NORTHERN KENTUCKY UNIVERSITY

Campus Master Plan

November 2020

Design Guidelines

Contents

Introduction

Purpose and Goals

The NKU Design Guidelines were developed as a component of the 2020 Campus Master Plan to support the alignment of campus architecture and landscape design with the principles identified in the master plan document.

The Guidelines are applicable to major renovation work and new construction for buildings and grounds on the Highland Heights campus. Major repair and renovation projects impacting more than 10 percent of the building exterior are expected to follow these design guidelines.

The Guidelines also incorporate sustainable design principles to improve efficiency, health, comfort of users, and reduce negative impacts on the environment. Sustainable design decisions will enable NKU to reduce consumption of non-renewable resources, minimize waste, and promote a healthy and productive campus environment.

The goal of the Design Guidelines is to create a campus environment that reflects the mission, history, and aspirations of the university. The Guidelines apply to both building and landscape projects to encourage a seamless integration of new additions to the campus. The Guidelines are not intended to be prescriptive, nor limit creativity, but rather to establish a set of recommendations for the design of campus buildings and landscapes to help ensure future decisions move forward in a complementary fashion. The university may choose to use discretion in applying these guidelines.

Design Principles

The Design Guidelines are based on the following principles:

- New development should align with the 2020 Campus Master Plan.
- New buildings and landscapes should enhance the pedestrian experience of campus through ground-floor activation and transparency in buildings, and creation and development of dynamic landscaped gathering spaces throughout campus.
- The campus should include a hierarchy of buildings with a balanced mix of "fabric" and "iconic" buildings, as well as a hierarchy and range of open spaces.
- The existing campus is compact, visually cohesive, and singularly three-dimensional. New projects and building renovations should be respectful of the horizontal and vertical integrity of the campus. Throughout project design, the design team should be aware of a project's impact on this overall framework.
- Material palettes should contribute to a contextual and integrated aesthetic environment.
- New buildings and landscapes should prominently display functional activity and intellectual collaboration.
- The design of buildings and landscapes should enhance campus safety.
- All major renovation and new construction of buildings and grounds should meet or exceed the university's sustainability requirements and contribute to the university's sustainability goals and initiatives.

Architectural Guidelines

Campus Site

Development in the near-to-mid-term master plan leverages existing buildings through renovation combined with additions. The master plan also identifies strategic building sites that will allow new buildings and building additions to thoughtfully define new open spaces or reinforce those that exist.

While concentrated in the academic core, development sites identified in the master plan avoid conflicts with existing infrastructure including utility tunnels, overhead utilities, and geothermal well fields.

Both additions and new buildings should enhance the fabric of the built environment and reinforce the university's compact academic core and pedestrian-scaled campus. Most vehicular circulation occurs outside of the academic core, minimizing vehicular and pedestrian conflicts. As future development occurs, important pedestrian connections and access points should be maintained or extended to reinforce the walkable nature of campus.

New construction and renovation projects should follow these guidelines depending on location within the campus realm:

- **Campus** — Buildings or facades with internal campus frontages should define and activate campus open spaces such as quads, walkways, courtyards, and student plazas.
- **Internal streets** — Buildings and building facades with campus street frontages should define and activate internally oriented streetscapes and sidewalks.
- **Perimeter streets** — Buildings and building facades along high-visibility, prominent exterior-facing frontages should enhance NKU's identity and elevate the university's profile within the greater Highland Heights community.
- **Gateways** — Buildings and building facades fronting major entrances to campus should act as welcoming thresholds between the city and the campus.
- **Loading and service** - Building loading and service zones should be co-located, shared, and/or embedded within buildings to screen and minimize the impact on pedestrian circulation and campus open spaces.

Architectural Prominence and Hierarchy

Successful built environments consist predominantly of context or "fabric" buildings punctuated with the occasional object or "iconic" building. In a particular quad or cluster of buildings, only one building should be an iconic building. Collectively, the fabric buildings do the important work of defining the character of the campus and should seek to generally complement the massing, height, materiality, and expression of nearby buildings. Iconic buildings such as Griffin Hall create a special point of interest by standing out from the prevailing context. Iconic buildings can be more sculptural, expressive, and attention-seeking, yet they should be part of the campus fabric. The additions to the BC building are envisioned as iconic. They are envisioned as sculptural forms set against the backdrop of the monolithic existing building. The additions to Nunn Hall and the Interdisciplinary Science Building should be fabric buildings, framing the perimeter of the oval open space.

