

CLEMSON UNIVERSITY

DESIGN GUIDELINES

2026

SMITHGROUP

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2026

Clemson University's Design Guidelines establish a comprehensive framework to ensure that all campus projects reflect the Institution's distinctive character and long-term vision. These Guidelines integrate core Design Principles, Campus Frameworks, Planning Standards and detailed Guidelines that serve as a roadmap for architects, landscape architects, engineers, and contractors. By aligning every project with Clemson's aesthetic values: the importance of context, stewardship, and respect for historically significant spaces, the Guidelines promote consistency, quality, and an enduring campus identity. They are intended to guide decision-making from concept through construction, fostering environments that support academic excellence and enhance the Clemson experience.

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1. DESIGN PRINCIPLES

1.1 INTRODUCTION

These Design Principles serve as a backdrop for all of the following Planning Standards and Design Guidelines. They inform and relate to each and every design decision to be made throughout the design process, as they reinforce the key elements of Clemson's campus. These principles help keep Clemson uniquely Clemson.

1.2 PROMOTE INTELLECTUAL & SOCIAL INTERACTION

Purpose

The purpose of the Clemson campus, as the physical manifestation of the idea of a university, is to bring together a diverse group of people by providing settings that foster learning, creativity, collegiality, and intellectual growth — consistent with the charge of its founder, Thomas Green Clemson, that Clemson be "a high seminary of learning." The principle of promoting interaction extends beyond the development of appropriate classrooms, courtyards, or quads, to the purposeful creation of many different types of spaces strategically planned, placed, and furnished to encourage informal dialogue in teacher-to-teacher, student-to-teacher, and student-to-student situations. There are three major campus components the principle applies to — outdoor space and indoor space woven together by a pedestrian campus — each of which has a distinct role.

Outdoor Space

Open space should support a sense of community, by providing many types and sizes of outdoor meeting and recreation areas. In addition, open space should be designed and maintained to unify the campus by connecting diverse site and building elements together as an attractive whole. The Campus Green is such a space as it connects the east and west sides of campus serving as the fabric that ties building and site elements together. Further, each outdoor space, large or small, should be seen as a garden to cultivate the minds of Clemson students.

Indoor Space

Where outdoor space is common to all campus constituents, individuals occupy indoor space. The building walls mitigate between the two environments. In buildings, opportunities for the exchange of ideas should also be maximized. As with outdoor space, many types and sizes of indoor meeting spaces should be provided for both planned and unplanned interaction. The amount of public space in buildings should be sufficiently generous to allow for this interaction to occur.

Pedestrian Campus

Fundamental to the idea of social interaction is the notion of a pedestrian campus. Only when people are outside of their cars do they have an opportunity to engage in the campus environment and community in a meaningful way. Through its design, the campus should encourage the individual to walk, bike or use the transit system to move from place to place, experiencing things such as art and artifacts, and conversations with people along the way. Accessibility and safety should be priorities for the continued design and improvement of Clemson's campus.

1.3 RESPECT HISTORICALLY SIGNIFICANT RESOURCES

History & Culture

In order to meet Thomas Green Clemson's charge to be a "high seminary of learning," Clemson University has been a science and service-oriented institution. The culture that has evolved from this pragmatic worldview is one that cultivates talents in a wide range of disciplines. These traditional values and beliefs contribute to Clemson's sense of place. Many of the existing spaces and structures on campus have local, regional or national historic significance; several are included on the National Register of Historic Places or are identified as National Landmarks. Clemson University treasures these historic resources by maintaining and preserving a campus historic district, and by acknowledging and respecting this past through a considered approach to the planned environment. There is a robust system of culturally significant spaces on campus, and these culturally significant resources thread through the extent of the campus fabric. They should be given the appropriate level of recognition and care.

New & Old

Campus architecture and landscapes communicate something important about the issues and priorities of the present generation. New buildings, modifications to existing facilities, and even minor changes to the campus should respect the legacy that will be left to future generations. The quality of the built environment is key to the distinctiveness, long-term viability, and image of the University.

Rural & Urban

Significantly, another cultural resource is the campus, considered as a whole. The campus is a representation of the past and the future, the rural and the urban. Within seconds one can go from a highly developed urban zone to a peaceful, pastoral setting. These contrasting qualities should be maintained and used to contribute to the unity of the campus.

Intended Aesthetic

Some buildings and landscapes reflect the past; new ones will frequently point to the future. Despite this mix of past and future, rural and urban, the entire campus should maintain an intended aesthetic in an on-going effort to preserve continuity and enhance coherence and relevance. At Clemson University, these seemingly opposite characteristics bring life and excitement to the campus. Clemson should protect and enhance this unity while allowing for diversity between its various districts, developing a reasoned consistency within districts, and encouraging creativity for a single project.

1.4 VALUE HIGH PERFORMANCE DESIGN

Life & Living

The responsible use of all forms of energy and the good health of the community are high priorities of Clemson University. Consistent with its mission of teaching, research, and public service, Clemson University intends to be a leader and champion of sustainable design as a tool to help educate the Clemson community. At the same time, energy consumption and the "ecological footprint" of the University will be reduced while the productivity and health of the community will be improved. Balanced with other University priorities, sustainable principles that promote these objectives shall be incorporated into all building and infrastructure projects to the fullest extent possible in an effort to create environmentally responsive facilities.

Past, Present, Future

Clemson University is an institution entrusted to the present generation. The natural and built environments of the campus and other properties should be cared for, developed, and administered in such a way that they are protected, utilized appropriately, and positively changed for future generations. Through all efforts, vigilance should be applied to ensure that planning, design, and construction are targeting efficient use of resources, and that careful and responsible actions are taken to ensure that University resources are utilized in the best possible way while achieving the other primary principles of design.

1.5 ENSURE RESPONSIBLE STEWARDSHIP OF CAMPUS

Stewardship is the concept of responsibly managing all resources for the benefit of present and future generations of people, plants, and animals. Objectives in the stewardship of resources should include such goals as:

- Manage resources in a manner that is fiscally responsible.
- Manage resources in a manner that is compliant with the rules and regulations established by society.
- Manage resources in a manner that provides the facilities necessary for Clemson to perform its mission of education, research, and service in order to better society.

2. CAMPUS FRAMEWORKS

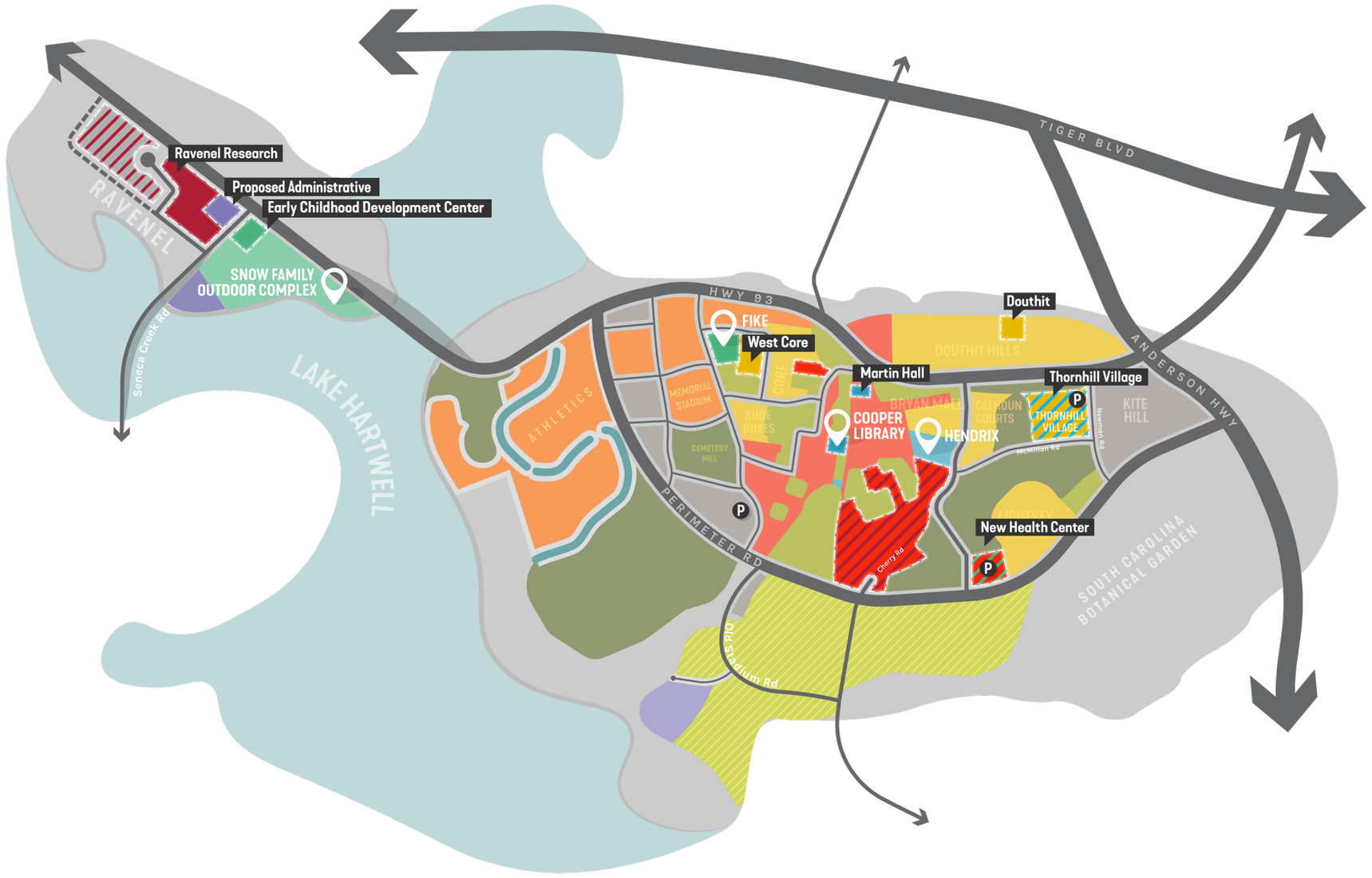
2.1 USING THE FRAMEWORKS

The following campus frameworks should be referenced when applying the Design Guidelines. These diagrams establish the context for future development by identifying developable areas, the Historic District and Cultural Overlay, and the Mobility Framework that organizes movement across campus. Together, these frameworks inform key aspects of the Planning Standards and Design Guidelines, highlighting priority areas for improvement and ensuring that individual projects align with the long-term vision.

These diagrams originate from the Long-Range Framework Plan; please refer to that plan for additional detail and guidance.

2.1.1 CAMPUS ORGANIZATION FRAMEWORK

The Campus Organization Framework illustrates how campus may grow in the coming decades. Any new development or improvements in these areas should adhere to the following Planning Standards and Design Guidelines and support the overall vision for campus improvement and growth.



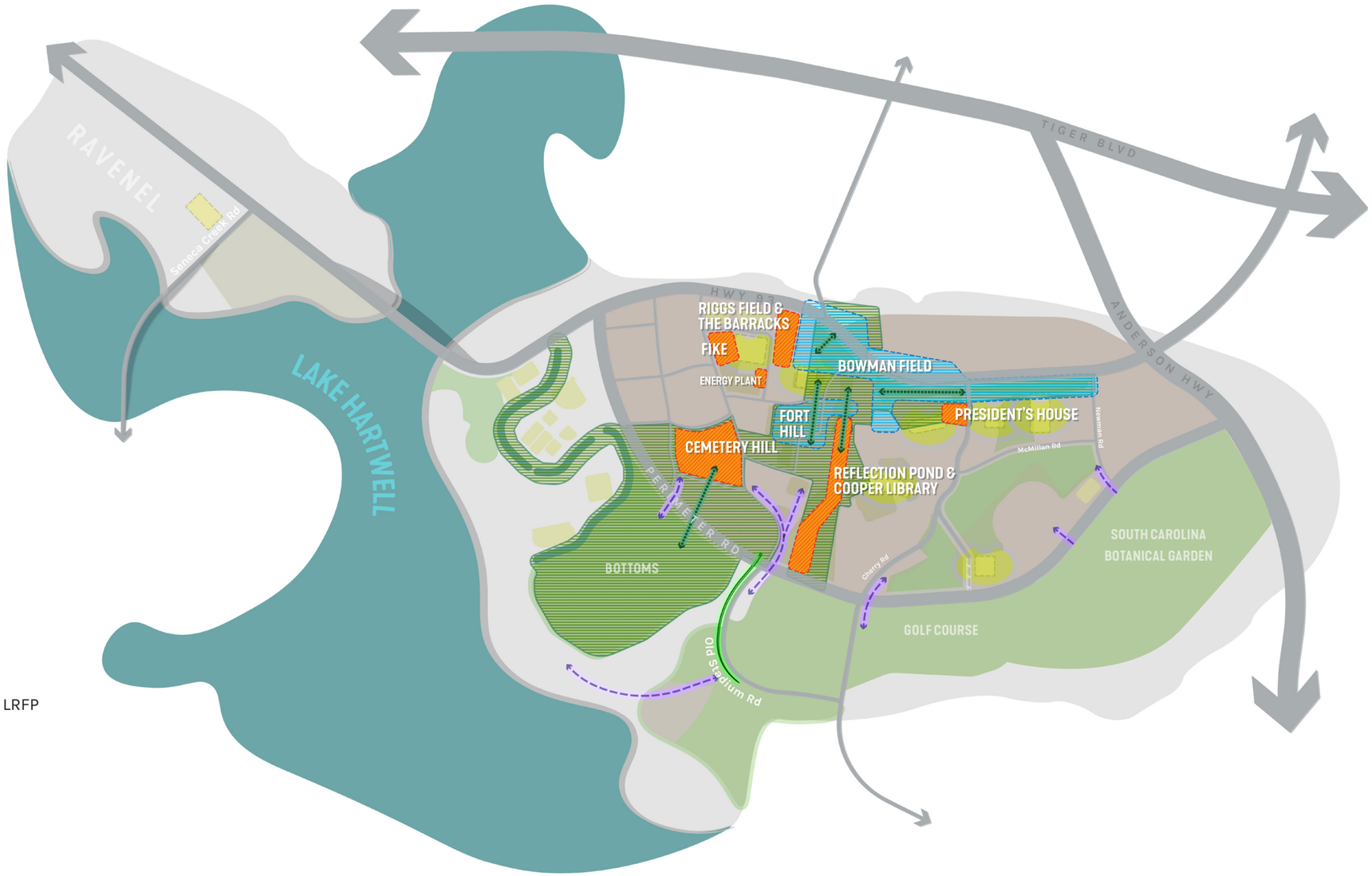
CAMPUS ORGANIZATION LEGEND

- ACADEMIC CORE
- ACADEMIC CORE EXPANSION AS PART OF LRFP
- ATHLETICS
- RECREATION
- CAMPUS LIFE
- RESIDENTIAL
- RESEARCH
- ADMINISTRATIVE SERVICES & FACILITIES
- SACRED" LANDSCAPES
- DEDICATED LANDSCAPES
- GOLF COURSE
- P PARKING STRUCTURE

2.1.2 HISTORY & CULTURE FRAMEWORK

The History & Culture Framework is designed to protect, and further embed, history, identity, and cultural stewardship into the Long-Range Framework Plan. By defining preservation priorities and strategies for integrating cultural references into new development, this framework informs detailed Design Guidelines that govern materials, architectural expression, and Guidelines specific to the Historic District of campus. These ensure that future projects respect and celebrate the campus's legacy while creating spaces that feel authentic and connected to its historical context.

Throughout the document, look for purple boxes that call out the Standards and Guidelines that apply specifically to the Historic District on campus.



HISTORY & CULTURE LEGEND

- HISTORIC DISTRICT
- PROPOSED HISTORIC DISTRICT EXPANSION AS PART OF LRFP
- SACRED" LANDSCAPES
- KEY OPEN SPACE
- KEY CONNECTION
- HISTORIC VIEWSHED

2.1.3 OPEN SPACE FRAMEWORK

The Open Space Framework within the Long-Range Framework Plan establishes the foundational structure for how outdoor environments function and connect across campus. It defines the hierarchy of spaces and organizes circulation, views, and ecological systems to support campus identity and usability. By articulating spatial relationships and desired character at a conceptual level, the framework informs more detailed Design Guidelines by setting parameters for scale, connectivity, and landscape typologies. These guidelines then translate the framework's intent into actionable standards for materials, planting palettes, furnishings, and sustainability strategies, ensuring that individual projects reinforce the cohesive vision for open space across the campus.



OPEN SPACE LEGEND

- EAST BEACH TRAIL
- CROSS-CAMPUS PEDESTRIAN ROUTE
- RIPARIAN CORRIDOR

CLEMSON GREEN CRESCENT TRAIL

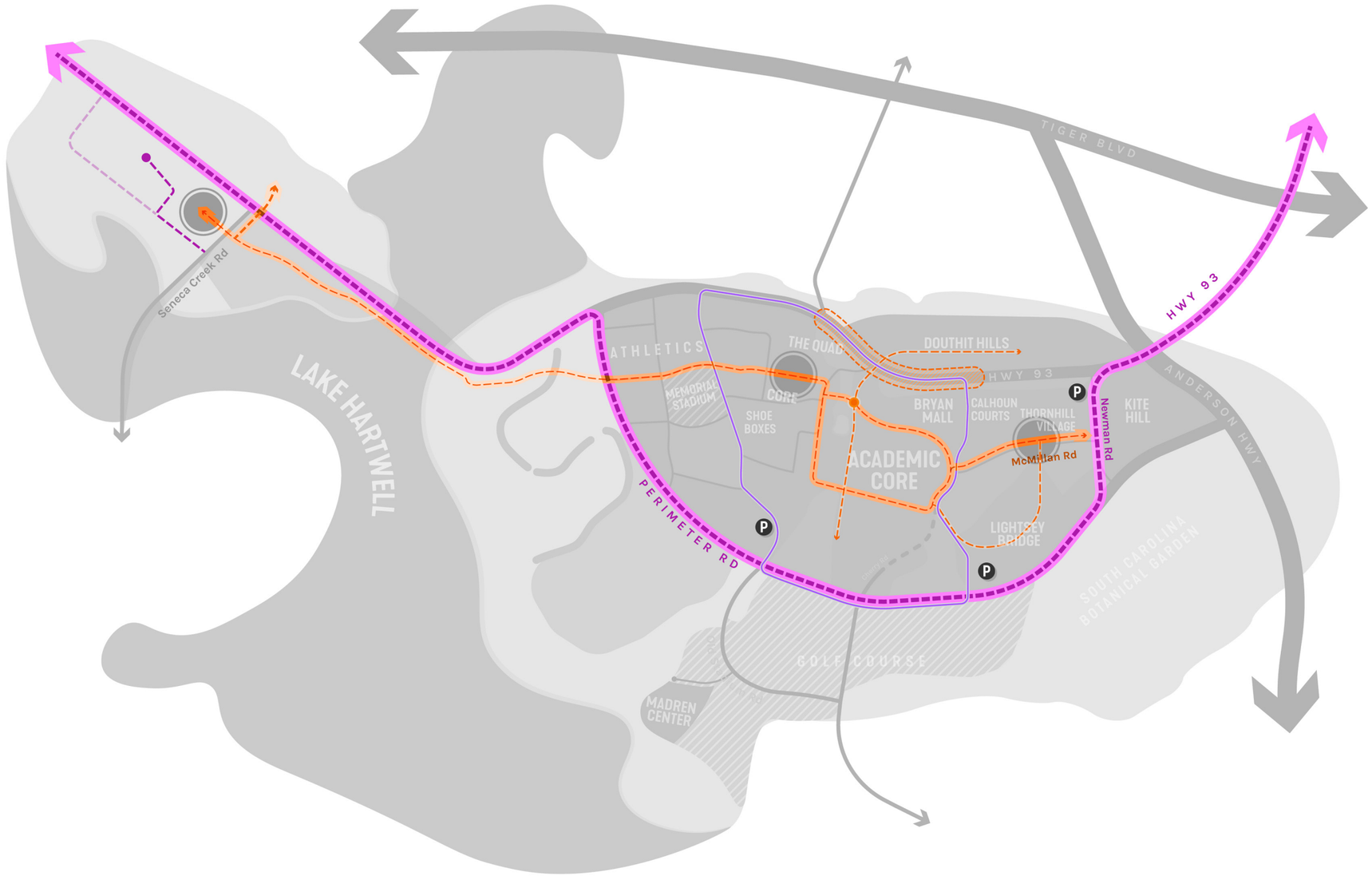
- EXISTING
- FUTURE

MAJOR OPEN SPACE

- EXISTING
- FUTURE
- CAMPUS GREEN

2.1.4 MOBILITY FRAMEWORK

The Mobility framework within the Long-Range Framework Plan establishes the structure for how people move through and experience the campus. It defines the hierarchy of circulation systems, including pedestrian pathways, bicycle routes, transit connections, and vehicular access, and ensures they are integrated with open spaces and key destinations. By setting priorities for connectivity, accessibility, and safety, this framework informs the more detailed Design Guidelines that translate these principles into elements for paving materials, wayfinding, lighting, crossing treatments, and more.



