy mill scale, rust, varnish, grease, etc., with surfaces uniformly abraded to promote quality of finish coating. Chemical cleaning in accordance with TT-C-490C, Methods I and III shall remove impurities from the surfaces.

After the two-step cleaning process, the metal substrate shall receive a corrosion-inhibiting iron phosphate pre-coating in accordance with TT-C-490C, Type II, prior to the application of the powder color coat. The color coating shall be applied by the electrostatic method and then oven-cured at 400 degrees Fahrenheit to chemically bond the coating to the substrate and to render the coated metal resistant to abrasion, weathering, and rusting.

- **Appearance:** A domed top smooth bollard.

Utility Manhole Cover Quality Standards

- Materials: Ductile iron castings shall conform to ASTM A536. The iron material used in products provided shall have a minimum recycled material content of 75%. The recycled materials shall consist of post-consumer material.
- Construction: Castings shall be of uniform quality, free from sand holes, gas holes, shrinkage, cracks and other surface defects. Castings shall be ground smooth and well cleaned by shot blasting. Manhole rings and covers shall be cast or machined with such precision to prevent rocking. The casting shall be tested on a suitable and calibrated load testing machine and the casting shall hold a 40,000 pound proof load for one minute without experiencing any cracks or detrimental permanent deformation.
- To be used by special approval only.

Newspaper Boxes Quality Standards

- Materials:
 1. Armored attachment with standard two-way key pull lock
 2. 1-1/2" plastic paper holder
 3. .060 thick door plastic
 4. Adjustable elevator shelf
 5. Electro-galvanized metal construction
 6. Stainless steel bolts
 7. 14 ga. coin panel
- Finish: Powder Coated
- Dimensions: Pedestal height shall be a maximum of 23" high and the unit shall be a maximum three trays in length.
- Appearance: The newspaper box shall be a modular unit with a domed top.

Sawhorse Quality Standards

- Materials: Lightweight high impact HDPE plastic.
- Construction: Honeycomb design

Portable Sign Quality Standards

- Materials: Sign stand shall contain recycled resin materials that are NCHRP-350 compliant.
- Construction: One inch quick fill hole w / plug for sand ballasting. Compression molded hinges and recessed panel w / added plexi-glass panel.
- Appearance: The portable sign shall be of durable construction and contain graphics matching the new campus signage specified in the Design Guidelines.

Metal Bed Edge Quality Standards

- Materials: Hot rolled low carbon steel ASTM-A-36, ASTM-A-283, ASTM-A-569, 3/16" thick. Materials need to be tested to a maximum Rockwell of 70 and maximum Webster rating of 15, approximate Brinell hardness of 137. Tensile strength ksi of 58 to 80; yield strength ksi of 36 minimum. Stakes shall be 10 ga. X 12" tapered.

- Finish: Electrostatically applied powder coating

Pre-Fabricated Screen / Dumpster Gate Quality Standards

- Materials: Electro-Forge welded steel. Connection bolts and anchor studs shall be stainless steel AISI 304.

- Construction: Welds shall be smooth and continuous with no gaps or pin holes. Final product shall be free of weld spatters and burrs.

- Dimensions:

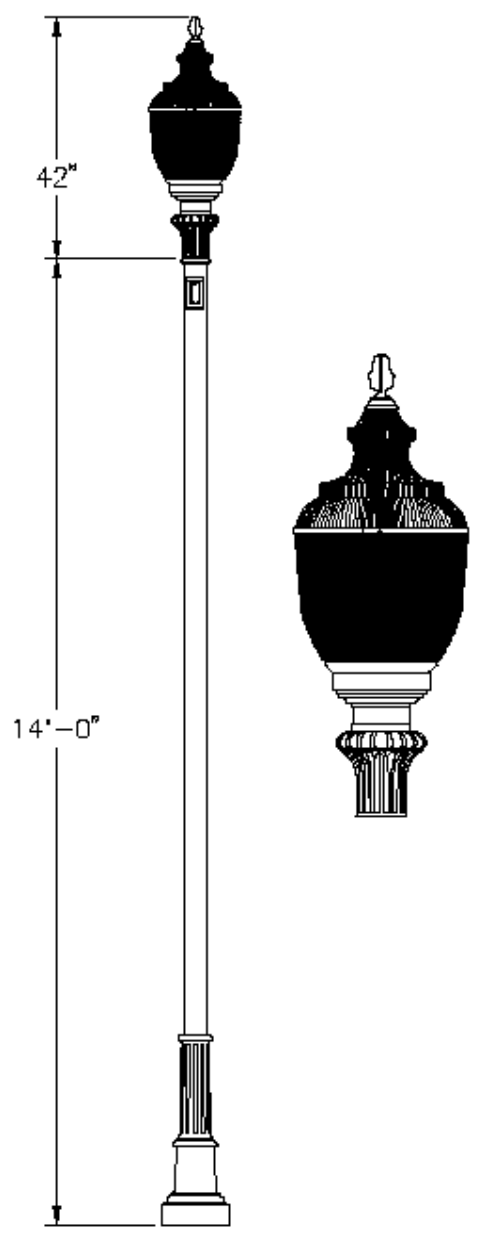
1. spacing of vertical sections = 1 13/16"
2. spacing of horizontal sections = 5 7/32"
3. vertical section measurements = 1 31/32" x 1/16"
4. external sections = 31/32" x 13/32: x 3/32"
5. horizontal tie = 5/32"
6. framing bar = 1 3/16" x 5/32"
7. hole = 7/16"

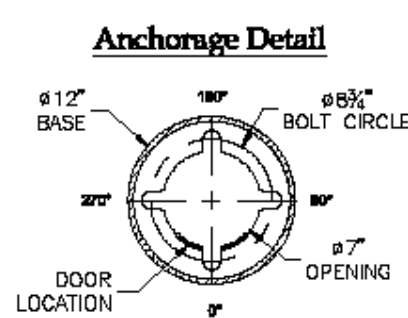
- Finish: Galvanized steel members and components shall have a hot-dipped galvanized base coat to ensure product encapsulation to ASTM 123. Brush blast all steel members and components to ensure inter-coat adhesion to SSPC-SP7. Then apply thermo-set polyester powder at 3-5 mils to ASTM B117 and ASTM D822.

- Appearance: Pre-fabricated screen shall have a simple design of horizontal or vertical louvers as shown on page 17.

Pole Light Fixture

- See Antique Street Lamps Drawings L-7324A and L-7626AR4.
- Appearance: Style shall match photograph located on page 18.

	
sign & date	<u>Customer Approval</u> Catalog# PX KW12 14 S4 FG-S ANBK RGA W 165QL ARF R6 TB PPF LS WBAND ANBK

<u>Key West Series</u> <u>Aluminum Post</u>		
Post: Post shall be all cast aluminum construction consisting of a tapered and fluted base and a 64" smooth aluminum shaft with a 3" tenon for luminaire mounting. A door is located in the base for anchorage and wiring access.		
Luminaire: Luminaire shall be 616" x 43" tall with a cast aluminum base, finial and an IES type 5 refractive acrylic globe with a solid aluminum band. Luminaire shall be furnished with an 165W QL lamp kit consisting of a high frequency generator, discharge vessel, and power coupler.		
Accessories/Options: FG-S - duplex GFCI outlet with weatherproof cover. HS- house side shield SLR- solid lid reflector PLR-perforated lid reflector LS- light shield		
Anchorage: Post shall be furnished with (4) 3/4" hot-dip galvanized L-type anchor bolts.		
Finish: Post and luminaire shall be furnished with a black powder coat finish.		
<div data-bbox="893 1176 1299 1491"> <p align="center">Anchorage Detail</p>  </div>		
Note: All hardware shall be stainless steel. All easily accessible exterior hardware shall be tamper resistant.		
Post Height: 14'-0" Base Size: 12"	Overall Height: 17'-8" Top Light Center: 16'-4"	date: 3/15/08 notes: NTS design: L-7626AR4
<p align="center">ANTIQUE Street Lamps</p> 2011-B W. Rundberg Lane • Austin, TX 78738-5945 (512) 877-8444 • Fax (512) 877-8822		

Lighted Bollard Quality Standards

- **Materials:** Shaft shall be one piece extruded aluminum, .125” wall thickness with a heavy cast aluminum twist-lock anchor base concealed within the shaft. Concealed set screws shall lock shaft onto the cast anchor base.