Primary and prominent facades, whether iconic or fabric buildings, address the most important campus open spaces and streets. Main entries should be located along these facades. Special design consideration should be given to the massing and architectural expression of certain facade focal points. These include corners or areas of a facade that terminate a key axis or vista, create a portal between buildings, or frame a special view.

Health Innovation Center

Griffin Hall

Humanizing Brutalist Buildings

NKU campus has a particularly robust architectural heritage of concrete brutalist buildings. The university should seek to preserve and celebrate this history and character as much as possible, but should also seek to enhance it to ensure these buildings meet the evolving needs of a modern university's students, faculty, and staff.

Recent additions have met the challenge of honoring the aesthetic of the original buildings while introducing transparency and new materials. The James C. and Rachel M. Votruba Student Union, Albright Health Center expansion and the Health Innovation Center/Founders Hall renovation, have incorporated compatible materials such as metal panels, screens, and accent colors to create a successful blend of new, dynamic forms set against the backdrop of the original brutalist architecture.

Additions and significant exterior renovations to existing brutalist buildings should:

- Reinforce campus continuity by utilizing materials similar to or compatible with the exiting concrete as the primary building material.
- Incorporate compatible accent materials and colors to accentuate new construction and differentiate it from the now historic original buildings.
- Increase transparency in new construction, particularly at the ground floor, to provide a lighter, brighter, and more vibrant campus environment.
- Mitigate the interior-focused qualities of the original buildings while preserving a sense of their structural expression and form.
- In select locations, consider sculptural forms to create iconic additions that activate an otherwise static existing building form.

BEFORE AND AFTER IMAGES OF ADDITIONS TO BRUTALIST BUILDINGS

NKU Health Innovation Center

Bryan Hall Washington University in St. Louis

Zachry Education Engineering Complex, Texas A & M College of Engineering

UMass Claire T. Carney Library

Massing and Height

NKU's campus has a unique three-dimensional quality that is a result of the rolling topography, but is also an acknowledgement to the importance of views — of the campus, of hillsides near and far, and of the Cincinnati skyline.

Massing is the combination of a building's three-dimensional form and size and should relate to and reflect the building's function and interior program. New buildings should be compatible in scale and design with the overall campus context. Relationships and impacts of proposed new buildings on adjacent buildings, streets, open spaces, and views should be explored and considered thoroughly throughout the design process.

Massing can be mediated through:

- Horizontal articulation by defining the base, middle, and top of the building.
- Vertical articulation by utilizing recesses and projections to mitigate large volumes and long facades, and to express structure and interior program.
- Changes in material and/or plane to create shadows and rhythms.

Fabric buildings should generally feature simple and straightforward massing appropriate for their use and typology. Iconic buildings and terminated vistas can feature more expressive, dynamic, or complex forms. A successful campus conveys a hierarchy of interrelated components that work together.

Building floor plates, column spacing, and floor-to-floor heights should be designed to support future flexibility allowing the building use to change over time. Design decisions should not focus on short-term budget implications only, but should consider the best long-term value.

The height of new buildings should be sensitive to immediately adjacent buildings and spaces while creating or reinforcing the desired campus character as defined by the master plan. Changes and variety in height along a building facade are appropriate for specific functional and aesthetic purposes, as well as to limit any specific negative impacts on adjacent buildings or open spaces.

The appropriate height for new construction must balance the massing required to accommodate the proposed program with the surrounding context as well as the overall three-dimensional campus composition. View corridors are established and should be protected and enhanced. The master plan provides guidance on the suggested footprints and relationships to existing buildings and open spaces, but acknowledges that further development of the design approach will occur when project planning is initiated.

Materials and Color

The Highland Heights campus was developed within a short period of time resulting in a cohesive and architecturally consistent campus. The original buildings are primarily cast-in-place concrete representative of the brutalist and modernist aesthetic prevalent during the 1970s and early 1980s.

Materials and color help create a cohesive campus character. Buff-colored concrete and red standing-seam metal roofs unite the campus and create a highly integrated architectural fabric. The housing in Boothe Village, although residential construction, follows a color palette similar to the academic core — light buff colors of siding, wall panels, and masonry. There are multiple colors used as accent elements, but the materials are relatively narrow in color range, creating a consistency that ties the campus together.