MOBILITY FRAMEWORK LEGEND

- COMMUTER ACCESS ROUTE
- CROSS-CAMPUS PEDESTRIAN ROUTE
- CAMPUS VEHICULAR ROUTE
- HIGHWAY 93 PEDESTRIAN PRIORITY ZONE
- AREAS OF MAJOR DEVELOPMENT
- PARKING STRUCTURE

3. PLANNING STANDARDS

3.1 INTRODUCTION

The purpose of the Planning Standards is to provide information that will inform and guide the planning of facilities on the Clemson University campus. This information will be used predominantly in the pre-design phase of a potential project. Typical users of this information will be Clemson's administration, faculty, and staff. It will be used in evaluating potential sites for buildings, massing constraints, access, and impacts on parking. Consultants to the University, involved in these planning efforts, will use this information in the early planning stages. The Green Book will continue to be a primary reference source. The information provided in the Planning Standards is a supplement to the Campus Master Plan, the Space Utilization Study, and the Design Standards/Green Book. This information does not supersede any of those documents and discrepancies between documents should be brought to the attention of the University Planning and Design Office and University Facilities.

3.2 GOALS

3.2.1 SITE DEVELOPMENT GOALS

- Key campus green spaces are to be preserved or, in some cases, enhanced.
  - Bowman Field is to be preserved and expanded north, across Highway 93.
  - The Campus Green (sometimes called the Campus Spine) is to be preserved from Bowman Field to the band practice field. It includes formally named outdoor spaces such as the Carillon Garden, North Green, Outdoor Amphitheater, South Campus Green, Johnson Student Memorial & Reflection Gardens and Spirit Point and Band Plaza. It is the collective experience of these spaces that identifies the Campus Green landscape. Due to their special use, the only buildings within this space are Cooper Library, STI, and Cadden Chapel. This area of campus has a unique character, and presents iconic campus views - including views of the outdoor theater, the Reflection Pond, and Cooper Library. Parts of the Campus Green are within the Historic District, and require an additional layer of design consideration. Protecting this landscape as a single coherent space is a key principle for planning future campus development.
  - The Ag Quad is to be enhanced and expanded to include the Centennial Oak. Other open spaces, like Woodland Cemetery, the Bottoms and the Botanical Gardens, are to be preserved.
- The pedestrian nature of the Main Campus will be reinforced. This will be accomplished by enhancing open green space and pathways, and by replacing parking on Core Campus roads with parking on the campus periphery.
- Outreach to the community will be reinforced. This will be realized by making the campus inviting and visitor access easy. Perimeter Road will be a zone to engage the public. This road — the avenue of engagement — will provide access to community facilities, which will be served by adequate parking facilities. Attractive landscaping and signage will further enhance this area.
- Sites for new buildings on the Main Campus must be carefully planned. When a new facility is designed, the building site must be selected to fit within the broad campus design parameters. Designating open space and other space that should not be built upon is essential to preserving the integrity of the Clemson campus.

3.2.2 OPEN SPACE GOALS

- Dedicated Open Space, as defined by the Long-Range Framework Plan, shall be protected from all types of campus development. These areas include Bowman Field, President's Park, the Campus Green, the Ag Quad, and Cemetery Hill. Landscapes to preserve are spaces that shall only be altered with just cause and any change shall be carefully considered. Spaces in this category include the Bottoms, and the arboretum and Botanical Garden area.
- Additionally, those areas identified as "Landscapes to Protect" and "Landscapes to Maintain" in the Landscape Assessment (June 2001) shall be afforded a high level of protection and may not be impacted by development without the express permission of the University Planning and Design Office and University Facilities.
- Open Space areas that are environmentally sensitive, such as major drainage-ways, shall also be protected from impact of development by vegetative buffers. Buffers along streams or creeks shall be a minimum of 35 feet from the top of the bank. These buffers shall be left natural where significant vegetation exists or planted with native plant material to help prevent erosion. Clemson has identified these areas as part of the Riparian Corridor Master Plan which has its own set of Guiding Principles and BMP's.
- Sites with slopes of 3:1 or greater will be designed to gracefully respond to slopes and provide accessible pathways in accordance with ADA requirements. Steeply sloped areas may be developed only with the express permission of the University Planning and Design Office and University Facilities, and site solutions must address the issues of erosion and drainage and ease of maintenance.

3.2.3 FACILITY PLANNING GOALS

- The general development pattern on the Main Campus is rational and workable in that the various uses are clustered together. This clustered development pattern allows for a better campus environment and walkability for users. In any space reallocation plans as a general principle, departments should be kept together and Budget Centers should be consolidated.
- The process for initiating new construction or renovation of an existing facility should begin with a thorough investigation of need. To help in substantiating need, an outline facility program should be developed that reflects the requirements of the users involved and defines and quantifies the individual spaces projected. To assist the facility planner, space allocation standards and a method for modeling space is included in the Space Utilization Study. The facility program can be expanded to include the necessary design detail, once the project is viable.
- Reference the General Template for a Feasibility Study from University Facilities.
- The budget for construction cost will be based on the facility program. The outline facility program will define an amount of assignable square footage. This number can be translated into gross square footage by using multipliers appropriate for the building type. The resulting gross square footage will be the target size of a new building and the basis for a construction cost budget. If the project is a renovation, the outline facility programs will be the basis for testing whether the existing building is appropriate for the desired use, and if additional space will be required.

3.3 STANDARDS

3.3.1 DEVELOPABLE AREA STANDARDS

Floor Area Ratio (FAR) & Maximum Impervious

- Impervious area of a building "Site" shall not exceed 60%. Impervious areas include the building footprint, paving, courtyards, service areas, and sidewalks. For the purposes of this document, the "site" shall be measured as:
  - Half the distance to the next building or 1.5 times the overall, above grade height of the subject building on the facing side, whichever is less;
  - Back of curb for adjacent drives or parking areas;
  - Half of the average distance from the building to the prominent landscape features; or
  - The edge of property lines, rights-of-way, vegetative buffers or other setbacks

Building Massing & Maximum Height

- Reference the Long-Range Framework Plan for visualizations showing intended building heights and massing.
- Generally buildings on campus should be limited to four floors, but context could allow for buildings to be designed taller. Building heights and other design elements are required to be reviewed and approved by Planning, Design, and Construction.
- See section **4.2 Architecture** for more detailed information.

Parking Requirements

Maximum size of new lots

- No new surface parking lots over 100 spaces will be constructed on Clemson's campus.
  - Construction of carefully planned, designed and landscaped parking decks will be allowed in select locations.
- Existing parking lots shall be renovated as possible according to the following criteria:
  - Parking lots shall be redesigned as a series of smaller areas providing space for no more than 300 cars, with 20' planted buffers between.
  - Handicap spaces shall be provided in accordance with the Americans with Disabilities Act.
  - See section **4.2.2 Parking** for detailed dimensioning information for parking spaces, access lanes, and motorcycle parking.

Environmentally Sensitive Streams

The environmentally sensitive corridor of the Hunnicutt Creek stream-bed, its tributaries and associated wooded valleys should be considered during any new projects on campus. The streams and associated riparian corridor, or stream side forests, cannot be successfully altered unless stormwater from the watershed is controlled in a manner that mimics pre-development hydrology. A holistic approach is required to reduce stormwater quantity and improve water quality on campus. Refer to Riparian Corridor Master Plan for addition information on this topic.

Character

- Riparian corridors are a healthy, safe and stable series of environments.
- They are supportive of the functional needs of research and service needs of the University and provide for the best plant and animal communities native to the region.
- Dedicated open spaces are a critical and important part of the University character and infrastructure.

Development Guidelines

- Erosion Protection
  - Preserve slope vegetation and direct surface drainage from nearby development away from slopes. This helps to protect slopes and stream banks from erosion.
  - Control upstream erosion and soil sedimentation to maintain stream water quality.
  - Utilize rip-rap, gabions or other bank stabilization treatments to protect steep stream banks from erosion.

3.3.2 ROADWAY STANDARDS

Introduction

- Roads on the Clemson Campus shall accommodate vehicular traffic while ensuring pedestrian and bicyclist safety, and shall retain the aesthetic qualities of the campus. For the purposes of this document, all Roads on the Clemson campus will be described as the following:
  - Arterial Roads
  - Collector Roads
  - Distributor Roads
- See section **4.3.3 Vehicular Circulation** for more information about landscaping, utility easements,, visibility triangles, and transit stops.
- See section **4.3.4 Parking** for more information about parking dimensions and layout.

Arterial Roads

Arterial Roads are for moderate-speed traffic looping around the periphery of the campus. These roads will bring traffic to and from the campus and provide linkages to collector roads and parking areas. These roads serve as the primary entrance into the campus and consequently provide the initial impression of the campus. These roads include:

- Highway 76
- S.C. Highway 93 (Walter Cox Boulevard)
- Perimeter Road (Silas M. Pierman Road)

Highway 76

Highway 76 serves as the entrance from the north and south and, as such, shall be landscaped to emphasize its “gateway” character and shall receive proper maintenance.

- No buildings or parking areas shall be permitted within the corridor.
- Pedestrian crossings shall be permitted only at the signal-controlled intersection with Perimeter Road.
- Funds permitting, bikeways shall be developed with appropriate signage.

Highway 93

S.C. Highway 93 from the overpass at Highway 76 to the Hartwell Bridge serves as the entry leading to Tillman Hall and Bowman Field.

- Protecting the dedicated open space areas of President’s Park and Bowman Field will preserve the existing character of the approach along Highway 93 from the east.
- Protect and maintain tree planted medians throughout this entry corridor.
- No buildings or parking areas shall be constructed in these open spaces or within 150’ of the southern edge of the highway and west campus, (with the exception of Riggs Field and Sloan Tennis Center), or along the lake dike.
- Pedestrian crossings shall occur where signals control vehicular traffic.

Perimeter Road & Newman Road

Perimeter Road and Newman Road connect U.S.Highway 76 and S.C. Highway 93, and Highway 93 and Perimeter Road, respectively. This forms a loop on the southern edge of the campus core. They will serve as the major transportation corridor for visitors, staff, and commuters.

Setbacks and Separations

- Provide a 20’ utility easement, free of trees and shrubs, along both sides of the pavement to accommodate future utilities.
- Provide a 75’ parking setback and a 100’ building setback.

Intersections and Entrances

- Pedestrian crossings shall occur at traffic signals and shall be well delineated.

Circulation

- Provide a bicycle path along Perimeter Road from U.S. Highway 76 to S.C. Highway 93, and on the western side of Newman Road between U.S. Highway 93 and Perimeter Road.
- See section **4.3 Circulation** for detailed information about pedestrian, vehicular and bicycle circulation on campus.

Landscaping Requirements on Arterial Roads

- Informal, naturalistic clusters of large, native, deciduous and evergreen trees and under plantings of small flowering trees.
- Masses of large shrubs.
- Create a sense of arrival by bringing material close to the road and then opening these plantings up at entry points.
- Median plantings can be utilized to supplement this effect and create emphasis and hierarchy. Groundcover versus grass on the ground plane in these medians is preferred because of mowing issues.
- See section **4.4 Landscape** for detailed information about planting.

Collector Roads

Collector Roads provide access to the campus core from the Arterial Roads. These roads will also collect traffic from parking areas and from Distributor Roads. They will be more pedestrian in scale and have more uniformity. These roads include:

- Cherry Street Road
- McMillan Road
- Centennial Blvd
- Newman Road
- S. Palmetto Boulevard
- Williamson Boulevard Road

Setbacks and Separations

- Parking Setback to be 40’ from edge of road
- Building setback shall be 75’ from edge of road
- Maintain 150’ separation between roads and parking access.

Intersections and Entrances

- All intersecting roads shall have a 45’ visibility triangle, measured from the edge of the road
- Pedestrian crossings shall be provided at all Collector Road intersections, and be well delineated. Provide similar signage, lighting, and landscaping treatments to establish uniformity and pedestrian scale.
- Provide similar treatment to the entrances of parking areas on Collector Roads to differentiate them from Arterial Roads.

Landscape Requirements on Collector Roads

- Informal groupings of deciduous and evergreen trees under planted with flowering trees can be brought up to the roadside edges, no closer than 15’ to accommodate utilities.
- Planting on these roads can also double as a screen from parking areas.
- A streetscape effect can be achieved with similar trees planted in sequence with a common distance “on center.” This will also establish uniformity and identity.

Distributor Roads

Distributor Roads are low speed access roads within the campus core building, parking, and service areas. They incorporate on-street parking for visitors, staff, and students and are shared by vehicles and bicycles. Their character is extremely different from Arterial and Collector Roads. They are classified as two types:

- Distributor/Collector
- Distributor/Cul-de-sac

Distributor / Collector Roads

- Connect parking and service areas with Collector Roads and are generally vehicular in nature. These roads include:
  - Avenue of Champions
  - Bryan Circle
  - Calhoun Drive
  - Centennial Boulevard
  - Fernow Street
  - Fort Hill Street
  - Heisman Street
  - Klugh Avenue
  - Old Stadium Road
  - Press Road
  - Ravenel Road
  - Sherman Street
  - Starkey Drive
- Primary characteristics:
  - Road widths shall be 20’ where no parallel parking is present.
  - Horizontal alignment of these roads shall incorporate turning radii and clearances that are in accordance with fire department regulations.
  - They shall be designed to accommodate vehicles having special requirements such as service vehicles or buses, and shall be evaluated individually.

Setbacks and Separations

- Building setback shall be a minimum of 45’.
- In every case, the setback shall accommodate future pedestrian walks and utility requirements in the area.

Distributor / Cul-de-sac Roads

- Shall be of pedestrian scale throughout the entire road and intersection. These roads include:
  - Alumni Circle
  - Barre Street
  - Baton Circle
  - Bradley Street
  - Collings Street
  - Daniel Drive
  - Dunavan Road
  - Hunter Street
  - Jersey Lane
  - Martin Street
  - Mills Road
  - Morrison Drive
  - North Palmetto Boulevard
  - Parkway Drive
  - Bovine Boulevard
  - Boykin Boulevard
  - Horseshoe Circle
- Primary Characteristics
  - Bicycles share the road with vehicles; signage shall designate Distributor/Cul-de-sacs as “Bike Routes” and require bikes to yield for pedestrians at pedestrian crossings.
- Cul-de-sacs and Drop-Offs
  - Cul-de-sacs on these roads shall be designed with the minimum turning radii determined by fire department regulations and the required turning radii for service vehicles.
  - Space for bus drop-off/pick-up, loading and drop-off, and areas for package and food/retail delivery shall also be addressed.
  - Cul-de-sacs that must be shared by vehicles, pedestrians, and bicycles shall be designed with pedestrian paving materials, furnishings, plantings, lighting, and other devices to identify the cul-de-sacs as a pedestrian zone. Bollards can also provide security when used to delineate the end of vehicular traffic at locations where walks join cul-de-sacs, and where service vehicles must share walkways.

Setbacks and Separations

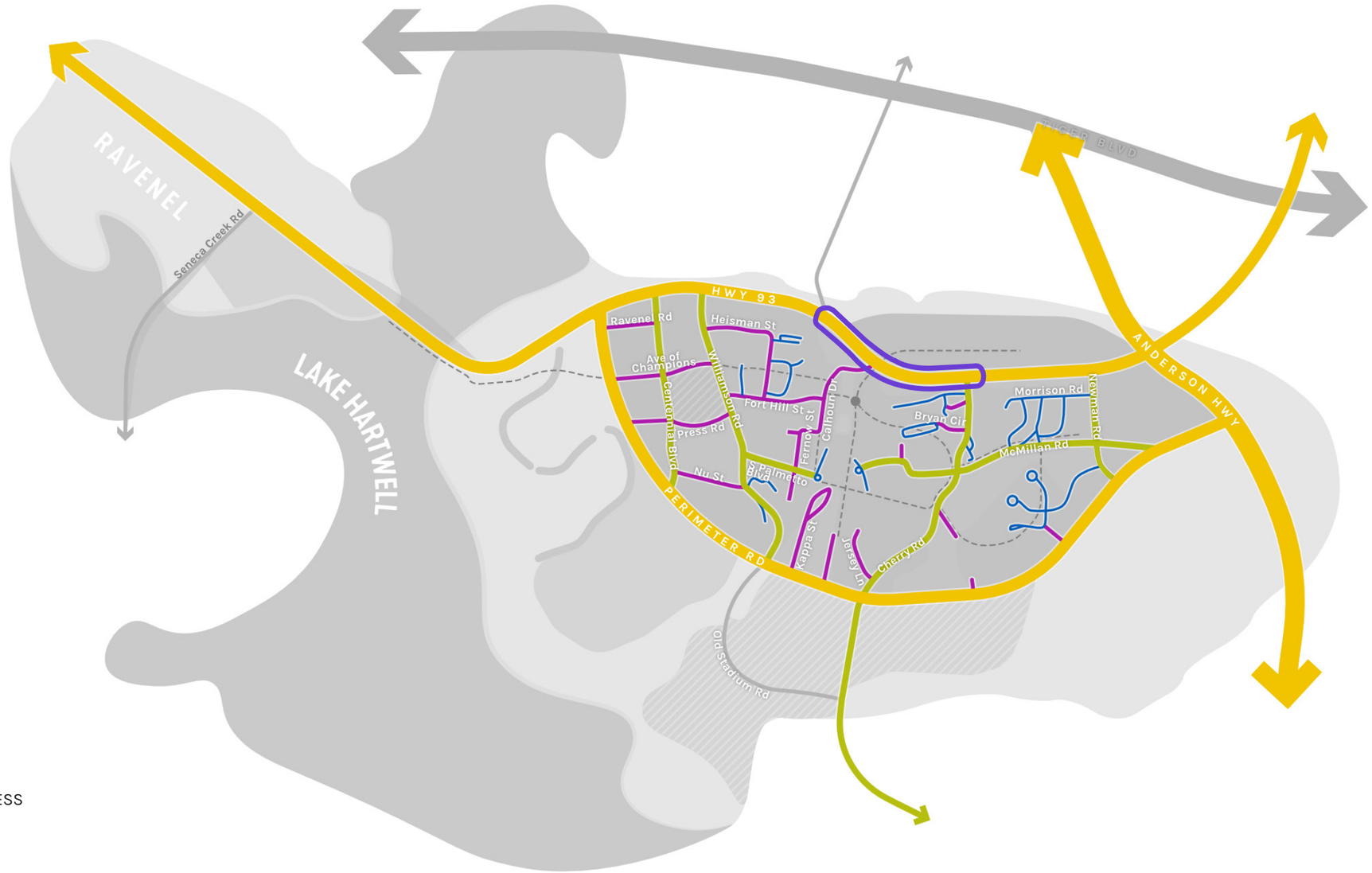
- Building setback shall be a minimum of 25’. In every case, the setback shall accommodate future pedestrian walks and utility requirements in the area.
  - Parking lot road setbacks shall be a minimum of 20’.