Top cap shall be a one piece aluminum casting 3/16” minimum thickness.

Louvers shall be a one piece aluminum casting with vertical support ribs at 90 degree intervals. Horizontal louver blades shall have a 1 ¾” depth, a 65 degree upward pitch and provide light source cutoff above horizontal. Louver casting shall be secured to shaft by four internal tie rods.

Lamp enclosure shall be one piece tempered molded glass with internal flutes and full gasketing at bottom edge.
- **Finish:** The finish shall be super TGIC thermoset polyester powder coat paint applied over a chromate conversion coating.
- **Certification:** UL listed to U.S. safety standards.
- **Appearance:** Bollard shall be a smooth domed top unit with horizontal louvers.

**In-grade Architectural Light
Fixture Quality Standards**

- **Materials:** Housing shall be spun copper, cast bronze, or cast aluminum. Below grade housing shall be injection molded ABS, U.V. stabilized, impact and corrosion resistant for all types of environments.

Lens shall be convex tempered clear glass with silicone gasket.

Louver shall be cast aluminum with polished edges and socket head set screws.

Ballast shall be a high power factor -20 degrees Fahrenheit starting, mounted on a tray, 120V standard; 277V, and 347V on request.

Spun aluminum reflectors can be used to achieve required lighting affects.
- **Certification:** UL listed to U.S. safety standards.

Flood Light Quality Standards

- **Materials:** Housing shall be a one piece die-cast aluminum in a cylindrical shape with intergral cooling fins over the entire length, and 1/8" minimum wall thickness. Concealed integral cast slip hinges with stainless steel pins.

Door frame shall be a one piece die-cast aluminum with integral cooling fins, 1/8" minimum wall thickness, mates with housing to create a continuous cylindrical shape. Clear tempered glass lens, 3/16" thick, shall seal to door frame by a one piece molded silicone gasket.

Swivel shall be die-cast aluminum with internal locking teeth providing adjustment intervals.

- **Finish:** Housing, lens frame and swivel shall be super TGIC thermoset polyester powder coat paint applied over chromate conversion coating.
- **Certification:** U.L. listed to U.S. safety standards. Fixture manufacturer shall be registered to ISO 9001.

Low Level Flood Light Quality Standards

- **Materials:** Housing and J-Box shall be die-cast aluminum of an alloy containing less than 0.6% copper to prevent corrosion when cast in concrete. Housing and J-box shall be protected for permanence by a clear anodize coating.

Door frame shall be a die-cast aluminum with a fine pebbled texture on the outer surface.

Lens shall be tempered borosilicate glass, 3/16" min. thickness.

Reflector shall be a one piece hydroformed aluminum. The bottom reflector surface shall be matte black to prevent any escape of light in the viewer's direction.

- **Finish:** Super TGIC thermoset polyester powder coat paint, 2.5 mil nominal thickness, applied over a chromate conversion coating.
- **Certification:** UL listed to U.S. safety standards. Fixture manufacturer shall be registered to ISO 9001.

Recessed Wall Light Quality Standards

- Materials: Luminaires shall be constructed of die cast aluminum alloy and stainless steel. Clear glass shall be located behind die cast aluminum louver/guard.
- Certification: U.L. listed to U.S. safety standards.

Step Light Quality Standards

- Materials: Housings shall be constructed of die cast and extruded aluminum and are suitable for all construction types including poured concrete. Luminaires shall be recessed with die cast aluminum louvers and white safety glass diffusers. Hardware shall be stainless steel.
- Certification: U.L. listed to U.S. safety standards.