Existing Buildings (Clockwise): Nunn Hall, Founders Hall, Steely Library, Regents Hall

Recent campus projects have successfully integrated the existing palette of materials and colors with materials that express a current architectural aesthetic. While the stylistic expression and form of new buildings can vary, they should generally extend the existing palette.

Areas of glass and metal (curtain wall or window wall) can express important interior spaces, highlight active ground floors, terminate vistas, and create visual variety.

Energy-efficient systems and building components are a priority. Design should consider all aspects of environmental impact, both on campus and in terms of where materials are acquired.

Permitted and encouraged materials for new buildings on campus:

- **Glass** — transparent, translucent, fritted
- **Terracotta**
- **Metal** — aluminum, zinc, copper, painted
- **Stone** — natural and cast stone
- **Concrete** — formed, panelized, scored, textured

COLOR RECOMMENDATIONS

- Select neutral and warm hues of buff, tan, and grey for primary materials such as terra cotta and concrete to complement existing buildings.
- Use accent materials that vary from primary material in color or texture to accentuate unique architectural features and changes in plane.
- Limit accent colors to a maximum of two and ensure they are complementary to primary colors.

(Left to Right) Votruba Student Union, Albright Health Center, Health Innovation Center, Griffin Hall

Texture

Buildings should animate the spaces around them and entice people to approach them and interact with them. Facade treatment techniques that incorporate transparency, lighting, shadow, patterns, and material textures can enrich facades and accent special parts of buildings.

Shadow: Create depth to facades by utilizing shadows and shadow lines. Utilize projecting sun shading, projected bays, louvers, perforated screens, and other building elements to cast shadows and add dynamism to facades.

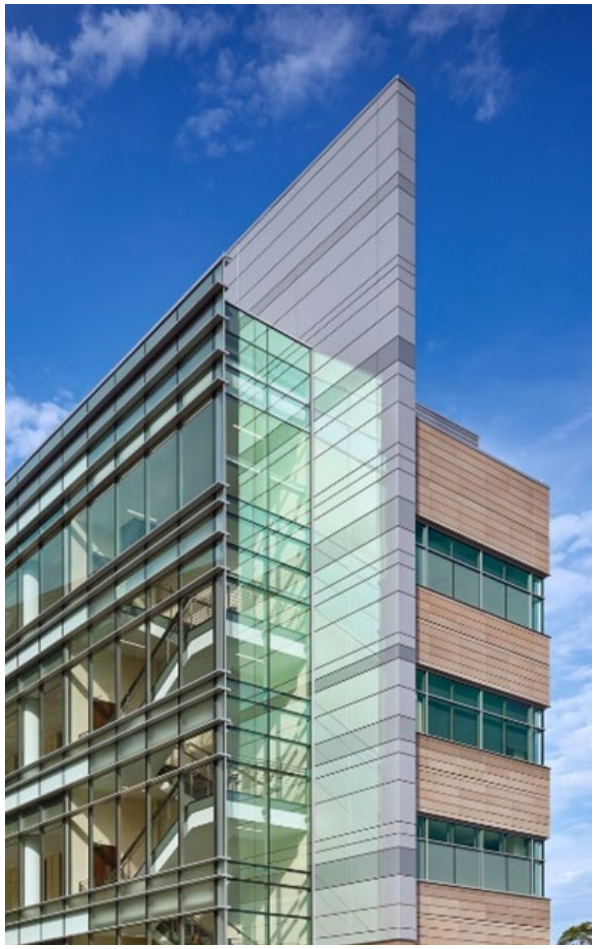
Pattern: Utilize balanced repetition and alternation of elements such as window fenestration, material type and color, and exterior lighting to add a sense of layers, rhythm, and movement to building facades.