Landscape Requirements

- Landscaping shall consist of informal groupings of deciduous and evergreen trees and under plantings of small flowering trees.
- At intersections with secondary roads, situate trees at an angle so that their limbs will ultimately overhang the roadway and form a canopy.
- Where there is no sidewalk adjacent to the road, set back shrubs 5’ from the edge of the road and set back trees a minimum of 10’ from edge of the road.
- Maintain a clear distance of 12’ above the road to accommodate tree limbs.
- Planting location for trees and shrubs shall be coordinated with existing and future utility corridors and setbacks from roads and adjusted accordingly.
- For Cul-de-Sac roads only:
  - Plant large deciduous trees at:
    - Islands formed by major pedestrian crossings.
  - Islands between parking spaces at a minimum of 1 tree for every 6 spaces.
  - Along walks associated with parking areas.
  - Planting islands shall be enclosed with a minimum of a 6” curb and trees shall be located no closer than 4’ from the back of island curbs.
  - Where space permits, plant the center of cul-de-sacs with groundcover, shrubs and trees, taking care not to obscure motorists sight lines across the cul-de-sac.

3.3.3 ROADWAY HIERARCHY

The diagram on this page depicts classifications and hierarchy of roadways on campus. Please refer to this diagram for the following standards and guidelines.



LEGEND

- ARTERIAL ROADS
  100’ BUILDING SETBACK
  75’ PARKING SETBACK
- COLLECTOR ROADS
  75’ BUILDING SETBACK
  40’ PARKING SETBACK
  150’ SEPARATION BETWEEN ROADS AND PARKING ACCESS
- DISTRIBUTOR / COLLECTOR ROADS
  45’ BUILDING SETBACK
- DISTRIBUTOR / CUL-DE-SAC ROADS
  25’ BUILDING SETBACK
  20’ PARKING LOT ROAD SETBACK
- HISTORIC CAMPUS ENTRY CORRIDOR

4. DESIGN GUIDELINES

4.1 INTRODUCTION

The Long-Range Framework Plan provides a framework for decision-making that expresses a point of view regarding all aspects of the campus. The Plan identified sites for new construction, enhanced landscape development, potential expansion of existing buildings and describes the continued use or reuse of existing facilities to achieve a functional and attractive physical environment and an appropriate sense of place.

Please refer to the University's Standards for Commissioned Architects and Engineers for information about standards, specifications and construction.

4.1.1 DESIGN GUIDELINES

- The Design Guidelines support the Long-Range Framework Plan and describe the procedures and standards for the design of new facilities or the upgrading of existing components of the University campus. They provide general direction for the design of campus improvements so that the concepts outlined in the Framework Plan can be implemented with a certain degree of standardization and a unified campus visual character can be maintained.
- The philosophy behind these guidelines is to provide design parameters in which creativity can flourish while maintaining overall campus planning objectives that reflect both broad philosophic principles and specific standards. They are not intended to be so constraining as to inhibit creativity.
- These guidelines reinforce the University's commitment to working towards a sustainable future by incorporating efficient land use, landscape design, transportation systems and green building techniques. The integration of sustainable planning, design and engineering practices into these guidelines is intended to balance the need for campus growth with the stewardship of the Clemson campus. By facilitating sustainable development, the University enriches its resources, meets the needs of the community and enhances its image, experience and culture.
- The Design Guidelines provide the basis for evaluation by the University Planning and Design Office and University Facilities for proposed changes to the physical environment. As such, these guidelines will be instructive to architects, engineers, landscape architects, building committees and others involved in planning for change on the campus. As with any dynamic process, the nature of growth and change on the University campus and the application of these guidelines towards that process will modify over time. The University Planning and Design Office, in cooperation with University Facilities, will monitor these changes and modify these guidelines in response to the evolving campus.
- These guidelines are general in nature and are subject to interpretation by the users of this manual with approval from University Planning and Design Office and University Facilities. Users of these guidelines shall assume legal responsibility and liability for all work performed for the University. Where federal, state or local codes or regulations differ from these guidelines, such codes and regulations shall supersede the guidelines. Users of this manual are advised to be familiar with the entire manual before initiating the planning or design of a project.



FIGURE 1. TILLMAN HALL, LOCATED IN THE HISTORIC DISTRICT OF CAMPUS

4.2 ARCHITECTURE

4.2.1 ARCHITECTURAL CHARACTER

- Campus architecture should reflect Clemson's architectural heritage and surrounding campus context. Visual compatibility with the campus is important, and new buildings, additions and renovations should not be ostentatious. Instead, buildings should represent the permanence of the university, solid and stable, while allowing for exploration, future flexibility and opportunity.
- Architecture should be in dialogue with the surrounding landscape, creating a holistically beautiful campus that promotes social and intellectual interaction and provides places for study and well-being.
- Plazas, malls, and major pedestrian corridors immediately adjacent campus buildings should provide seating and other opportunities for students, faculty, and staff to interact.

4.2.2 HUMAN SCALE

The priority of Clemson's campus is the pedestrian. New buildings and additions should be scaled to create a comfortable walking environment.

Building Setbacks

- Building setbacks should respond to the surrounding context and align with adjacent buildings. Where a new building or addition is sited along an existing street or major pedestrian thoroughfare including plazas, malls, and significant walkways, setbacks should be consistent with the surrounding context.

Building Massing

- Site context and the surrounding landscape should be embraced by designers. Where appropriate, the existing terrain and site elements should be considered together when introducing the design of new elements to ensure a sensitive and coherent design decision.



FIGURE 2. Pre-2000s structures primarily utilize asphalt and clay or terracotta roofing while more recent buildings primarily utilize metal roofing.



FIGURE 3. Plazas, malls, and major pedestrian corridors adjacent campus buildings should provide seating and other opportunities for students, faculty, and staff to interact.



FIGURE 4. The Wilbur O. & Ann Powers College of Business building engages the sloping site, burying portions of the building while also utilizing the slope to create a visual cue for the building's primary entry.



FIGURE 5. This aerial view of the Core Campus Precinct shows how articulation along a large building mass can create quality pedestrian and landscape environments while also providing articulation which indicates the locations of multiple entries.

Historic District:

- In the Historic District, where building height has typically been limited to four stories, building height should respond to the surrounding context. In other areas, building height may vary based on the surrounding context and accounting for incorporation of the site slope into the building's design.
- Refer to the Long-Range Framework Plan for historic buildings and areas of campus.
- Building facades with continuous, uninterrupted walls are not encouraged as human scale and pedestrian interaction with the built environment should be a major consideration.
- The designs for new buildings should be thoughtful about the resulting open spaces. These spaces should be right sized for optimal user experience and provide opportunities for gathering.
- Historic viewsheds should be evaluated and preserved as necessary when designing, siting and massing new buildings.



FIGURE 6.
Materials throughout Campus are consistent while evolving to suit contemporary building design forms. Here, the historic, Norris Hall, and contemporary, Core Campus Dining, architectural interventions achieve a cohesive campus environment through the use of consistent materials applied in period-appropriate ways.



FIGURE 7.
The University Facilities Center and Andy Quattlebaum Outdoor Education Center highlight opportunities for architectural expression utilizing primarily metal panels at Ravenel.



FIGURE 8.
The Watt Family Athletic Performance and Wellness Center and the Gymnastics Practice Facility are two examples that showcase Clemson's brand and colors in metal paneling at Athletics Facilities.

4.2.3 CONTEXT

New buildings should respond to their context within the campus fabric. Stylistic replication is not the goal, but instead, the designs of new buildings should respond to the patterns, forms, and styles of buildings nearby, ultimately contributing to the broader context of Clemson's campus architecture.

Building Facades and Fenestrations

Exterior Materials

- Materials should be selected to contribute to the consistent palette of campus. Proposed materials are required to be reviewed and approved by Planning, Design, and Construction.
- Materials should be selected for their durability and with ease of maintenance in mind. Where new materials—or new material applications—are considered, designers should consider the economic and lifecycle costs of material maintenance and replacement relative to the existing campus palette.
- While materials vary across campus, there is a consistent palette that includes: red and brown brick, limestone and cast stone, metal panels, and glazing. Roofing materials vary for low-sloped roofs, while sloped roofs are typically asphalt singles, clay or terracotta tiles, and metal standing seem.

Historic District:

- Within the historic district, new buildings or additions should be designed with adjacent building attributes, including scale and order, as a primary consideration. New buildings and additions should not be duplicative or copies of existing buildings but should be compatible, creating a consistent campus character.

- Material percentages vary and are often specific to a particular area of campus with Ravenel and Athletics buildings utilizing more metal panel than other areas of campus. This context should be considered during material selection.
- Within the Athletics facilities, metal panels are utilized extensively, incorporating athletics branding and Clemson's colors. The Watt Family Athletic Performance and Wellness Center, as well as the new and renovated lakefront facilities for lacrosse, gymnastics, rowing, and the Athlete Recovery Center, serve as examples for material, color, and branding utilization that is specific to Athletics.
- Branding should be in line with Clemson's standard colors, logos, and approved fonts. When using color, utilize a coordinated palette that reflects the University's identity.
- Contractors must provide physical material mock-ups for all major finishes and assemblies during the construction phase to ensure quality, consistency, and alignment with design intent.

Building Form & Orientation

- New building forms should adhere to the height, maximum impervious area, and other requirements outlined in the Planning Standards section. Facades should be ordered, typically with a well-articulated base, middle-section and top.
- As buildings are sited, consideration should be given to summer solar gain in Clemson's cooling-dominant climate. In general, an east-west longitudinal orientation is more energy efficient; however, as illustrated by the Long Range Framework Plan, building orientation is often guided more by available open space and orientation relative to adjacent buildings. Where the preferred orientation is not feasible, large expanses of glazing and openings should be provided with appropriate solar shading to reduce heat gain in cooling-dominant months.



FIGURE 9. Sirrine Hall's entrance utilizes varied materials to emphasize the entry and responds to the site's pathway configurations.



FIGURE 10. Lee Hall's skylights distribute ambient daylight throughout the building contributing positively to occupant health and well-being.



FIGURE 11. Here, the cantilevered second floor also provides a visual cue that denotes the location of the building's primary entry, while its transparency allows for visual connection to the broader campus.

Building Entries & Connections

- Building entries should be located for ease of pedestrian access and should respond to the site and adjacent buildings. Visual recognition of the building entrance should be clearly identifiable within the building form. While historic buildings have clear, primary entries, often delineated by material or depth changes, such as at Sirrine Hall, contemporary structures often delineate entries through overhangs, either additive or as a cantilever of an upper floor.

Openings & Transparency

- New buildings should be welcoming to students, faculty, and staff. There should be a sense of transparency that reinforces the collaborative nature of campus, especially on the first floor.
- Fenestration should be designed to provide optimal light and create transparency while being appropriately located, recessed or shaded based on cardinal orientation with the intent to reduce heat gain and promote sustainable design best practices.
- Fenestration typology may vary based on location, scale, and appropriateness of application of curtain-walls versus punched openings.
- Skylights may be utilized on a project specific basis and require approval by Planning, Design and Construction. Reference the University's Standards for Commissioned Architects and Engineers for more information.

Accessibility

- Buildings should be accessible and adhere to ADA guidelines and Universal Design principles. Wherever possible, all building users should be able to access the building through all primary entries.

Service Areas

- Service areas should be sited away from building entries and hidden as much as possible. Service areas should be accessible for loading, unloading and other back of house needs.
    - The size of service vehicles should be considered when locating service areas. As an example: for research buildings, service vehicles for delivering equipment, dewar refills, and the like should be considered. Each campus building type has unique requirements which should be discussed and addressed during the site selection.
- Where service areas can be consolidated across multiple buildings or collocated, designers should take advantage of this opportunity.

Crime Prevention Through Environmental Design (CPTED)

The following principles, as advocated by the International Crime Prevention Through Environmental Design (CPTED) Association, should be considered to aid in crime prevention, deter potential offenders, and build a sense of community to aid in gaining "territorial control of areas, reduce crime, and minimize fear." (International CPTED Association)

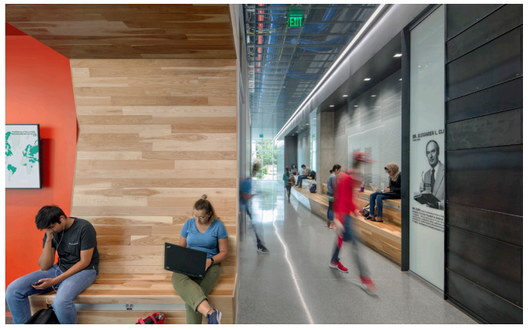
- Provide adequate and appropriately scaled lighting along pathways, sidewalks, large green spaces, parking lots, and at building entrances
- Front doors should be highly visible to adjacent spaces such as buildings, public rights-of-way, streets and parking areas.
- Landscaping should be maintained to provide clear views to and from the building and should be designed to limit blind spots and hiding places.
- Clearly identify buildings with street addresses familiar to police and fire departments.
- Utilize access management features such as door locks and card readers where appropriate.
- Provide third spaces, distinct from home and work, that allow students, faculty, and staff to build community. These can be interior or exterior spaces such as cafes, libraries, parks, community centers, and spaces for recreation. These third spaces aid in driving culture and cohesion reinforcing a sense of community.



FIGURE 12. Lobbies should provide visual links between the building interior and exterior and accommodate short-term lounging and study.



FIGURE 13. Classrooms should allow for flexibility, accommodating multiple teaching pedagogies and learning styles.



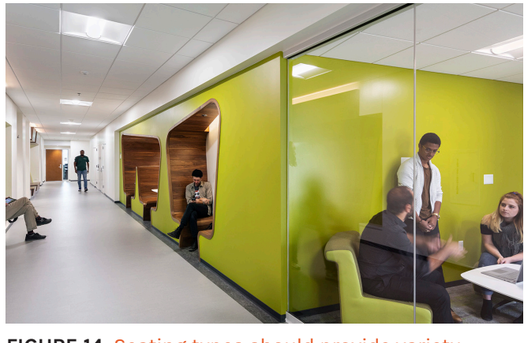


FIGURE 14. Seating types should provide variety, ranging from benches outside of classrooms, small study carols and group work tables, to small- and medium-sized meeting rooms for students to engage in a range of studying activities including individual and group learning.



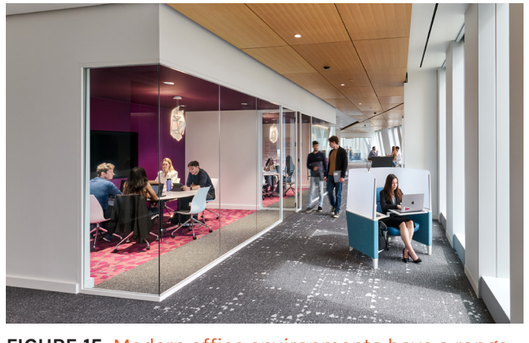


FIGURE 15. Modern office environments have a range of work and meeting spaces allowing for flexibility and discovery, and both formal and informal spaces are important for collaboration.

4.2.4 INTERIOR ELEMENTS

Entrances & Lobbies

- In keeping with the building's exterior, entrances and lobby spaces should be clearly identifiable and accessible. Lobbies should be planned as multi-purpose spaces where appropriate, allowing for the everyday functions of student study and lounge space with the ability to flex to other uses based on the building program.

Learning & Work Spaces

Space Goals

- All space types should adhere to ADA standards and Universal Design principles.
- Learning Spaces, Research Labs and Teaching Labs should be planned to fit within similar bay spacing to allow for maximum future flexibility and with second uses in mind. A suggested bay spacing of 32'-0" x 32'-0" divides into a 3x3 grid spaced at 10'-8" on center. This spacing works well for classrooms, laboratories, and office spaces, but should be evaluated based on building footprint and function as other bay spacing may be more appropriate given the site's unique constraints.

Learning Spaces

- Learning spaces should be configured for maximum flexibility, allowing for changes in class size and teaching pedagogies and should generally be more square than rectangular. Learning spaces should ideally be located on the lower levels of the building and located within the floor plan to allow for natural light.
- Collaborative seating areas should be provided outside learning spaces wherever possible to provide space for pre-class queuing and post-class discussions and informal office hours.
- The scale of these spaces should be commensurate with classroom and lecture hall size in the surrounding areas and should be reviewed with PDC during design.

Informal Learning Spaces

- Informal learning spaces should be located adjacent formal learning spaces and, where appropriate, research and teaching laboratory spaces. Variety should be provided to allow for choice, accommodating a range of learning and study preferences.

Corridors

- Corridors should be wide and interspersed with collaboration spaces, study spaces and other informal spaces to avoid outdated double-loaded corridor configurations where possible. Buildings being renovated should incorporate a similar strategy., typically no less than 8'-0" to allow for ease of egress, queuing and interaction in these important "in-between" spaces.

OFFICE SPACE STANDARDS

Clemson University prioritizes investment in spaces that support teaching, learning, and collaboration. For new buildings and major renovations, these office space design principles and guidance provide a framework for the allocation, layout, and distribution of office environments. While each project will have unique program needs, Clemson's goal is to ensure that the majority of office space supports shared and collaborative work, with limited allocation for private use. The following 5 principles shall inform the design and inclusion of office in new and renovated facilities.

Guiding Principles

- Develop space efficient office environments to maximize University resources and allow greater focus on providing improved learning and research environments.
- Modernize and improve office environments to meet the needs of today's and tomorrow's faculty and staff. Provide a range of office and collaboration spaces, both formal and informal, to support a wide range of work styles.
- Provide flexibility in office arrangements and office space allocations to both promote collaboration and provide privacy when needed. Promote implementation of open office configurations to preserve long-term adaptability of University spaces.
- Incentivize development of more flexible, space efficient office environments promoting collaboration and greater interaction.
- Reward flexibility and promote well-being by reserving daylighting for instructional, collaboration, and social spaces and open office formats. Private offices should be located towards the building interior with office clusters oriented to provide equal access to daylight.
- Support Clemson Elevate and the #1 student experience by mandating stewardship of University resources through reuse of aging and historic facilities to support office functions while directing new investment towards modern student-facing spaces and those supporting instruction and research.



FIGURE 16. Shared Space Prioritized For Daylight



FIGURE 17. Building Hub



FIGURE 18. Informal Exterior Touchdown Space

Office Space Allocations Summary

Graphic examples and additional information regarding space allocation and configuration are included throughout the remainder of this section.

Faculty Offices	
Dean	120 – 180 ASF
Associate Dean / Department or School Chair	120 – 150 ASF
Assistant Professor	80 – 100 ASF
Associate Professor	80 – 100 ASF
Senior Lecturer/Principal Lecturer	70 – 90 ASF
Lecturer/Post-Doctoral Fellow/Part-time Faculty	60 – 80 ASF
Graduate Teaching or Research Assistants	36 – 64 ASF
Staff Offices	
Executive Directors / Associate or Assistant Vice President	120 – 180 ASF
Directors / Assistant Directors	80 – 100 ASF
Professional Staff	80 – 100 ASF
Analysts / Technical / Paraprofessional	60 – 80 ASF
Administrative Assistant	60 - 80 ASF
Graduate Student	36 – 64 ASF
Student Workers	30 – 50 ASF
Conference Rooms	
Large Conference Room	600 ASF, Capacity = 24
Medium Conference Room	300 ASF, Capacity = 12
Small Conference Room	200 ASF, Capacity = 8
Collaboration Spaces	
Team Room	20 ASF/person Capacity: 4-6 = 80-120 ASF
Huddle/Focus Room	20 ASF/person Capacity: 2-4 = 40–80 ASF
Community Spaces	
10 ASF per person plus 10 ASF bonus for every workstation	
Office Service	
Pantry, Copy, Storage: 10 ASF per FTE	

Shared Office Environments

- When developing office space in new facilities, total square footage for all office space types (FICM 300 Series – Offices, Conference Rooms, Office Service Spaces, Reception) should not exceed 125 ASF per FTE plus a 10% growth allowance. For example, space being designed for a department with 20 FTE would be allowed a total of 2,750 square feet (2,500 ASF for 20 FTE + 250 for 10% growth allowance.) If allocated to 100 ASF private offices for all 20 FTE, only 750 ASF would remain for all other remaining office support spaces.
- Departments will have the flexibility to assign their office space allowance to their preferences, but must remain within the ranges provided below.
- During the feasibility phase for new University facilities, Academic Departments or Administrative Units identified as requiring greater than 60% of faculty/staff in private offices will be prioritized for renovated space within existing facilities instead of being accommodated within the new facility. New academic/research buildings will prioritize instructional and research spaces over office functions.

Greater utilization of shared office environments versus private officing will be rewarded with additional square footage allowances and collaboration spaces. Shared office environments may be developed around an Activity-Based Framework with shared meeting spaces.

Activity-Based Workplace (ABW)

Design office environments to support multiple work modes—individual focus, collaboration, and community—so people can choose settings that best fit their work rather than relying on a single assigned office or workstation.

Shared Community Meeting Space Over Dedicated In-Office Meeting Space

Prioritize shared gathering and collaboration spaces that reinforce culture and support hybrid engagement, reducing redundant, dedicated meeting rooms embedded within individual offices or unit suites.

Hub Model for Shared Conference Rooms and Amenities

Organize conference rooms, huddle/phone rooms, touchdown seating, and amenities into shared hubs that can be used across multiple units to improve utilization and support staff with varied work patterns.

Design guidance: Establish hubs based on building footprint and distribution of space (e.g., conference rooms, huddle/phone rooms, and break/amenity areas such as kitchenette). Locate hubs strategically within multi-department buildings or in central campus locations to serve multiple buildings and support on-site, hybrid, and remote staff. As appropriate, program shared hubs to include:

- Welcome/reception functions where multiple departments are served, located as a centralized node
- Resources & amenities, including IT support and a break/kitchenette paired in the hub
- Variety of alternate seats for touchdown, including hoteling stations and meeting spaces

Hybrid/Remote Exceptions Tied to Sharing Office Space

Where hybrid or remote arrangements are approved, align them with space-sharing expectations (e.g., shared offices/hoteling for hybrid staff and touchdown options for remote staff) to reduce underutilized dedicated space and improve stewardship of campus resources.

Design guidance: Coordinate (where possible) with adjacent departments for space sharing and common amenities to reinforce the hub and shared-conference-room model as part of a consistent campus approach. Use a layered model of sharing that improves utilization while preserving needed assigned space:

- Share conference spaces between two or more departments where feasible to increase efficiency and flexibility and encourage cross-department interactions.
- Implement shared conference spaces (and, where feasible, shared individual hoteling workspaces) between departments using a reservation system and scheduling approach.
- Support a layered model of use: conference space shared between departments, while individual workspaces are shared within a department (or assigned where required).
- Where a departmental conference space exists, allow it to flex for broader needs, including being used as departmental individual hoteling space when needed.

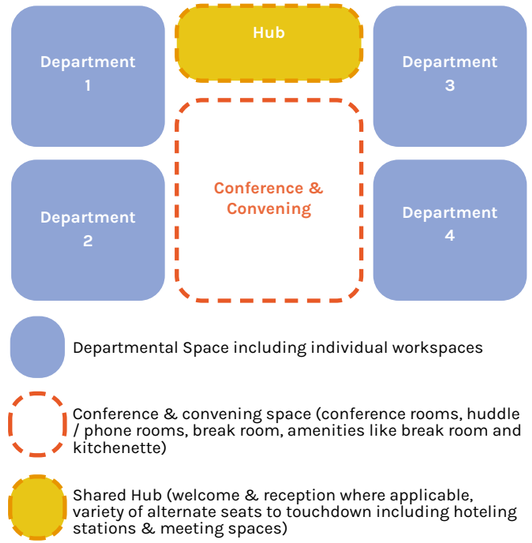


FIGURE 19. Building-Scale Hub Concept

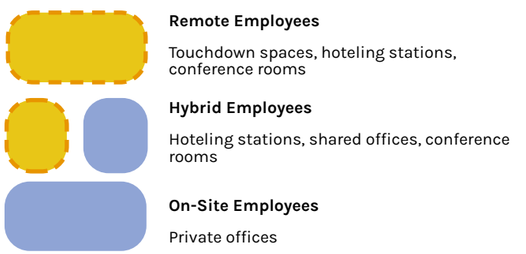


FIGURE 20. Building-Scale Hub Concept

Daylighting Priorities

- Designs for new facilities or renovations of existing facilities will prioritize access to daylight/ natural light to instructional, collaboration, social spaces and open office formats. Private offices are to have lowest priority for access to daylighting.
  - Priority 1: Instructional (Classrooms and Class Laboratories), Study/Collaboration (team rooms, study lounges, etc.)
  - Priority 2: Open office workstations, work café, conference rooms
  - Priority 3: Private Offices, Office Service, Storage
- Private offices, when required, should be clustered and configured in a manner that provides equitable access to daylighting. The following examples implemented at the College of Veterinary Medicine and to be implemented at the planned NextGen Computing Center illustrate preferred configurations:



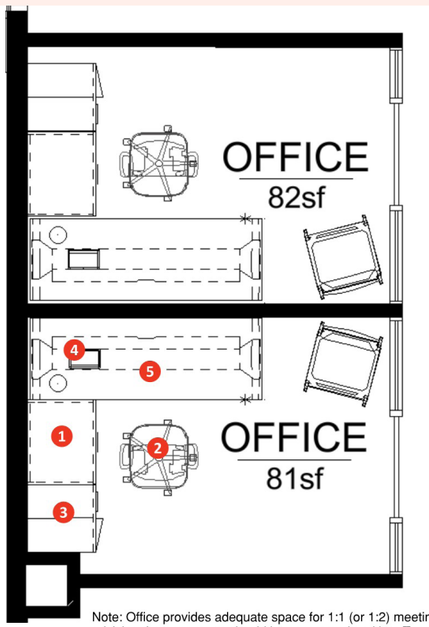
FIGURE 21. Optimized Daylight Configuration

Space Allocations

Faculty Offices (FICM- 310, 311) – Assignable Square Footage (ASF) Allocations

- Dean: 120 – 180
- Associate Dean / Department or School Chair: 120 – 150
- Assistant Professor: 80 – 100
- Associate Professor: 80 – 100
- Senior Lecturer/Principal Lecturer: 70 – 90 SF
- Lecturer/Post-Doctoral Fellow/Part-time Faculty: 60 – 80 (open-office formats or shared offices, with access to shared huddle room for advising/private conversations)
- Graduate Teaching or Research Assistants: 36 – 64
  - Graduate assistants should not be assigned single-use, private offices.
  - Graduate assistants should be provided access to shared workstations in open-office formats. No workstations are to be assigned to an individual student for exclusive use.

Assistant / Associate Professor - 80-100 SF



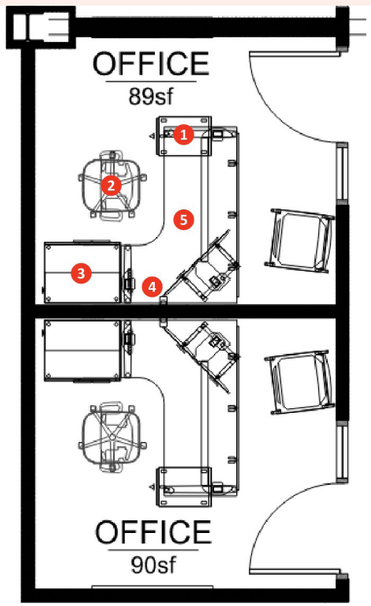
Note: Office provides adequate space for 1:1 (or 1:2) meetings or advising. Larger groups should be accommodated in a Team or Conference Room.



1. Pedestals provide both filing and personal storage.
2. Ergonomic task chair reinforces a healthy workplace.
3. Tall storage tower can be used for coat storage, filing and bookcase display.
4. Mounted power unit includes standard outlets and USB A & C receptacles.
5. Large front Sit-to-Stand desk provides a flexible workspace.

Images are for inspiration only. Selected furniture and layout will vary by project.

Assistant / Associate Professor - 80-100 SF



Note: Office provides adequate space for 1:1 (or 1:2) meetings or advising. Larger groups should be accommodated in a Team or Conference Room.

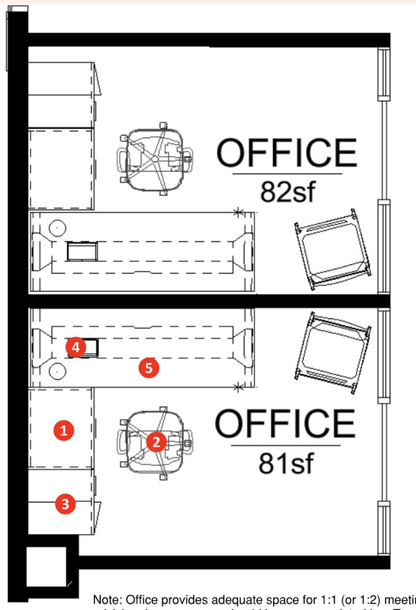


1. Pedestals provide filing, personal storage, and an additional guest seat.
2. Ergonomic task chair reinforces a healthy workplace.
3. Tall storage tower can be used for filing and bookcase display.
4. Mounted power unit includes standard outlets and USB A & C receptacles.
5. Large front Sit-to-Stand desk provides a flexible workspace.

Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Workstation Styles: These workstation styles supports a wide range of work needs by combining comfort, flexibility, and organization. A few key features such as sit-to-stand capability, integrated power options, and a mix of storage accommodates individual work styles and day-to-day tasks. This workstation style can be aligned to support workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Senior / Principal Lecturer - 70-90 SF





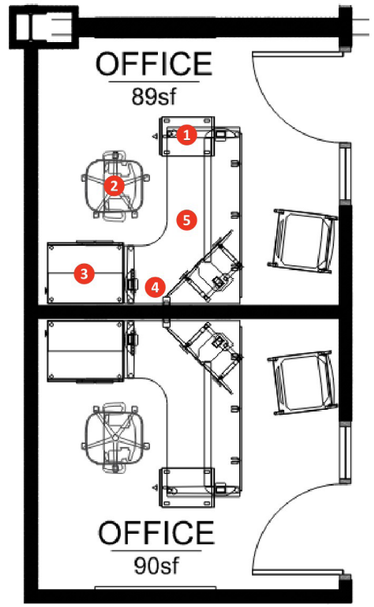
1. Pedestals provide both filing and personal storage.
2. Ergonomic task chair reinforces a healthy workplace.
3. Tall storage tower can be used for coat storage, filing and bookcase display.
4. Mounted power unit includes standard outlets and USB A & C receptacles.
5. Large front Sit-to-Stand desk provides a flexible workspace.

Note: Office provides adequate space for 1:1 (or 1:2) meetings or advising. Larger groups should be accommodated in a Team or Conference Room.

Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Workstation Styles: For senior/principal lecturers, the assignment of private offices may depend on on-campus presence, course load, and office hours.

Senior / Principal Lecturer - 70-90 SF





1. Pedestals provide filing, personal storage, and an additional guest seat.
2. Ergonomic task chair reinforces a healthy workplace.
3. Tall storage tower can be used for filing and bookcase display.
4. Mounted power unit includes standard outlets and USB A & C receptacles.
5. Large front Sit-to-Stand desk provides a flexible workspace.

Note: Office provides adequate space for 1:1 (or 1:2) meetings or advising. Larger groups should be accommodated in a Team or Conference Room.

Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Workstation Styles: For senior/principal lecturers, the assignment of private offices may depend on on-campus presence, course load, and office hours.

Lecturer / Post-Doctoral Fellow / Part-time Faculty: 60–80 SF







Images are for inspiration only. Selected furniture and layout will vary by project.

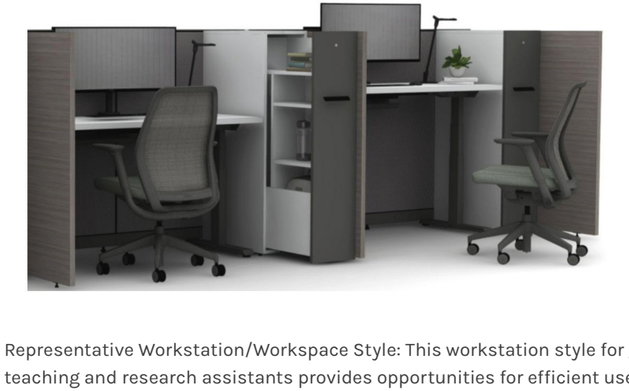
Representative workstation style: These images reflect the types of flexible workspace and workstation types intended for open-office environments or shared office scenarios that all lecturers, post-doctorate fellows, and part time faculty will utilize. The intention is for this workstation style to support flexible office needs through assignable and shared workstation capabilities based on capacity, position and campus presence. Access to shared huddle rooms will compliment this approach when privacy is necessary or when small group collaboration is desired.

This style is a modern approach that offers sit-to-stand capabilities, integrated power options, practical storage, and panel walls all which support privacy and functionality. This workstation style is aligned to supporting workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Graduate Teaching / Research Assistant - 34-64 SF







Images are for inspiration only. Selected furniture and layout will vary by project.

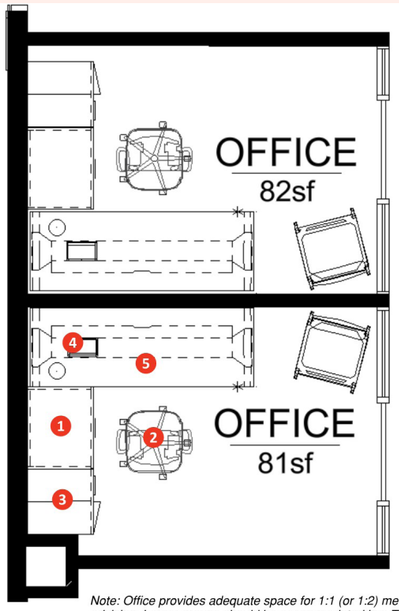
Representative Workstation/Workspace Style: This workstation style for graduate teaching and research assistants provides opportunities for efficient use of space, equity of access, and flexibility. These representative styles will shape the open office environment, focusing on unassigned workspace sharing, intended to promote community and connection, collaboration, productivity and focus, as well as mentorship and peer support. At the same time, it allows spaces like this to have equitable access by those who need it by not assigning a dedicated space. A few key features such as sit-to-stand capability, integrated power options, compact storage, and panels that provide a level of privacy, that accommodate individual work styles and day-to-day tasks.

This workstation style can be aligned to support workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Staff Offices (FICM-310, 314) ASF Allocations

- Executive Directors / Associate or Assistant Vice President: 120 – 180
- Directors / Assistant Directors: 80 – 100
- Professional Staff: 80 – 100 ASF (private offices should only be reserved for full-time staff with direct reports; otherwise, open office formats should be implemented with access to shard huddle room for private conversations.)
- Analysts / Technical / Paraprofessional: 60 – 80 ASF (private offices should only be reserved for staff working with confidential data or those whose job duties include advising/counseling; otherwise open office formats)
- Administrative Assistant: 60 - 80 ASF (Open office format in most situations)
- Graduate Student (Open office format in shared workstations – no private offices, no dedicated workstation if below 20 hours per week): 36 – 64 ASF
- Student Workers (Open office format in shared workstations– no private offices, no dedicated workstation if below 20 hours per week): 30 – 50 ASF

Director / Assistant Director / Professional Staff - 80-100 SF





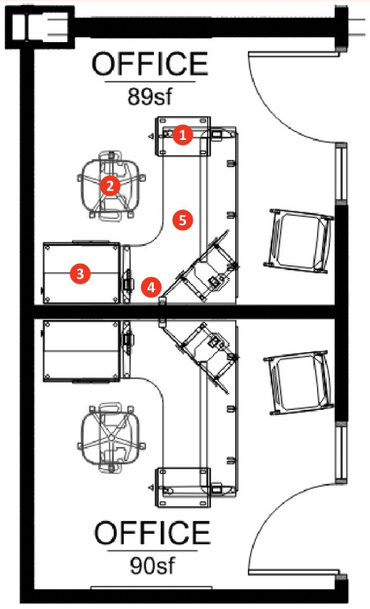
1. Pedestals provide both filing and personal storage.
2. Ergonomic task chair reinforces a healthy workplace.
3. Tall storage tower can be used for coat storage, filing and bookcase display.
4. Mounted power unit includes standard outlets and USB A & C receptacles.
5. Large front Sit-to-Stand desk provides a flexible workspace.

Note: Office provides adequate space for 1:1 (or 1:2) meetings or advising. Larger groups should be accommodated in a Team or Conference Room.

Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Workstation Style: This workstation style supports a wide range of work needs by combining comfort, flexibility, and organization. A few key features such as sit-to-stand capability, integrated power options, and a mix of storage accommodates individual work styles and day-to-day tasks. This workstation style can be aligned to support workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Director / Assistant Director / Professional Staff - 80-100 SF





1. Pedestals provide filing, personal storage, and an additional guest seat.
2. Ergonomic task chair reinforces a healthy workplace.
3. Tall storage tower can be used for filing and bookcase display.
4. Mounted power unit includes standard outlets and USB A & C receptacles.
5. Large front Sit-to-Stand desk provides a flexible workspace.

Note: Office provides adequate space for 1:1 (or 1:2) meetings or advising. Larger groups should be accommodated in a Team or Conference Room.

Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Workstation Style: This workstation style supports a wide range of work needs by combining comfort, flexibility, and organization. A few key features such as sit-to-stand capability, integrated power options, and a mix of storage accommodates individual work styles and day-to-day tasks. This workstation style can be aligned to support workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Administrative Assistant / Technical Analyst - 60-80 SF







Images are for inspiration only. Selected furniture and layout will vary by project.

Representative workstation style: These images reflect the types of flexible workspaces and workstations that shape the open-office environments or private office scenarios that Paraprofessionals, Administrative Assistants, Technicians, and Analyst will utilize. These workspace/workstation styles are a modern approach that offers sit-to-stand capabilities, integrated power options, practical storage, and panel walls, all which support privacy and functionality.

These workstation styles are aligned to supporting workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Graduate Student - 36-64 SF







Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Workstation/Workspace Style: This workstation style for graduate students provides opportunities for efficient use of space, equity of access, and flexibility. This will be a style in an open office environment focused on unassigned workspace sharing, intended to promote community and connection, collaboration, productivity and focus, as well as mentorship and peer support. At the same time, it allows spaces like this to have equitable access by those who need it by not assigning a dedicated space. A few key features such as sit-to-stand capability, integrated power options, compact storage, and panels that provide a level of privacy, that accommodate individual work styles and day-to-day tasks.

This workstation style can be aligned to support workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Student Worker - 30-50 SF







Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Workstation/Workspace Style: This workstation style for student workers provides opportunities for efficient use of space, equity of access, and flexibility. This workstation and workspace style will be implemented in open office environments, focused on unassigned workspace sharing. It is intended to promote community and connection, collaboration, productivity and focus, as well as mentorship and peer support. At the same time, it allows spaces like this to have equitable access by those who need it by not assigning a dedicated space. A few key features such as sit-to-stand capability, integrated power options, compact storage, and panels that provide a level of privacy, that accommodate individual work styles and day-to-day tasks.

This workstation style can be aligned to support workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Conference Rooms (FICM-350,352)

- For new facilities, conference room space must be allocated from the department's overall space allowance
- Conference Room spaces provided beyond the departmental allowance are to be shared with all other departments/units located within the building and reservable by all faculty/staff housed within the facility.
- Conference Rooms to be sized using standard of 25 ASF/Person:
  - Large: 600 ASF, Capacity = 24
  - Medium: 300 ASF, Capacity = 12
  - Small: 200 ASF, Capacity = 8

Conference Room: 25 SF Per Person







Images are for inspiration only. Selected furniture and layout will vary by project.

Conference Room: 25 SF Per Person







Images are for inspiration only. Selected furniture and layout will vary by project.