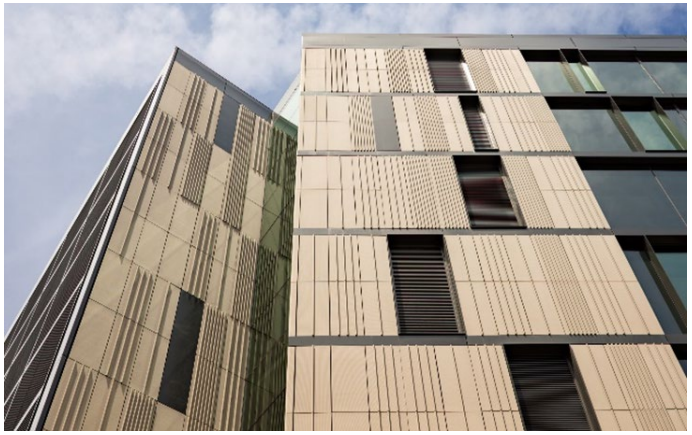
Textured materials: Use a range of material textures (smooth-to-course, flat-to-formed, solid-to-perforated) to add dimension or emphasis to facade elements.

Glazing/Fenestration

Windows and window patterns play a large role in animating building facades and creating a sense of vibrancy and safety.

- Ground floors should be highly transparent to create a visual connection between interior and exterior spaces and to showcase interior activities.
- The percentage of glazing and window sizes for upper floors should optimize interior daylighting needs and programmatic requirements.
- Large areas of blank facades should be avoided unless required for specific functional purposes. Interior space uses that result in such facades should generally be located to eliminate or minimize their negative impact on surrounding exterior spaces.
- Where appropriate, important interior spaces (common areas, collaboration spaces, etc.) should be highly transparent and expressed as an architectural feature in the design of the facade.





Examples of Façade Textures and Fenestration Patterns

Materials Discouraged or to be Avoided

Certain materials do not contribute to the sense of quality, permanence, and aesthetic campus beauty to which the university community aspires.

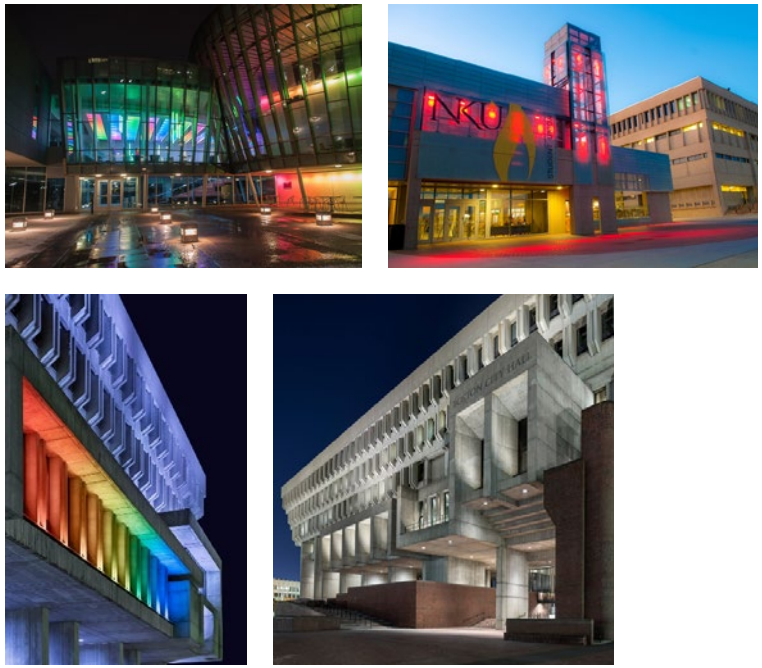
The following materials should be avoided and are discouraged for use on campus:

- Brick
- Mirrored, highly tinted, or highly reflective glass
- Split-face block
- Synthetic stucco/EIFS
- Vinyl or aluminum siding
- Unfinished concrete block

Exterior Lighting

Many buildings on NKU's campus have interesting forms and features. Exterior lighting can be particularly impactful when applied to the bold concrete massing typical of the university's buildings.

To help add a sense of vibrancy and warmth to the campus experience, continue to use architectural and colored lighting to animate prominent buildings, facades, or building elements. Consider the use of lighting to add visual interest and branding at campus gateways, rooftop or skyline features, elements visible from freeway sites, key focal points, and along prominent facades. Balance these and any other lighting features with sustainability goals for campus.



Examples of LED Lighting

Loading and Service

Building loading and service should be located to eliminate or limit its negative impact on the public realm and campus experience. Loading should be located and accessed from the side or rear of a building or building site and should be screened from view, or the NKU service tunnel should be used where possible.