Collaboration Spaces:

- Team Room – 20 ASF/person / Capacity: 4-6 = 80-120 ASF. One Team Room allocated for every 15 workstations (where implemented instead of private offices.)
- Huddle/Focus Room – 20 ASF/person / Capacity: 2-4 = 40 – 80 ASF. One Huddle/Focus room is awarded for every 8 workstations and not counted against the departmental allowance (where workstations are implemented instead of private offices.)
- Example 1: A department of 20 staff with 4 private offices and 16 workstations would be awarded a Team Room and two Huddle/Focus rooms which would not count against the allowance.
- Example 2: A department of 20 staff with twenty 100 ASF private offices wound not be awarded any team rooms or huddle/focus rooms and would be required to use their overall allowance to provide these spaces.

Community Spaces (Social, Lounge, Work Café):

- 10 ASF per person plus 10 ASF bonus for every workstation (where implemented instead of private offices.)

Office Service

- Pantry, Copy, Storage: 10 ASF per FTE

Huddle / Focus / Team Room - 20 SF Per Person









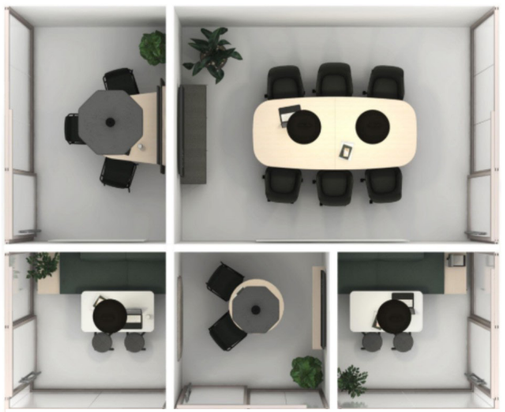
Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Work Space Style: This workspace style supports convenient, flexible options for privacy and focus as well as small group collaboration that does not require the scale of a conference room. It enables easy transition between private or individual work needs and the collaborative, shared workspace.

Huddle / Focus / Team Room - 20 SF Per Person







Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Work Space Style: This workspace style supports convenient, flexible options for privacy and focus as well as small group collaboration that does not require the scale of a conference room. It enables easy transition between private or individual work needs and the collaborative, shared workspace.

Huddle / Focus / Team Open Office



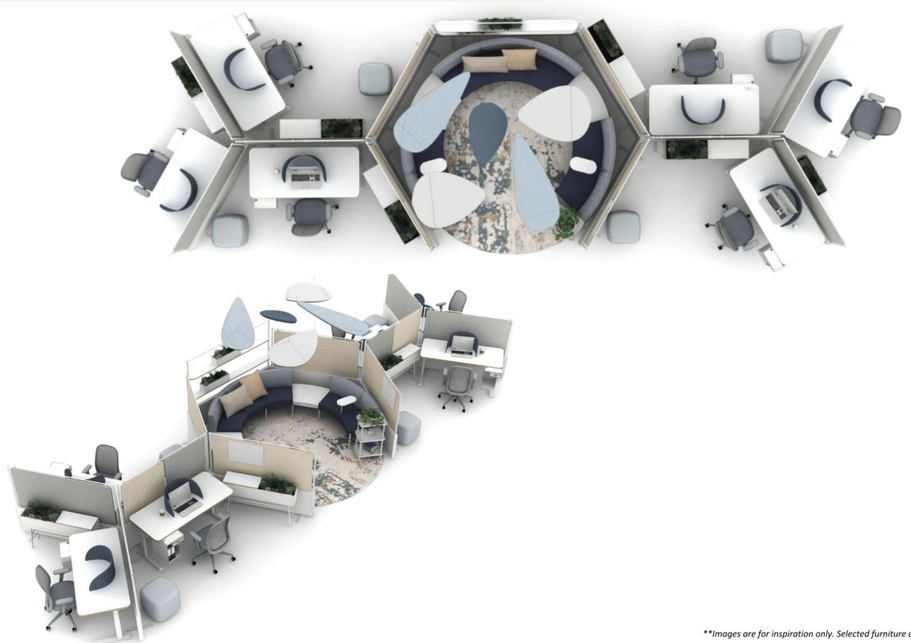




Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Work Space Style: This workspace style supports convenient, flexible options for privacy and focus as well as small group collaboration that does not require the scale of a conference room. It enables easy transition between private or individual work needs and the collaborative, shared workspace.

Faculty / Staff Neighborhood



Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Work Space Style: This workspace style supports a wide range of work needs by combining focused work, day-to-day connections, and informal collaboration opportunities. A few key features such as sit-to-stand capability, integrated power options, and a mix of storage, which accommodate individual work styles and day-to-day tasks. This workstation style is aligned to supporting workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

What makes this unique are the various layers of engagement with the space that make it more than a place of work, from individual productivity to shared interactions, with a place for focus, connection, and flexibility, which is perfect for a working environment.

Faculty / Staff Neighborhood



Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Work Space Style: This workspace style supports a wide range of work needs by combining focused work, day-to-day connections, and informal collaboration opportunities. A few key features such as sit-to-stand capability, integrated power options, and a mix of storage, which accommodate individual work styles and day-to-day tasks. This workstation style is aligned to supporting workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

What makes this unique are the various layers of engagement with the space that make it more than a place of work. From individual productivity to shared interactions, a workspace configuration similar to this thoughtfully balances a place for focus, connection, and flexibility, which is perfect for a working environment.

Faculty / Staff Neighborhood



Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Work Space Style: This workspace style is impactful in supporting a wide range of work needs by embracing a flexible environment that integrates focused work and informal collaboration opportunities amongst teams. These collaboration opportunities can occur within existing workstation configurations (as pictured) which allows for additional communal space to be prioritized rather than creating a separate space to huddle as a team. A few key features for the workstations are sit-to-stand capability, and a mix of storage, and panels that balance visual and acoustical privacy which benefit individual work styles and day-to-day tasks.

This workstation style is aligned to supporting workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

Faculty / Staff Neighborhood



Images are for inspiration only. Selected furniture and layout will vary by project.

Representative Work Space Style: This workspace style supports a wide range of work needs by combining focused work, day-to-day connections, and informal collaboration opportunities. A few key features such as sit-to-stand capability, integrated power options, and a mix of storage, which accommodate individual work styles and day-to-day tasks. This workstation style is aligned to supporting workspace priorities that consider factors that influence design preferences, durability goals, functionality, space constraints and opportunities for cost-conscious solutions.

What makes this unique are the various layers of engagement with the space that make it more than a place of work. From individual productivity to shared interactions, a workspace configuration similar to this thoughtfully balances a place for focus, connection, and flexibility, which is perfect for a working environment.

Furnishings & Finishes

- Furnishings and finishes should contribute to a unified visual identity that reinforces Clemson's sense of place while allowing for contextual variation across campus environments.
- Interior environments should feel enduring rather than trendy, employing materials, colors, and forms that age gracefully while supporting modern teaching, research, and campus life.
- Furnishings and finishes should enhance comfort, adaptability, and human experience, supporting both focused work and informal interaction in diverse academic and social settings.
- Materials and furnishings should reflect thoughtful selection, durability, and attention to detail, reinforcing Clemson's commitment to excellence and stewardship.
- Spaces should be equipped with furnishings and finish strategies that accommodate change over time, supporting multiple uses and future adaptation without sacrificing design integrity.
- Furnishings and finishes should align with Clemson's sustainability goals, emphasizing longevity, responsible sourcing, and reduced environmental impact over the life of the space.
- Clemson's character should be conveyed through restrained, refined design moves rather than overt branding, allowing materials and spaces to speak to institutional values.

Signage

- Refer to the Interior Signage Design Standards for information about signage.

4.2.5 DESIGN DATA

Room Numbering

- All room numbering is to follow the Clemson Room and Door Numbering Standards and is subject to the approval of the Campus Planning and Design.

Space and Access Requirements

All Projects

- Provide ample head room at all points where people stand or walk, including over and under stairways and landings. The minimum ceiling heights must be 9'-0" for classrooms, 9'-6" for labs, 8'-0" for corridors, but in no case less than applicable code requirements.
- When sleeping accommodations are included in the project, all spaces designed for multiple occupants shall be designed for use by a single gender.
- Provide toilet, changing and bathing facilities as single occupant rooms.
- Provide separate space for departmental program equipment. Do not locate program equipment in the building mechanical room.

New Construction and Renovations Exceeding 50% of Building Floor Area

- Each floor level shall have at least one Inclusive and accessible single occupant restroom centrally located alongside gender specific restroom facilities. Each room shall be served by a lockable door and contain a wall-mounted baby changing station. These restrooms shall be identified as Restroom in text and braille and display the universal symbol of accessibility.
- For projects incorporating bathing facilities and/or changing areas, construct at least one lockable and accessible single occupant facility to be included and centrally located, so the user need not leave the area to use the changing room.
- Specify that at least one of each ambulatory water closet and urinal provided in every multiple use restroom be accessible as defined the most current version of ICC A117.1.
- Specify that a minimum 6' x8' Wellness Room for lactation and medical privacy with at least one outlet, a sink with counterspace, mirror, paper towel dispenser, soap dispenser, waste receptacle, and seating be included in new construction and major renovations. Door hardware should be lockable with single motion egress and indicate whether or not the space is in use. Feature selection and room layout shall be such that Wellness Room is fully accessible. These spaces shall also comply with the University-wide Wellness/Lactation Room Guidelines.
- Provide access to the roof and any roof mounted equipment from the inside of the building via stairs. Ladders mounted to the building exterior are strictly prohibited.
- At a minimum, provide one 8'x12' custodial closet per floor. Each custodial closet shall have a floor mounted, low curb mop basin with waterproof backsplash extending to the faucet height, wall hung vitreous china lavatory and a handheld emergency eye wash that can also serve as an emergency drench hose. Mop basin faucets shall be mounted at 4' above finished floor, be threaded for a standard ¾" garden hose, and have a 3' hose extension installed.
- Provide a custodial breakroom adjacent to custodial offices, storage, or service corridors for efficient staff flow.
- Provide custodial lockers within custodial breakrooms.
- In addition to the above custodial closet, provide a minimum 8' x 12' recycling/storage room near the loading dock or service entrance.
- Attic spaces containing mechanical, electrical and/or plumbing equipment shall have access via stairs and shall be considered an equipment room. All applicable codes and relevant sections of this document shall be enforced regarding these spaces.
- All wet and chemical laboratories shall conform to the requirements in Section 428 of the IBC as adopted by Chapter 5 of the OSE Manual unless technically infeasible or the building elements requiring alterations to comply with this section are to remain unaltered and not included within the scope of work in any way. The designer shall make the Project Manager aware of any laboratory not complying with this section as early as possible in the design phase.

4.2.6 PARKING GARAGES

Siting

- Parking garages should be sited within the existing terrain to hide the decks as much as possible.
- Landscaped areas around a parking garage should be strategically placed to screen the garage from other adjacent buildings and to provide an enjoyable pedestrian experience around the garage.

Layout

- Parking garages should generally have ramps separate from parking areas, to allow parking areas to be flat.
- Entries and exits to garages should be away from busy roads and include a safe pedestrian entry and exit.

4.3 CIRCULATION

4.3.1 CIRCULATION CHARACTER

All planning and design for facilities near the periphery of campus should consider the impact of the project on the campus gateways. The campus road system should provide for the safe and efficient movement and parking of automobiles, and, at the same time, promote the pedestrian nature of the place.

Pedestrians' needs are of the highest priority and take precedence over the demands of the motorist. All planning, design, and development should support this priority while meeting the basic needs of emergency service, maintenance services, disabled individuals and mass transit.

4.3.2 PEDESTRIAN CIRCULATION

Introduction

The University pedestrian system is a series of nodes of outdoor pedestrian activity and pathways which link the various facilities and open spaces into a cohesive fabric for the campus community. This section provides guidelines to aid in the creation of a coherent, convenient and safe pedestrian campus.

Nodes & Gathering Places

- Nodes are areas of focused pedestrian activity located at the junction of paths where surrounds uses or inherent amenities create gathering spaces.
- Nodes addressed in this section are paved areas classified as quadrangles, plazas and courtyards.

Quadrangles

- Quadrangles are large open spaces, individual in nature and surrounded by buildings.
- Traversed by walks and paving, these spaces connect buildings and link quadrangles with paths that lead to other areas of campus
- Their features, such as paving, plantings and furnishings, reflect the character of the surrounding buildings and the pedestrian activities they support.
- Examples include the Ag Quad, the CVM Quad, the Fraternity Quad and Bryan Mall High Rises.

Plazas

- Plazas are paved areas designed for accommodate a concentration of people who gather at intersections along the campus path system.
- Plazas may be found at building entrances or they may be specially designed to offer particular amenities.
- The small sitting area located just north of Rhodes Engineering is an example of a plaza at the intersection of two walks where people gather in passing.
- The plaza north of Cooper Library provides a sitting area next to the reflection pond and is designed especially for people to assemble and take advantage of this amenity.

Courtyards

- Courtyards are smaller exterior spaces enclosed on three or four sides by building walls.
- They usually provide seating and plantings designed to be viewed from indoors or from above.
- These spaces are generally created to allow light into buildings and are often entered via adjacent buildings.
- The courtyard at Lee Hall provides an excellent example of this kind of node on campus.

Size and Scale

- In designing a node, the size shall be based on existing and anticipated usage of the area with consideration given to the nature of the surrounding architecture.
- Factors to consider include: circulation requirements such as pedestrian and bicycle traffic volumes, access for emergency vehicles, fire trucks and service vehicles and functional requirements such as space for gathering, sitting and performing the display of art, etc.
- The design and placement of paving, furnishings and plantings shall be scaled to fit the character of the node. Narrow walks, small sitting areas and detailed plantings are appropriate for courtyards, while these may not be suitable for larger plazas expected to accommodate many more people.

Seating and furnishings

- Choice of site furnishings, such as benches, trash receptacles and signage shall be incorporated in all nodes based upon activities the node supports.
- Adequate seating for resting, waiting, meeting, sunning and many other activities is essential to the success of a pedestrian campus and shall be provided at all pedestrian nodes.
- The use of seat walls to increase sitting opportunities is encouraged if the wall also has other functional uses, like retention or container for plantings.
- Standards for Site Furnishings are located in section **4.4.8 Site Furnishings.**



FIGURE 22. Gathering space outside of a building entrance in the campus core.



FIGURE 23. Plaza space outside of Sikes Hall in the campus core.

Pedestrian Orientation

- An environment that provides clear direction and orientation to pedestrians is important to the perception of the campus as cohesive whole.
- Designs for nodes and pathways shall include consistent and adequate signage to provide clear direction to pedestrians.
- Landmarks help new students and visitors gain a quick understanding of where they are and how to get where they are going.

Micro-Climate

- Pedestrian nodes that incorporate seating areas shall be designed with consideration given to micro-climate conditions that affect the comfort of users.
- Large deciduous trees should be planted so that they provide shade for seating areas in summer and sun to those same areas in winter. Where existing or proposed seating affects sun penetration, orient nodes for southern exposure.
- Winter suntraps can be created by proper solar orientation and planting, but to be successful, cold winter winds and drafts must be minimized.
- Design quadrangles and plazas and place buildings and plantings in directions that will minimize these winter winds and capture the benefit of summer breezes.
- Planting trees next to seating areas is useful and important in creating a sense of enclosure and protection.
- Locate seating areas so that users will have a choice of sun or shade.
- Micro-climate and vegetation are further addressed in section **4.4.3 Planting.**

Transition from Path to Major Plaza

- For a major plaza to be successful it must be on a path carrying many people and be attractive to those who use it.
- A major plaza shall be connected with the pathway it serves in an inviting way, and the physical and visual transition from path to plaza shall be gradual and harmonious.
- To provide a strong visual connection and enhance security, view lines between the path and the plaza shall be kept open and the grade change between the two shall be minimized.
- Shrubs and planters should not screen the plaza from adjacent walks nor should there be more than 5 to 7 steps from path to plaza.

Material

- The materials used in the construction of nodes shall be compatible with the surroundings. Generally, nodes shall repeat the materials used in adjacent walks and buildings.
- Small nodes such as sitting areas near walks, intersections and courtyards shall be paved with standard campus paving brick laid on sand cement with borders laid in mortar. Further information is located in **Section 4.4.4 Paving**.
- Larger areas, like quadrangles and nodes, also shall be paved with standard campus paving brick laid on sand cement with borders laid in mortar (if budget permits). Otherwise, such areas shall be paved in concrete with brick edges, dividers and designed with other details to be visually consistent with the rest of campus.
- Retaining walls, seat walls and other vertical surfaces shall be either brick or concrete and in relation to surrounding architectural treatments.

Planting at Nodes

- Planting nodes establish identity and facilities use and enjoyment by pedestrians.
- Plantings define edges, create enclosure, control micro-climates, direct viewing to specific areas and screen undesirable views.
- Plants for campus nodes shall consider the functional and aesthetic roles that vegetation play in node design.
- Guidelines for the use of plantings on campus are located in **Section 4.4.3 Planting** and the Campus Tree List is located in the Appendix.

Lighting at Nodes

Proper lighting of nodes is essential to nighttime use and to pedestrian safety.

- Guidelines for lighting in pedestrian areas on campus are located in section **4.4.9 Site Lighting.**



FIGURE 24. Nodes repeat materials used in adjacent walks and buildings.

Paths

- Pedestrian paths are the routes traveled by pedestrian that link nodes of activity. For the purpose of these guidelines, the only paths that this section addressed for paved walkways.

Location of Paths

- Walks should be routed in order to form logical connections between nodes of pedestrian activity and are vital to pedestrians' perception of a cohesive campus.
- Walk layouts shall be analyzed to determine the most efficient and practical routing of paths with the goal of minimizing expressive features such as ramps, stairs, and retaining walls.
- Walk design shall accommodate existing and proposed buildings, site features, utilities, trees and desired routes of pedestrians, as well as provide access for emergency vehicles.
- The location of walks shall be determined by existing conditions and projects for future needs based on continuing studies by the University Planning and Design Office.
- The location and construction of planned improvements shall be in compliance with the Americans with Disabilities Act and Section 504 and the Rehabilitation Act of 1973.

Path Widths

- All sidewalks and concrete walking paths also meet all applicable requirements set forth in the current edition of ICC A117.1.
- The minimum width of Campus Walks shall be:
  - Cross-campus pedestrian route: 10'-0" minimum, depending on context. See the **Mobility Framework diagram in Section 2.1.4** for location of route.
  - General Walkways: All sidewalks and concrete walking paths shall be at least 5 feet in width.
  - Primary building access walkways: 8'-0"
  - Building services access walkways: 4'-0"
- Attention shall be given to allow additional walk widths at the entrance to buildings, at vehicular drop-off areas and at other places where pedestrians congregate.
- The proper width of a walk shall be determined using the following formula based on pedestrian volumes during the peak period of sidewalk use:
  - (P/I divided by 10) + X = Width of walk
    - P = number of pedestrians anticipated to use the walk during the peak period
    - I = duration of peak period in minutes
    - 10 = constant factor representing number of pedestrians per foot of width per minute during the peak period.
    - X = additional width of walk due to obstructions or proximity to buildings or roadways
- If one or more of the following conditions exist, then width shall be added to the walk as follows:
    - 1'-6" added to the side of walk if the path abuts a building, retaining or planter wall or is adjacent to non-recessed benches, message boards, streets, curbs, or edges where people are likely to stand.
    - 2' added to the path where there are traffic flow impediments such as parking meters, light standards, fire hydrants or other obstacles in the walkway.
  - Example: To determine the proper width of a walk that will accommodate 1500 pedestrian in 12 minutes, located with a retaining wall on one side and a fire hydrants on the other side, use the Width of Walk formula as follows:
    - (P/I divided by 10)+X = Width of Walk
    - (1500/12 divided by 10) + 1'6" + 2' = Width of Walk
    - (12.5) + 1'6" + 2' = Width of Walk
    - 12'6" + 1'6" + 2' = 16'
    - The proper width is 16'

Running Paths

- Running paths may be shared with either bicycle paths or pedestrian paths as long as paths are of adequate width to accommodate both.
- The design criteria for running paths are the same as bicycle paths in terms of sight lines and intersections. The materials, however, should be more forgiving, using asphalt instead of concrete wherever possible, or even softer surfaces depending on conditions.
- Dedicated running paths should have a minimum width of four feet (4'-0") in areas where wider paths are not possible. All other areas should have a minimum width of six feet (6'-0").

Walkway Intersections

- The intersections of walks shall include paving that allows pedestrians to conveniently change from one walk to another without crossing lawns or planted areas.
- At intersections that incorporate seating areas or other amenities, the area inscribed by the minimum radius shall be clear of furnishings or other obstacles.

Roadway Intersections

- Pedestrian walkways cross different types of roads that serve campus. Road type descriptions are in section **3.3.2 Roadway Standards.**
- Design of pedestrian crossings of roadways shall consider vehicular signals, routing of bicycles, signage, accessibility for the Accessible, visibility and crossing designations on pavement. Site furnishings, such as bollards, can provide further definition.



FIGURE 25. Paths with adequate width to accommodate foot traffic during busiest times on campus.

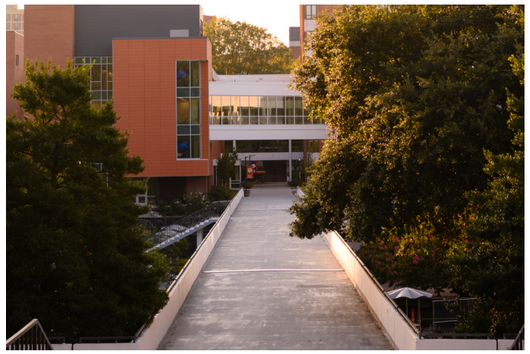


FIGURE 26. Paths aligned with building entries provide clarity to pedestrians.

Guidelines

- Provide “barrier-free” access.
- Walks should be aligned with crossings. If necessary, realign existing walks to crossings
- Utilize curb ramps where curbs exist.
- At all pedestrian crossings, provide signs to alert motorists and bicyclists of the crossing.
- Maintain unobstructed visibility between pedestrians and motorists for a distance appropriate with the speeds of the vehicles.

Crossings of Arterial and Collector Roads at Road Intersections

- Paint white lines across the road to designate crosswalks. Crosswalks should extend all the way across the road and be as wide as the path they serve. They should be marked by painted 8” side transverse lines on each edge.
- Where the intersection has vehicular traffic control signals, then two transverse lines are sufficient. Where there is no vehicle signalization, paint 8” or 12” wide perpendicular lines 30”-36” apart between the transverse lines.
- Deviations from guidelines stated above may be warranted to improve safety on a case by case basis.

Crossing of Arterial and Collector Roads Not at Road Intersections

- Apply the eight guidelines listed in the previous two bullet points.
- Incorporate type B-1 collards 18” from the edge of the roadway and 6’ apart to designate the crossing.

Crossings of Distributor Roads

- Use walk paving material, either brick or brick edges and dividers in a concrete field, across the roadway to delineate the crossing between pedestrians, bicyclists and motorists.
- Incorporate type B-1 bollards 12” from the edge of the roadway and 6’ apart to designate the crossing.
- Utilize trees an low shrubs or groundcover on both sides of crossing to delineate crossing.

Grading & Drainage of Walkways

- The layout of grading of campus walks shall strive to avoid steep walks, steps and ramps.

Campus Walks

The following gradients shall be considered in the design of campus walks

- 0-2% for ADA exterior accessible routes
- 0-3% for generally accessible routes
- 3-5% acceptable gradient. Sustained grade of 3-5% along walks designated as Accessible routes should incorporate level areas, 5’ minimum, approximately every 100 feet to allow points to stop and rest
- 5-8% Steep gradient. Walks within this range should be used in moderation. Walks within this range are considered ramps on Accessible routes and shall meet all requirements for Accessible accessibility. The maximum ramp gradient for Accessible accessibility is 8.33% (1:12)
- 8-14% Extremely steep gradient. Walks within this range shall be used only for short distances of less than 20’ and shall have textured surfaces to prevent users from slipping. To avoid 8-14% walk slopes, use steps where possible.
- 14% gradients steeper[er than 14% shall be traversed with a combination of steps and walks having acceptable gradients. Walks steeper than 14% shall be avoided wherever possible.
- The grading of walks and areas adjacent to walks shall strive to direct stormwater away from walks. Crowned walks are preferred to cross-sloped walks in areas of level ground. Cross-sloped walks shall be used only where a small area requires drainage.
    - Sidewalks shall also have a maximum of 2% cross-slope, and a maximum of 5% running slope everywhere technically feasible. Notify Building Official when these slopes are exceeded for any reason.

Structural Design Considerations

- Structural deterioration of walks is most often caused by one of the following conditions:
    - Improper construction and / or materials
    - Moisture beneath walks and poor drainage conditions
    - Overloading by heavy vehicles
    - Upheaval by tree roots
    - Freezing and / or thawing conditions
- Every effort shall be made in the design of walks to address the common problems listed above. Before designing new walks or improvements to existing walks, knowledge of existing and future pedestrian and vehicular traffic requirements, soil conditions, and the presence of tree roots, the location of utilities and other factors affecting walk design shall be considered.

Expansion of Existing walks

- Existing walks that are too narrow for anticipated or actual pedestrian traffic volumes shall be widened to accommodate traffic demands, where conditions permit. Widening shall be accomplished by adding brick paving to the edge of walks. The additional width of brick to any side of an existing walk shall not exceed 1/3 of the width of the existing walk.
- Where brick is added to existing walks, proper compaction shall be used so that differential settling between the existing walk and new brick does not occur.
- The demolition and repaving of existing walks shall be required when conditions of grade, subsoil, drainage or other factors do not allow expansion by adding brick, or where the amount of widening required to handle pedestrian traffic causes the brick addition to exceed 1/3 of the existing walk.

Ramps, Steps, Guardrails & Handrails

Detailed design elements found in pedestrian nodes and paths form the basis for unified design treatment of campus pedestrian systems.

1. Steps

- Steps shall be at least as wide as the width of the walks they serve.
- Landings shall be at least as wide as incoming steps.
- The desirable length of a landing is based on the average stride of pedestrians and shall be calculated as follows:
    - Length of landing = T + (N x 27”)
        - T = Step tread length
        - N = Number of paces (minimum of 3 where possible, or an odd number)
        - 27” = average stride of pedestrians
- The maximum rise between landings shall by 7” vertical. Where ramps are incorporated with steps, consider the coordination of step landings and ramp landings.
- The preferred design for steps in the outdoor environment incorporates a lower riser in relation to the tread when compared to indoor steps. This is due to the longer stride that people take when walking outdoors. Exterior steps should incorporate a relationship between the riser an tread in which twice the height of the riser plus the depth of the tread falls somewhere between 26” and 29”. A 5.5” riser with a 17” tread is recommended where steps ascend planted banks. This relationship provides a 3:1 embankment that is desirable for maintenance. All steps in a series should have a uniform tread width and riser height.
    - Exterior treads are to incorporate a pitched slope of 1/4” per foot to shed water away.
    - Exterior treads are to incorporate a nonslip strip along top leading edge.
- The radius of a curvature at the leading edge of the tread shall be no greater than ½”. Risers shall be sloped or the underside of the nosing shall have an angle not less than 60 degrees from the horizontal. The undersides of nosing shall not be abrupt. Nosing shall project no more than ¾” from the face of the riser.



FIGURE 27. Steps and amphitheater-style seating accommodate grade chages on site.

- All exterior stairs shall have handrails on both sides that comply with the paragraph on handrails below. Adherence to all of these sections provide a cohesive treatment throughout the University campus. Further specifications are located in Section 4.4.8 Site Furnishings.
- Exterior steps shall have a lowest average level of light of 0.6 foot candles. Light fixtures shall cast light down towards the riser so that treads will not be in shadow. More information is located in section **4.4.9 Site Lighting.**
- The materials for exterior steps shall match the materials of adjacent pedestrian paving.

2. Outdoor Ramps

- Guidelines for ramps shall be in compliance with the Americans with Disabilities Act and Section 504 and the Rehabilitation Act of 1973.
- Any part of the pedestrian walk with a slope greater than 1:20 (gradient of 5%) shall be considered a ramp.
- There are two (2) major classifications of exterior ramps on campus: curb ramps and walkway ramps.

Curb Ramps

- The placement of curb ramps shall depend on the location of drainage structures, fire hydrants, parking spaces, walkways and other site features.
- Curb ramps shall be located in such a way as to prevent their obstruction by parked vehicles.
- Slopes of curb ramps shall comply with the slopes given in the following ramp section.
- The minimum width of a curb ramps shall be 48"; exclusive of flared sides.
- Curb ramps at marked pedestrian crossings shall be wholly contained within the markings, excluding any flared sides.
- If a curb ramp is located where pedestrians must walk across the ramp, then it shall have flared sides; the maximum slope of the flare shall be 1:10.
- The surface of the curb ramps shall be truncated domes.
- Curb ramps with returned curbs may be used where pedestrians would not normally walk across the ramp.
- Built-up curb ramps shall be located so as not to project into vehicular and bicycle traffic lanes.
- Any raised islands in crossings shall be cut through level with the street or have curb ramps at both sides and a level area at least 48" long of the island that is intersected by the crossings.

Walk Ramps

- The maximum slope of a ramps in a new construction shall be 1:12. The maximum riser for any ramp shall be 30".
- Curb ramps and ramps are to be constructed in conjunction with existing facilities and shall have slopes and risers ash shown below, if space limitations prohibit the use of the 1:12 or less slope.
- The minimum clearance width of a curb ramp shall be 72".
- Ramps shall have level landing at the bottom and top of each run.
- Landings shall have the following features:
  - Landings shall at the minimum be as wide as the widest ramp run leading to it.
  - Landing lengths shall be a minimum of 60" clear at the top and 72" at the bottom of the ramp.
  - If ramps change direction at landings, the minimum landing size shall be 72" x 60".
- If half a ramp's run has a riser greater than 6" or a horizontal projection greater than 72", then it shall have handrails on both sides.
- Handrails are not required on curb ramps. Handrails shall comply with the guidelines in the following section on Handrails, and in section **4.4.8 Site Furnishings** and in the Standards for Commissioned Architects & Engineers.

Slope	Max Rise	Max Run
1:12	30"	30'
1:16	30"	40'

Slope	Max Rise	Max Run
1:12	30"	30'
1:16	30"	40'

3. Handrails

- Handrails must be placed on both sides of all steps and all ramps having a rise greater than 6" or a horizontal projection greater than 72".
- Handrails are placed to help people negotiate steps or ramps and differ in function from guardrails where the primary purpose is to protect people from abrupt drops.

Handrails at Steps

- Handrails must be continuous along both sides of stairs. Inside handrails on switchback stairs should be continuous.
- If handrails are not continuous, they shall extend at least 12" beyond the top riser and be at least 12" plus the width of one tread beyond the bottom riser.
- At the top, the extension shall be parallel with the ground surface. At the bottom, the handrail shall continue to slope for a distance of the width of one tread from the bottom riser; the remainder of the extension shall be horizontal.

Handrails at Ramps

- Handrails must be provided along both sides of ramp segments. The inside handrail on switchback ramps shall always be continuous.
- If handrails are not continuous, they must extend at least 12" beyond the top and bottom of the ramp segment and shall be parallel with the ground surface.

Handrail Protrusions

- Handrails shall not protrude into walks or passageways more than 4'.
- Stairs and ramps shall be set back sufficiently from walks and passageways to prevent handrails from becoming obstacles to passing pedestrians.

4. Guardrails

- Pedestrian Guardrails
  - Pedestrian guardrails shall be used where code governs. Typically guardrails are required if there is a significant drop next to a walk, plaza or other pedestrian area constitutes a safety hazard.

4.3.3 VEHICULAR CIRCULATION

Introduction

The University's vehicular system shall accommodate traffic needs and ensure pedestrian and bicyclist safety and maintain the aesthetic qualities of campus. The Planning Standards chapter of this document designates a hierarchy of roads, based on their scale, speed and character appropriate to their function, and are classified as Arterial, Collector and Distributor roads. See section **3.3.2 Roadway Planning Standards.**

Landscaping

US Highway 93

- Care and preservation should be given to the Historic Campus Entry Corridor along Highway 93. This includes the preservation of roadside and planted medians.

US Highway 76

- Landscaping shall consist of an informal naturalistic arrangement of large native, deciduous and evergreen trees and masses of large shrubs.
- To create a sense of arrival, the plantings at the southern end of the campus shall be brought close to the road and open up just north of the entry point.
- Flowering trees, median plantings and open space corridors shall be used to supplement this effect.

Perimeter Road and Newman Road

- Landscaping shall consist of an informal naturalistic arrangement of large native, deciduous and evergreen trees and under plantings of small flowering trees.
- To create an aesthetically pleasing experience, the median strips at the intersection with US Highway 76 should be planted with appropriate landscaping.
- For maintenance purposes, use low groundcover shrubs in lieu of grass.

Collector Roads

- Landscaping shall consist of informal groupings of deciduous and evergreen trees, and under planted with flowering trees that can be brought up to within 15'; of the roadside edge.
- Planting on these roads can also double as screening from parking areas but designed so as not to create any safety issues.
- A streetscape effect of uniformity and identity can be achieved by planting similar trees planted in sequence with a common distance "on center".

Distributor Roads

- Landscaping shall consist of informal groupings of deciduous and evergreen trees and under plantings of small flowering trees.
- At intersections with collector roads, situtate trees at an angle so that their limbs will ultimately overhang the roadway and form of enclosure.
- Where there is no sidewalk adjacent to the road, set back shrubs 5' from the edge of the road and set back trees a minimum of 10' from the edge of the road.
- Maintain a clear distance of 12' above the road to accommodate tree limbs.
- Planting location for trees and shrubs shall be coordinated with existing and future utility corridors and setbacks from roads adjusted accordingly.

Cul-de-Sac Specific

- Plant large deciduous trees at:
  - Islands formed by major pedestrian crossings.
  - Islands between parking spaces at a minimum of 1 tree for every 6 spaces.
  - Along walks associated with parking areas.
- Planting islands shall be enclosed with a minimum of 6" curb and trees shall be located no closer than 4' from the back of island curbs.
- Where space permits, plant the center of cul-de-sacs with groundcover, shrubs and trees, taking care not to obscure motorists sight lines across the cul-de-sac.

Utility Easements

- Easements shall be free of trees and shrubs for accommodation of future utility requirements in the area.
  - Arterial and Collector Roads
    - 20' from both sides of the pavement
  - All Distributor Roads
    - 15' from both sides of the pavement or bike lane
  - All Distributor / Cul-de-sac Roads
    - Setbacks shall accommodate future utility requirements for the area.

Visibility Triangles

- All visibility triangles are measured from the edge of the road.
  - Arterial Roads
    - All intersections: 45' visibility triangle
  - Collector Roads
    - Intersections with Arterial Roads: 45' visibility triangle
    - Intersections with Distributor Roads or Parking Lots: 25' visibility triangle
  - Distributor Roads
    - Intersections with Collector Roads: 25' visibility triangle
    - Intersections with Arterial Roads: 45' visibility triangle

Parking Access and Road Widths

- Arterial Roads
  - Road and parking access points shall be at least 500' apart.
- Collector Roads
  - Road and parking access points shall be at least 150' apart.
- Distributor Roads
  - Road widths shall be relatively narrow: 20' on roads with or without parallel parking and 24' on roads with 90 degree parking. This does not apply if a road is used for emergency access, in which case the minimum width shall be in accordance with the International Fire Code.
  - Road alignment shall be designed to accommodate vehicles with special requirements such as service vehicles or buses and shall incorporate turning radii and clearances in accordance with fire department regulations.

Fire Access / Emergency Access

- New construction shall be designed in accordance with the International Fire Code and ensure that access to the building and / or site meets fire safety standards.

Transit Stops

The University's transit system is an integral part of the overall campus transportation plan and the design of transit stops shall follow these guidelines:

- Transit stops shall be located at the intersections of the major walks and secondary roads.
- The campus pedestrian system shall be designed in coordination with anticipated transit stops to maintain safety and utility.
- All transit stops shall provide:
  - Ample space for pedestrians to gather with seating, trash receptacles, lighting, and shelter from inclement weather.
  - Directional signage indicating the location of the stop and its relationship with the transit system on campus.
  - Ample lighting for nighttime safety
  - Landscaping with shrubs and trees to blend the transit stop with its surroundings and provide a controlled micro-climate.
  - Safe routing for bicycles through the bus stop.

4.3.4 BICYCLE CIRCULATION

Introduction

The Clemson University Bikeway Design Guidelines provide specific recommendations for implementing a bikeway system to promote safety and develop a robust network of commuting and recreational pathways that connect the entire extended campus. It shall be designed as a series of bikeway facilities on campus and within the Clemson Experimental Forest to serve students, staff, faculty, alumni, visitors and community members. Refer to the Bikeway Design Guidelines for further information and specifications regarding bikeway facilities and for a detailed Campus Bikeways Map.

Shared Use Paths

- Shared use paths are bikeways, shared with pedestrians and prohibitive to vehicular traffic, which can be designed to provide recreational riding opportunities. They should be designed for shared use by bicycles and for shared use by pedestrians.
- Recommended guidelines for shared use paths include:
  - Minimum width: 10’
  - Minimum clearance to obstructions: 3’ lateral clearance, 8’ vertical clearance
  - Maximum design speed: 10 mph paved path, 15 mph unpaved path
  - Consideration should be given to providing adequate lighting, proper drainage, useful signage, choice of pavement material and type of vegetation.

Bike Paths

- Where dedicated bicycle paths are provided they should consider safety issues of design speed, sight lines stopping distances, curve radii, intersection design, surfacing, and protection from hazards.
- In general arterial roads should have a bike path that roughly parallels the road but does not share the right of way. All collector roads should have a dedicated bike lane within the right of way and bikes should share distributor roads with vehicular traffic.
- Path Dimensions
  - Bicycle paths and shared use paths should have a minimum width of eight feet (8’-0") or ten feet (10’-0") where shared with pedestrians
  - There should be a minimum of eight feet (8’-0") clear above the path, measured from the edge, and a 3’-0” lateral clearance to obstructions.
  - Where possible, paths should be widened slightly in a curve and super-elevated at a maximum rate of six inches (6") per foot. This is especially important for short-radius curves.
  - Consideration should be given to providing adequate lighting, proper drainage, useful signage, choice of pavement material and type of vegetation.

Shared Roadways

- Shared roadways are roads designated by signage for shared use by motor vehicles and cyclists. As a connection between bike lanes and shared use paths, they help to form a network of infrastructure for cyclists’ use and provide a link with bike parking and storage areas at designated points on campus.
- Refer to the Clemson University Bikeway Design Guidelines for further information and specifications regarding shared roadways and lane markings.

Bike Lanes

- Bike lanes are portions of roadways designated for the exclusive use of cyclists with striping, signage and pavement markings. Free of vehicular traffic, they are an important safety measure for cyclists and motorist and a designated place for cyclists to ride.
- Recommended guidelines for bike lanes include:
  - Preferred minimum width: 5’ plus 1’ gutter pan.
  - Allowable minimum width: 4’ plus 1’ gutter pan.
  - Widths may need to be adjusted if drain inlets and utility covers are present and effect or reduce width of lanes
- Refer to the Clemson University Bikeway Design Guidelines for further information and specifications regarding:
  - Bike lanes and vehicular turning lanes
  - Uphill bike lanes (also known as bicycle climbing lanes)
  - Bike lanes through major intersections
  - Bike boxes
  - Traffic control facilities and loop detectors
  - Bike lanes adjacent to parallel and diagonal parking



FIGURE 28. On-Street Bike Lane

Bike Parking & Storage

- Bicycle Parking Areas
  - Bicycle parking is a support facility that provides short term bicycle storage at designated areas such as academic buildings, student centers, libraries and athletic facilities. Short term parking is recommended when storing a bicycle for a short period of time, quick activities or errands. Bicycle parking is a critical support component to bikeways. Bicycle parking areas differ from bicycle storage areas in that storage areas are used for long term parking and storage of bicycles.
- Location
  - Bike parking areas will vary according to the individual situation but shall be conveniently located within 50' of the destination they serve.
  - Where possible, shelter should be provided over bike racks to protect bicycles from exposure to the elements.
- Layout
  - The following dimensions shall be used in the design of bicycle parking areas:
    - Minimum space: 3'x5'
    - Distance from curb: 24"-30"
    - Maneuvering space where rack parallel and adjacent to a walk: 4'
    - Maneuvering space where rack is not adjacent to a walk: 6'
    - Minimum distance from crosswalk / intersection: 5'
    - Minimum distance from street furniture: 3'
    - Minimum space requirement: 1 space per 10 students
  - Bike Parking shall be integrated:
    - Aesthetically with adjacent pedestrian walks, plantings and lighting.
    - With drainage and grading of surrounding areas.
- Bike Racks
  - See section **4.4.8 Site Furnishings** for information about Bike Rack selection.
- Security
  - Bicycle parking areas shall provide security to the cyclists and their bicycles with ample use of lighting from Type C lighting fixtures located to provide a minimum of 1.0 foot-candle of illumination. Refer to section **4.4.9 Site Lighting** for lighting specifications.
  - Bike racks should be located in visible areas, close to buildings to encourage bicycling as a viable travel option and outside of landscape screening areas to minimize theft or vandalism.
- Bicycle Storage Areas
  - Long term bicycle storage areas are designated areas at dormitories and buildings and other campus locations for the campus community.
  - Location
    - Bike storage area locations will vary depending upon the configuration of the building and available space.
    - In some instances, a central storage area may serve more than building.
    - Generally, the bike storage area shall be convenient for the student and afford ready access to a bikeway.
    - Where possible, shelter should be provided over bike racks to protect bicycles from exposure to the elements, but only where Fire Code allows.
    - Bike storage areas for cyclist commuters shall be conveniently located hear bikeways / commuting routes and within close proximity of campus buildings.
  - Layout
    - The layout of bicycle storage facilities shall:
    - Provide easy access to bicycles
    - Minimize damage to bicycles due to overcrowding.
    - Accommodate future expansion needs.
    - Be integrated aesthetically with surrounding architectural elements.
    - Where possible, include covered bicycle racks, bicycle storage rooms and lockers.
    - Minimum space requirement:
    - The greater of 1 space per 10 students or 1 space per 10 employees or 1 space per 20,000 square feet of adjacent buildings.

Bikeway Signage

- Refer to the Clemson University Bikeway Design Guidelines for more information on Bikeway Signage requirements.

References

- The bikeway design guidelines recommendations in this document were developed by using national specifications and are in accordance with American Association of State Highway and Transportation Officials (AASHTO), the Manual on Uniform Traffic Control Design (MUTCD) and other state and national standard publications.
- As innovations in bikeway facility design and standards are continually being developed, other resources should be consulted for more detailed information on recommended designs and treatments.
- For further reference, please refer to the most current publications of the following resources:
  - Clemson University Bikeway Design Guidelines
  - Clemson University Sign Guidelines
  - South Carolina Department of Transportation, Engineering Directive Memorandum 22
  - 1999 AASHTO Guide for the Development of Bicycle Facilities
  - 2009 Manual on Uniform Traffic Control Devices
  - National Association of City Transportation Officials Cities for Cycling Urban Bikeway Design Guide
  - FHWA Designing Sidewalks and Trails for Access Part II or II: Best Practices Design Guide
  - 2004 Characteristic of Emerging Road and Trail Users and Their Safety
  - APBP Bicycle Parking Guidelines, 2nd Edition (2010)
  - City of Greenville Bicycle Master Plan Design Guidelines



FIGURE 29. Bike parking located adjacent to pathways

4.4 LANDSCAPE

4.4.1 INTRODUCTION

Planting are one of the most significant elements of the Clemson University campus. In conjunction with buildings, properly designed and managed plantings serves to establish a campus landscape character, creates and ecological sustainable landscape, helps reinforce open space and provides a comfortable, agreeable environment that is enjoyed by students, faculty, staff and alumni. Trees and plants play an important role in the University's sense of place, identity, and permanence; and help maintain continuity on the campus, by tying old and new sections with varying architectural styles into a cohesive whole. Future additions to the campus should reinforce and enhance these principles and an environmentally sustainable, economical and low maintenance way.

4.4.2 LANDSCAPE CHARACTER

The campus landscape character shall be sympathetic with the natural aspects of the rural piedmont setting of the University, have an orderliness that gives the campus a separate identity within it surroundings, and embrace environmental sustainability. The dedication of open space as required in the Clemson University Long-Range Framework Plan, will to a great extent, help create this character. This includes the retention and protection of parks, historical and environmentally sensitive areas, along with the enhancement of open spaces such as the North-South spine that connects the campus core with facilities on Lake Hartwell.

The expansion of University facilities to accommodate new academic and support activities and planned changes in vehicular, pedestrian and bicycle systems, shall align the new system of dedicated open spaces with the University's goal to be a model of environmental sustainability. Further, the incorporation of new plantings shall reinforce the natural setting of the campus while meeting architectural, engineering, climate control, sustainability, safety and aesthetic guidelines.

4.4.3 PLANTING

Guidelines for New Plantings

- American Standards for Nursery Stock (ANSI Z60.1) are to be followed.
- Trees shall be predominately large, deciduous native varieties used in informal groupings rather than rows. Avoid new plantings within the area 1.5 times the canopy of existing trees that are to be preserved and protected.
- An exception to this is allowed where trees are used to purposely form "arcades" in which the rhythm of the row is a vital component.
- A simplistic, unifying approach to planting design shall be used rather than "fussy" design, which co-mingles several species of plants in a small area.
- Size and texture of plantings shall relate to the scale they serve. In intimate areas such as courtyards, small gathering areas, and building entrances, the use of small plantings, fine textures and accent plants is appropriate.
- Foundation planting should not be "spotty" and individual shrubs along building walls should be removed. If massing of shrubs is not appropriate, grass or ground cover shall be brought up to building walls. To reduce maintenance, a moving strip shall be installed where the grass meets the wall.
- Planting plans shall be approved by the University Planning and Design Office, the University Landscape Architect and the Director of Landscape Services upon completion of each phase of services prior to commencing the next phase.
- When evaluating landscape design for any site, tree canopy preservation, replacement and management is to be considered. Reference the Tree Canopy Assessment to evaluate sites for the best approach to tree canopy protection and re-establishment.

Planting Types

Architectural Plantings

- Plants are selected for their qualities of form, color, texture and size to define an outdoor floor, ceiling or any combination of those elements. Used in combination, the selected plants give definition to outside spaces, just as floors, walls and ceilings define indoor spaces. The visual variety of plants and their seasonal changes make them a dynamic tool in architectural and space enhancement. A complete knowledge of the aesthetic and horticultural characteristics of plants, as well as analysis of the uses of spaces, is essential to good design.

Engineering Plantings

- Plants are selected for their qualities of root, bark, leaf and other physical characteristics to mitigate or solve environmental problems. These problems include erosion, sound and air pollution, traffic control, glare and reflection. A plant's aesthetic function, in this use, is secondary to its physical properties. Plants have proven to be extremely effective in engineering capabilities, and in many cases prove to be cost effective.

Climatological Plantings

- Plants can be selected to achieve a more comfortable outside environment by influencing air movement, humidity and air temperature.

Sustainability-Focused Plantings

- Plants can be used for effective wind and water erosion control. The selective placement of plantings and light-absorbing qualities of leaves are effective in controlling temperature inside of buildings.

Aesthetic Plantings

- Plant materials have functional as well as aesthetic characteristics. To use plants to their best advantage, a thorough knowledge of these characteristics, which include form, texture, color, fragrance and seasonal interest, is required.



FIGURE 30. Plantings accentuate space between buildings as well as adjacent architecture



FIGURE 31. Plantings can accentuate key views on campus



FIGURE 32. Preservation of the tree canopy is critical

Planting Uses

Architectural Use and Function

- Shrubs of various heights establish divisions of space and create enclosure.
- Plant materials can be used to break up larger spaces into smaller areas in relation to a particular building or group of buildings.
- Varying heights and types of plants used as screening add interest and function.
- Plants materials can direct views to landmarks that orient the viewer or to focal points that add to the enjoyment of the viewer.

Engineering Techniques

- Plants used for noise abatement, are most effective if:
  - Trees and shrubs are used in combination, since shrubs are not high enough nor are trees branched low enough to the ground.
  - When used in borders, vegetation is planted lower toward the noise source and higher toward the hearer, thus directing unwanted noise upward away from the hearer.
  - In narrow planting beds a greater proportion of evergreens are used than would be planted in wider beds.
  - When screening highway noise, plant width should be from 25’ to 35’.
- Several planting design techniques can be incorporated to reinforce safety and control traffic. Plants can be used to provide physical separation between pedestrian ways, bikeways and cars, and to divert pedestrian movement towards safer, more gentle slopes and away from steep, slippery slopes, retaining walls, drainage area, utilities, etc.
- Plants should be placed to support both passive and active site security. Security camera and area lighting placement is to coordinate with tree and shrub placement.

Climate Control

- Plants can be used to control air movement, by blocking prevailing harsh winter winds or channeling cool summer breezes.
- Rain and humidity can be controlled with overhead canopies. Up to 40% of rainfall may be intercepted by the foliage of a dense evergreen overhead canopy, mitigating inclement weather on walkways. Humidity levels will increase with the density of the canopy, therefore canopies should have open space to allow air circulation to reduce humidity levels.

Micro-climate

- Plants used as windbreaks for wind erosion control break up damaging wind in proportion to the height of the plants. The area protected by a plant windbreak is twice the height of the windbreak upwind, and 18 times the height downward.
- Four (4) parts of plants which control wind erosion are:
  - Dense leaves or needles which create an effective barrier to air movement.
  - Multiple stems and dense bark that decrease wind velocity as it passes.
  - Dense branching that controls and slows wind close to the ground.
  - Fibrous surface roots that effectively hold surface soil in place.
- Plants can be used for water erosion control in at least three (3) ways:
  - Leaves and branches form canopies interrupting rainfall and thus reducing splash erosion.
  - Roots form fibrous masses within the soil and hold it in place.
  - Leaves and other dead plant particles on the soil surface increase the organic material in the soil, aerating it and increasing its water absorption.
- The light-absorbing qualities of leaves reduce direct and reflected light away from cooling hard, reflective surfaces in direct proportion to the spacing and density of the plant material.

Maintenance

- During selection consider horticultural requirements that will not create excessive maintenance costs.
- Shape lawn edges to conform to University lawn care equipment limitations to accommodate the turning of radii of the equipment and eliminate as much hand work as possible. Avoid lawns in small areas that require hand mowing and high maintenance materials in interior courts.
- Use shade tolerant groundcovers beneath dense tree foliage and in areas shaded by buildings where it is difficult to sustain grass.
- Select plant materials that accommodate design requirements in their natural form and do not need frequent clipping or pruning to satisfy the design concept. The natural form of plants is generally preferred over clipped forms. An exception is at Fort Hill, Tillman Hall and Hanover House where clipped forms are acceptable to retain the historical character of these areas.

Plant List

- The University approved plant list is located in the Appendix.
- Deviations from the approved list shall be submitted through University Facilities to the University Planning and Design Office for approval.

Historic District:

- At Fort Hill, Tillman Hall and Hanover House, the historical character of the landscape shall be maintained with existing plant species and clipped forms.
- Whenever possible, landscape character for Historic Properties is to accurately reflect the interpretive time period of that property. Plant material and ground treatments in the landscape are to be organized and designed to support the appropriate historic period whenever possible. It should not be assumed that the existing plant material correctly reflects the desired period of site interpretation.



FIGURE 33. A variety of plants provides intriguing spaces and seasonal interest

4.4.4 PAVING

Introduction

The University pedestrian system forms a network that extends throughout the campus. To create unity and cohesion on the campus, materials for walkways shall be limited to a simple palette of two materials, brick and concrete. One exception is recreational pathways for which asphalt is appropriate.

Paving specifications are located in the Standards for Commissioned Engeineers and Architects Division 32 - Exterior Improvements.

Paving Characteristics

Size and Scale

- The minimum width of campus walks shall be 6'. The vast majority of campus walks will be wider than 6' to accommodate pedestrian loads during class change.
- The design and placement of paving shall be scaled to fit the character of that area.
- Further guidelines are located in **sections 4.3 Circulation and 4.4 Landscape**, and specifications for paving are located in the Standards for Commissioned Architects & Engineers.

Walkway Materials

- For walkways preferred materials are as follows:
  - Concrete is the standard.
  - Brick is the preferred paving material.
  - Concrete accented with brick borders and dividers is the alternate choice.
- Small service walks and walkways connecting parking lots and other facilities on the periphery of the campus to the core of the campus inside of the secondary roads may be paved with concrete, deleting the brick border.
- Brick paving should be used in nodes, plazas, and courtyards.
- Concrete and brick should be used in the academic core; while concrete should be used for service walks.
- Where concrete and brick are used together, concrete shall be the dominant material and shall be accented with flat brick borders, dividers and trim, such as brick paving under benches.
- Concrete shall be broom finished with troweled edges, construction joints and control joints.

Historic District:

- Walkways in the Historic District should be brick walks where possible.
- Brick paving shall consist of brick pavers with flush swept joints laid on a soil cement base and edged with flat brick borders laid in beds of mortar.
- The brick field may be laid in herringbone, basket weave, running bond or other patterns. The choice will be predicated on nearby conditions, architectural treatments and the need to provide diversity within an area.
- Where walks are expected to carry maintenance vehicles, brick with flush swept joints shall be laid on a concrete base suitable to carry vehicle loads.
- Brick color, texture and size used for campus paving shall be consistent throughout the campus. The brick is a solid paver in the red-brown range.
- Paving systems and ground treatments in the landscape are to be organized and designed to support the appropriate Historic Period whenever possible. Applications requiring mobility and ADA accommodations should be designed to meet these requirements while respecting the historic character pf the place (for example: Cemetery Hill pea gravel pathways utilizing special binder technologies).

4.4.5 SITE WORK

Introduction

The Clemson University campus, situated on a series of ridges and valleys leading to the old Seneca River Basin, is particularly susceptible to soil erosion and the accompanying sediment buildup in the river basin, and thus presents some challenging siting and grading problems for new facilities. This section presents guidelines for the site work portion of campus improvements that involve the retention of trees and the control of soil erosion and sedimentation. These guidelines recommend ways of reducing maintenance costs while still preserving the quality of the landscape for which Clemson is well known.

Guidelines

- As a vital aesthetic and functional resource, trees are visual enhancements and contribute to a pleasant learning environment by moderating climate. From an engineering standpoint, they reduce erosion and protect water quality.
- In general, a 1:1 ratio of tree removal to replacement should take place on all projects.
- In order to protect trees from damage during construction, tree protection must be addressed prior to final site selection, as the presence of certain trees may preclude selection of certain sites. Guidelines can be found in the Campus Tree Protection Policy and are referenced further in this section. Additionally a consultation with the University Arborist should be considered.
- Before determining underground utility routes, thoroughly inventory the existing trees to determine the most appropriate utility path. When a utility must pass within the inside 2/3rds of a tree's drip line, extreme care should be taken to avoid damage to the roots.
- Avoid cutting or tilling more than 6" within the 2/3rds of a tree's drip line and use tree wells or retaining walls to avoid grade changes around those trees to be retained.
- During construction adhere to the Campus Tree Protection Policy for guidance, including requirements for barricading so as not to temporary fill roots.

Soil Erosion & Sediment Control

Principles

- Minimize Disturbed Area / Retain and Protect Natural Vegetation
  - Where grade change and removal of vegetation are necessary, keep the size of the area and duration of exposure to a minimum.
  - Critically erodible soil, steep slopes, stream banks and drainage ways should be identified and development planned for minimal disturbance to these vulnerable areas.
  - Plan the development phases so that only the areas which are actively being developed are exposed.
- Stabilize and Protect Disturbed Areas As Soon As Possible
  - Stabilize and protect areas where the vegetative cover has been removed or extensive grading has increased the potential for erosion with either vegetative or mechanical control methods.
  - When vegetative cover must be disturbed, stabilize and protect these areas with temporary or permanent measures as soon as possible.
  - Vegetative methods include: Planning of grasses or similar fibrous rooted vegetation to stabilize inadequate protected soil surfaces.
  - Mechanical control methods include: Building of structures such as dams, sediment basins, diversion swales, rip-rap replacement, paving, and/or compacting or roughening soil surfaces.
  - Use temporary measures, including annual grasses, mulches or netting, where disturbed areas will undergo modification during the process of construction.
  - Use permanent measures, including perennial grasses, shrubs, rip-rapped banks and retaining walls, when the stabilization measures will remain in use after construction is complete.

- Minimize Storm Water Velocity
  - Removal of existing vegetative cover will increase impermeable surface area and lead to both an increase in the volume and velocity of runoff.
  - Short slopes, low gradients, and preserving natural vegetative cover can keep storm velocities low.
  - Either temporary or permanent grade control structures can be used to reduce the velocity of flow in channels and streams. Check dams, weirs and drop spillways (made of a variety of materials) reduce channel grade and dissipate energy of flowing water.
- Divert Storm Water Runoff from Disturbed Areas
  - Divert runoff from slopes that are exposed during development by using diversion methods, such as dikes or ditches, to intercept runoff and direct it away from the slope face. Depending upon the soil conditions and the amount and velocity of runoff diverted, ditches can be bare channels or channels lined with a hard surface material.
- Sediment Within the Site Area
  - To prevent sediment from entering campus streams and waterways, all development projects shall utilize either temporary or permanent sediment control methods such as vegetative filters and sediment traps or basins.
  - Vegetative filters include sod placed around drain inlets to reduce sediment flow into storm drainage pipes.
  - Sediment traps are usually temporary and are removed or filled in after construction.
  - They include straw bales and sandbag check dams and constructed earth sediment traps at drain inlets.
  - Sediment basins consist of earthen dams, mechanical spillways and emergency spillways. Construction of sediment basins should be completed before clearing and grading begins and are generally located near the low point of the site. Their points of discharge must be stabilized. Sediment basins can often become part of the final development of an area, taking the form of a small pond or lake that enhances the campus.

Slope Design and Treatment

- Due to the rolling terrain of the campus, site development involves the creation of slopes to afford grade transition.
- Minimize and Balance slope gradients, which reduce the potential for increased storm water runoff velocities and incur high treatment, maintenance costs and program requirements; with topographic restrictions and design criteria which may demand steeper slopes.
- Erosion hazards, the length of the slope and the gradient should be kept at a minimum.

Design Criteria for all Slopes

- The top and bottom of turfed slopes should have an ample radius to avoid either “scalping” the grass or leaving it uneven.
- Grades should always slope away from buildings.
- Whenever possible, utility manholes should be placed at either the top or bottom of slopes. Their covers should be pitched to match the gradient (to a maximum of a 1 to 3 pitch) with the low edge coincident with the ladder rings. Use larger size covers if necessary.

Slight Slopes – 1 foot Vertical over 4 feet or More Horizontal (25%)

- Require no special landscape treatment.
- Pedestrian circulation should be simple without steps or walls unless absolutely necessary. Orient walks parallel with contours.
- Riding and gang movers may be used safely and efficiently.

Moderate Slopes – from 1 foot vertical to 4 to 3 foot horizontal (25%-33%)

- Riding movers reach their limits for safe, efficient moving as the equipment tends to slide and is troublesome to maneuver, especially when grass is wet.
- North facing slopes, because of lingering dew or subsurface seepage, can delay mowing schedules.
- Avoid planning single specimen trees and shrubs in grass on these slopes as it is difficult to mow around them.
- Plant trees in groups that self-mulch and do not require grass or in ground-cover beds that do not require mowing.
- In areas that do not have trees, use grass where slopes are accessible and groundcovers in areas where moving access is difficult.

Steep Slopes – from 1 foot vertical to 3 to 2 feet horizontal (33%-50%)

- The maximum steep slope for landscaping and not for safe and efficient grass mowing, including push mowers.
- In remote areas, demanding little or no maintenance, use meadow grass seeding that requires no mowing and allows native plants to succeed in these areas.
- In areas requiring maintenance, use low woody groundcovers that form a mass of roots and crowns that are effective for holding slopes.
- Trees and shrubs may be mixed with either the naturalizing grasses or with maintained groundcover.
- Use erosion controls such as jute net or straw mulch to hold soil until the plant roots are established.
- Avoid long, sustained steep slopes in favor of a combination of moderate and severe slopes. Using the steepest slopes for a short distance allows for a longer slope where more normal construction and maintenance can occur.

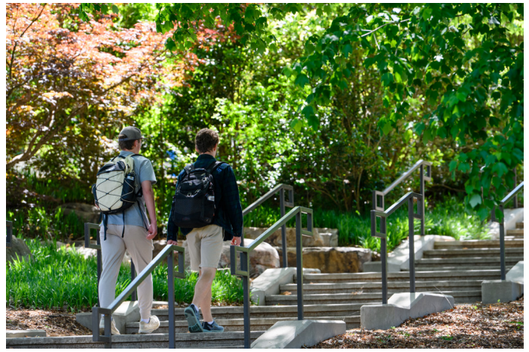


FIGURE 34. Slopes can be incorporated into sites using steps and other grade change design elements



FIGURE 35. Slopes should be seen as a design opportunity

Severe slopes – 1 foot vertical over less than 2 feet horizontal (50%) and steeper

- Severe slopes are best treated architecturally rather than with landscaping.
- Plants and ground covers are difficult to establish and require frequent and skilled maintenance to prevent erosion and unsightliness.
- Treatment with retaining walls for vertical retainment and rip-rap or pavement for sloped retainment is recommended.
- Grass mowing is dangerous and difficult except for lateral distances of 3 feet or less (push mowers only).
- Circulation solutions will require the use of steps, ramps, walls, drainage systems and extra lighting, all of which will require expensive construction and maintenance.
- If these slopes are proposed in any amount, consideration should be given to alternate solutions.

Environmentally Sensitive Streams

See **Planning Standards** section for key goals and requirements related to Environmentally Sensitive Streams. Also reference the Riparian Corridor Master Plan for additional information.

- Impounding
  - Streams may be impounded at intervals to create storm water run-off retention ponds with attention given to the integration of the ponds into their surroundings to create an aesthetically pleasing amenity to campus.
  - Before the decision is made to impound a stream section, studies of the stream water flow characteristics shall be completed, as some campus streams are seasonal and may not provide enough constant water flow to support a year-around pond.
  - Where areas are needed for temporary storm water retention and will not support a permanent pond, then their designs shall consider year around aesthetics so as to be visually pleasing throughout the seasons. Such temporary retention areas may incorporate features such as shallow grassed banks and grass bottoms that appear as lawns, yet serve to store stormwater on an occasional basis. These temporary retention areas that are subject to frequent flooding may utilize a stone bottom that is more tolerant than grass to flooding and associated with silt deposits.
  - Development of buildings, parking, or other substantial construction shall be setback from the top of valley slopes (or stream-beds where adjacent slopes are not significant) a minimum of 75’ and a vegetative buffer created using existing or added trees and grasses.
  - Walks and bridge crossings shall be constructed above the 100 year flood elevation.

Tree Protection & Replacement

- According to the Tree Canopy analysis completed as a part of the Long-Range Framework Plan, any trees removed during construction shall be replaced at a 1:1 ratio.
- Tree protection must be addressed prior to final site selection, in design, pre-construction planning and throughout the construction period.
- The procedures appended in the policy must be incorporated into all project plans and specifications regardless of scope, size or location of the project to ensure tree health and survivability.
- When construction or disturbance of a site on campus is envisioned, a complete site survey including the location of utilities, trees, future building sites and future utilities will be completed by the Campus Facilities survey group.
- After final selection of site, a tree survey shall be submitted by the Campus Arborist to the Project Manager listing tree sizes and species. This survey will be an extension of the original site survey.
- A tree protection plan shall be submitted with other drawings as part of the overall project approval process. Proper tree protection procedures are to be followed. Refer to the Campus Tree Protection Policy for information about procedures and protecting trees on site.



FIGURE 36. Large trees, like the Centennial Oak, are critical to the campus tree canopy and should be protected wherever possible

4.4.6 SIGNAGE

Introduction

To assist the public in identifying and locating the facilities of Clemson University, an informational signage system must be provided at on- and off-campus facilities. The proper use of signage and campus graphics is essential to orienting motorists, cyclists and pedestrians and to making the campus layout comprehensible to students, faculty, staff and visitors.

Refer to University's Signage Design Standards for detailed information about indoor and outdoor signage.

Signage Character

- A well-designed and consistent signage plan will aid the public in identifying and locating facilities. The system should focus on providing information to the predominant user of the Clemson campus – the pedestrian.

Sign Classifications

- Signs are classified according to their purpose.
- A description of each sign's purpose shall be included in all plans for new facilities.

Outdoor Signs

- Regulatory Signs give notice of traffic laws and regulations. These are most often located along roads, bikeways and in parking areas.
- Warning Signs call attention to conditions that are potentially hazardous. These include roadway pedestrian crossing and bikeway signs.
- Guide Signs provide location and directional information, often including names of buildings or areas, or instructions for routing to a destination. These are most often located at visitor parking areas, along walkways and bike routes, in plazas and at the entrances to buildings.

Indoor Signs

- The signage inside a building is as equally important as outdoor signage.
- All elements, such as directories, room names and numbers, should be consistent across the campus, yet appropriate to in scale with the interior spaces.

4.4.7 PARKING

Introduction

The University's parking lots serve the needs of resident and commuter students, faculty, staff and visitors. This section offers guidelines for parking lot size, landscaping, and other aesthetic requirements.

Guidelines

- A parking lot shall be defined as a paved area existing primarily for motor vehicle parking, located entirely off-street and affording ingress and egress for vehicles.
- These guidelines do not apply to roadside parking, such as parallel parking on secondary roads or tertiary roads, which are located in Section 3: Vehicular Systems.

Parking Lots

- Parking lots should be considered according to the following criteria:
  - Their size in relation to the facilities they serve and to site limitations such as: available space, topography and storm drainage capacity.
  - Their size shall be as small as is practical for the situation.
  - The scale of lots related to their surroundings and the visual and aesthetic aspects of the facility.
- Where very large parking areas are required, the lots shall:
  - Be designed as a series of smaller areas providing parking spaces.
  - Separated by areas planted in trees and grass.
  - Provide a minimum of 40' separation between the lots.
  - Shall contain the number of trees appropriate to the lot as outlined in following section **Landscaping and Visual Screen Planting.**

Accessible Parking

- Parking lots shall incorporate an appropriate number of accessible parking spaces per the requirements of the Americans With Disabilities Act.
- Parking spaces for disabled people shall be located on the shortest possible accessible circulation route to an accessible entrance of a particular building or the area of campus the lot serves, or the transit stop located in the remote parking lot.

Parking Dimensions

- Minimum Space and Dimensions
  - Residential Student Storage Lot Spaces
    - Spaces: 8'-6" x 18'
    - Aisle Width: 24'
  - Commuter Students, Staff and Visitor Lot Spaces
    - Space: 9'x18'
    - Aisle Width: 24'
  - Motorcycle Spaces
    - Spaces: 5'x11'
  - Accessible Spaces (Standard and Van)
    - Spaces: 8'x18'
    - Adjacent Aisle: 8' wide
    - The access aisle shall be part of an accessible route incorporating curb ramps and maneuvering space required to meet accessibility and the requirements of the Americans With Disabilities Act.

Landscape and Visual Screen Plantings

Introduction

- Parking lots shall be designed to incorporate large deciduous trees, groundcover and grass and visual screen plantings to enhance the aesthetics of the campus environment and reduce the impact on adjacent roads, buildings and open spaces. Trees placed within the interior of parking lots are required to assist in reducing heat island effects and to create a pedestrian scale.

Landscaping

- Deciduous Trees
  - Provide shade in the summer.
  - Reduce ice film in the winter by allowing the sun to heat the pavement.
  - Help make parking lots an aesthetic asset to the campus.
  - Shall have a minimum setback of 4’ from back of curb.
  - Shall be under planted with groundcover and/or mulch.
- Trees shall be located in curbed medians (with a minimum width of 10’) or curbed islands (with a minimum width of 9’).
- Parking lot islands that are subject to high pedestrian traffic shall be paved with flush brick on a sand base (instead of grass or groundcover). These islands may have trees with brick on sand (not sand cement) placed under the tree adjacent to the trunk.
- A maximum of 12 parking stalls will be allowed between tree islands.
- When planning to add trees to existing parking lots, assess the number of spaces to be deleted and consider reducing the width of remaining spaces to the minimum size allowed.
- Connect all parking lots to the facilities they serve with ample pedestrian walks and lighting. See **Section 4.4.9 Site Lighting** for further specifications.
- All signs, light fixtures, fire hydrants and other items subject to damage by vehicle bumper shall be set back a minimum of 4’ from the back of curbs.

Maximum Number of Parking Spaces Per Tree In Lots

- Residential Student / Storage Lot
  - Maximum Space per Tree: 20
- Commuter Student Lot
  - Maximum Space per Tree: 15
- Faculty, Staff & Visitor Lot
  - Maximum Space per Tree: 10

Visual Screen Plantings

- Shall consist of large deciduous trees, small flowering trees and masses of evergreen shrubs arranged informally.
- Shall have openings between the masses at random intervals and shall not be so dense as to preclude the opportunity for surveillance of the lot by campus security and passersby from surrounding roads. These openings shall not exceed 33% of the screen.

Motorcycle / Scooter Parking

- Shall be provided in all lots located close to dormitories and walks that connect the main lot to the buildings they serve.
- Will be highly visible and easy for campus security to patrol.
- Located such that maneuvering cycles in and out of spaces does not interfere with automobile traffic.

4.4.8 SITE FURNISHINGS

Introduction

The University’s standard furnishings for exterior spaces shall be aesthetically pleasing, visually unify the campus, integrate with the overall design of an area, be cost effective and easy to maintain. All selections should be approved by University Planning office.

Guidelines

- The juxtaposition of benches, tables and chairs and other outdoor furniture will not only recognize the convenience and comfort of the user, but will also create opportunities for social interactions.
- Positioning of site furniture shall not hinder pedestrian or bicycle traffic flow and shall be situated to avoid damage by landscape maintenance equipment, such as lawn mowers. Placement of these furnishings may be in shrub or groundcover rather than grass to avoid damage by pedestrian traffic or lawn mowing equipment.
- Paving in and around benches and trash receptacles should be compatible with the design and material of the adjoining pedestrian paving and shall extend completely under the furnishing to avoid plant maintenance.
- Drinking fountains are not encouraged outdoors due to their inconsistent operation, but instead shall be located indoors.
- As the University strives to be on the forefront of technology by utilizing indoor interactive digital information centers, outdoor newspaper boxes and kiosks are generally not allowed, and shall be considered only in special circumstances.
- If fixed seating or dining tables are provided, 5% of them must be accessible.
- Accessible furniture should be connected to accessible routes.

Benches

Selection

- Benches should match recent campus applications and selection should be approved by University Office of Planning and Design.
- A non-standard bench may be appropriate where seating is incorporated into planter walls or integrated with specific architectural features. The bench design shall not create any special replacement or maintenance issues and will be more visually compatible in the environment than the standard bench.
- Walls intended as seat walls shall be at least 15” tall and no more than 24” tall, (17” is preferable). The depth of a seat wall shall be at least 15” when accessible from only one side and 30” minimum, (36” is preferable) when accessible from both sides.

Location

- Place bench so that its face is 1’-6” from the edge of all walks.
- Situate to provide users with choice of sitting in the sun or in the shade.
- Place so seats are level avoiding a length-wise slope greater than 4%. If the slope exceeds 4%, build up adjacent grade to create a level surface.



FIGURE 37. Seatwalls create seating opportunities on campus

Bike Racks

- The bike rack recommended for campus is the Bola Bike Rack or similar, as approved by University Office of Planning and Design.
  - Should support bicycles frames at two (2) different points and be mounted into the ground.
  - Shall allow for the standing and locking of all types of bicycles, minimizing both damage to the bikes and the possibility of theft.
- Refer to section **4.3.5 Bicycle Circulation** for information about bike parking layouts and other information about bike parking and storage.

Trash Receptacles

Selection

- Trash receptacles should match recent campus applications and selection should be approved by University Office of Planning and Design.

Location

- Place trash receptacles so that their fronts are 12" back from walks.
- Trash receptacles shall be placed where pedestrian activity warrants their use, such as building entrances, waiting areas, plazas or other pedestrian nodes.
- Those receptacles located in seating areas should be an adequate distance from benches to minimize the effect of trash odors and insects on bench users.

Fences

- Fences have three (3) primary functions on campus:
  - Barriers to keep pedestrians from secured areas
  - Control vehicular movement
  - Visual screens to hide dumpsters, transformers, service areas, etc. from view.
- Barrier fences shall be constructed of black vinyl coated chain link fence with black posts, rails and connectors. The mesh shall be 2" x 2" with the top salvaged.
- The height shall be as required to meet the needs of the situation.
- Further information and specifications regarding tree protection fencing are located in section **4.4.5 Site Work** and in the Campus Tree Protection Policy.

Bollards

Selection

- Bollards are used on campus to control vehicular, bicycle and pedestrian traffic.
- Where they are used at pedestrian crossings, bollards are a visual signal to motorists warning them of the presence of pedestrians.
- Refer to the Standards for Commissioned Architects and Engineers Division 32 for bollard specifications.

Mailboxes and Package Mailboxes and Lockers

- Mailboxes and package delivery boxes shall be conveniently clustered in close proximity to residential buildings.
- The standard campus freestanding mailbox outdoors shall be a regulation US Postal Service enclosure painted blue with red and white lettering and trim.
- Express mailboxes shall be labeled with express mail company logos and approved by the University Planning and Design Office.
- Package delivery lockers or mailboxes and parcel management systems shall be coordinated with the University Planning and Design Office and Facilities prior to installation. Locker or mailbox locations shall be integrated into the site design and placed in highly visible, accessible locations that do not impede pedestrian circulation, accessible routes, service access, or emergency operations.
- Package mailboxes or lockers serving residential communities shall be sized to accommodate anticipated delivery volumes and located within convenient walking distance of the primary residential population served.
- Mailbox or locker installations shall provide adequate lighting, accessibility in accordance with applicable codes and ADA requirements, and sufficient clear area for package retrieval without obstructing circulation routes.
- Examples of preferred package mailbox integration can be found at Douthit Hills and Bryan Mall residential communities.



FIGURE 38. Site furnishings provide flexible seating opportunities on campus



FIGURE 39. Furnishings should be moveable but durable



FIGURE 40. Furnishings in nodes and at building entries provide space for students to gather or sit between classes

4.4.9 SITE LIGHTING

Introduction

Lighting of walkways, bikeways, roadways and parking shall provide a safe and orderly traffic flow in and around campus and shall efficiently meet the energy conservation goals of the University.

Guidelines

- Lighting should be adequate for quick, accurate and comfortable recognition of objects on campus roads, walkways, bikeways and in parking lots and pedestrian areas.
- Spacing of fixtures shall be reasonably consistent in a given area, along a walk or roadway. Spacing may vary where additional lighting is required for pedestrian crossings, stairways and road intersections.
- Fixtures shall be located so as to minimize glare and where they shall not represent a hazard to motorists, cyclists or pedestrians or be subject to damage from the same.
- Fixtures integrated with architectural features such as ones that are recessed in walls are not allowed.

Lighting Fixtures

Selection and Location

- Light fixture selection should be accordance with the Standards for Commissioned Architects and Engineers - Division 26 Electrical.

Setbacks

- Setbacks are be used as a guide for locating fixtures. The following setbacks apply to light fixtures based on location:
  - Arterial, Secondary and Tertiary Roads
    - Setback based on site conditions
  - Parking areas, Parking spaces, and Aisles
    - Setback 4’ from edge of paving
  - Walkways, Plazas, and Other Pedestrian Areas
    - Setback 2’-6” from back of paving
  - Bikeways
    - Setback compatible with surroundings
  - Planted Areas
    - Setback to ensure that plants do not block light. If foliage interferes with illumination, plants may be judiciously pruned.

Illuminance

- Arterial Roads
  - Minimum Foot Candle: 1.0; Average Foot Candle: 1.6
- Secondary Roads
  - Minimum Foot Candle: 0.5; Average Foot Candle: 0.8
- Tertiary Roads
  - Minimum Foot Candle: 0.4; Average Foot Candle: 0.8
- Parking Lots
  - Minimum Foot Candle: 0.4; Average Foot Candle: 0.7
- Walkways and Stairs
  - Minimum Foot Candle: 1.0; Average Foot Candle: 3.0
- Pedestrian Plazas
  - Minimum Foot Candle: 1.0; Average Foot Candle: 2.0
- Pedestrian Underpasses
  - Minimum Foot Candle: 4.0; Average Foot Candle: 6.0
- Bikeways
  - Minimum Foot Candle: 0.5; Average Foot Candle: 0.7
- In general, arterial roads shall be illuminated only at intersections with other roads, at pedestrian and bicycle crossings and at entrances to parking lots. The exceptions are sections of arterial roads, the western section of Perimeter Road near the stadium, the southern section of Perimeter Road adjacent to the Strom Thurmond Center and SC Highway 93 along Bowman Field.
- The illuminance in the area of road intersections should be the sum of the recommended levels of the intersecting roads.
- Where the walkways or bikeways cross roads either at road intersections or between them, the percent of roadway illuminance should be increased so that the illuminance is 1.5 times to 2 times the level recommended illuminance values. An example would be a pedestrian crossing at an arterial road should have a 2.1 to 2.8 foot candles of illuminance (1.4FC x 1.5 = 2.1FC).
- The illuminance in the area of parking lot access roads to arterial and secondary roads should be the sum of the recommended levels of the parking lot and its adjacent access road.
- Where shared use paths occur in a separate corridor, no additional lighting shall be provided.
- To provide well illuminated surroundings for walkways and pedestrian areas, it is recommended that 8’ on each side of the area be lit to levels of at least 1/3 of that suggested for the pedestrian way.

Uniformity

- Uniformity shall be expressed in terms of the average-level-to-minimum point method in which the average illuminance on the lighted surface is divided by the lowest value at any point in the area.
- Using this method the average-level-to-minimum ratio should not exceed:
  - 3 to 1 for Arterial Roads
  - 5 to 1 for Tertiary Roads, walks, and pedestrian areas
  - (Refer to IIESNA G-1-03, Guideline for Security Lighting for People, Property, and Public Spaces, 2003, Illuminating Engineering Society of North America.)

Spacing

- On roadways, placement of individual fixtures may vary up to 20% of the average spacing (10’ if the average is 50’) as long as no two consecutive placement changes are involved. Transverse deviation of an individual fixture should be made only where there is not other compromise.
- For specific designs that deviate from preferred system layout and non-standard spacing requirements, consideration will be given by the University Planning and Design Office in cooperation with University Facilities.

4.4.10 ART

- An Art Master Plan is currently under development Refer to that document for more information once available.

5. APPENDIX

Campus Tree List

Following is a guide to the types of trees permitted on campus. Trees you wish to specify in your project that is outside of this list must be approved by University Planning & Design Office.

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. Ginkgobilobia 'Autum Gold' – Ginkgo
11. Gymnocladus dioica – Kentucky Coffee tree
12. Liquidamber styraciflua 'Rotundiloba' – Sweetgum (fruitless)
13. Liriodendron tulipifera – Tulip Poplar
14. Magnolia acuminata – Cucumbertree 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. Magnolia grandiflora- Southern Magnolia
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 viridus ‘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