Appropriate screening and mitigation techniques include:

- Integrate loading bays within the building and conceal service areas with roll-up doors. Openings and doors should be designed to seamlessly match the facade.
- Utilize service courts to separate service and loading functions from primary campus spaces and public streets.
- Use landscape features such as plantings, walls, and fences to minimize the impact on pedestrian pathways. Landscaping and physical screening should be used in conjunction with other mitigation techniques (refer to landscape section for details).

Equipment

Without proper consideration, building HVAC equipment can create negative impacts on the aesthetic quality of a building.

Appropriate techniques for minimizing impacts of building equipment include:

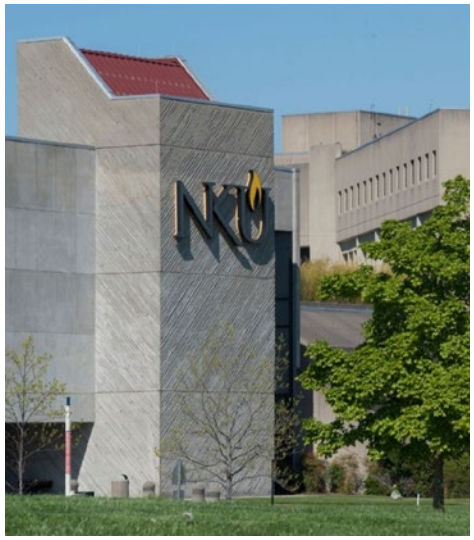
- Situate rooftop screens and enclosures in a way that allows their presence to dissipate into the sky or whose form is integrated into the building massing.
- Integrate ventilation screens and louvers into the facade's overall design.
- Express unique forms, elements of equipment or equipment spaces as an architectural design element. This is typically most appropriate for lab and research buildings.
- Place exterior meters, valves, panels, and other utility-related elements away from building entrances and primary pedestrian paths.
- When possible, avoid installing HVAC equipment at grade. Equipment that must be at grade should be completely screened from view utilizing mitigation techniques identified above. Potential noise, vibration, and exhaust must be considered.

Griffin Hall

Green Roofs

Green roofs help manage the urban heat-island effect, retain stormwater, provide habitat for insects and birds, add aesthetic value, lengthen the life of roofing materials, and add insulation to decrease heating and cooling costs. These systems can be extensive or intensive depending on the amount of growing medium required to support plant life year-round. Extensive systems are typically four inches (10 cm) in depth or less, can be built in place or pre-planted in trays, and support the growth of sedums and other small plant species with limited implication on a building's structural system. Intensive systems are typically eight inches (20 cm) or more in depth and can support a greater variety of plant species. Intensive systems require significant coordination with a building's structural system.

NKU currently has several unoccupied green roofs, including Griffin Hall; adjacent to Steely Library's west facade; plaza level above the old Power Plant and Landrum Annex; and along the west facade of Fine Arts. The incorporation of green roofs in building additions and new campus buildings is encouraged. Green-roof areas can provide outdoor program space, are considered a building amenity and showcase sustainable design. Provisions should be included for the long-term maintenance of these areas, including watering. Permanent irrigation systems are optional, but accessible hose bibs should be provided.



Building Signage

Building signage requires thoughtful consideration throughout the building design process. In addition to the university's Signage Design Standards, these guidelines recommend the following approach for typical building sign types.

ROOFTOP SIGNAGE

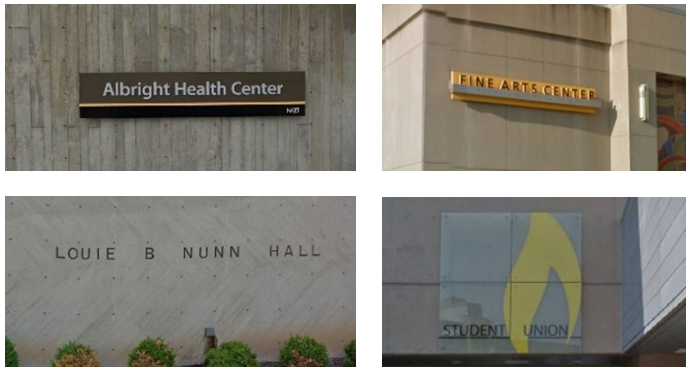
- Should be used infrequently and only in highly visible locations.
- Most appropriate for freeway-oriented frontages, entertainment, and performance venues.
- Scaled to be viewed from a long distance.
- Proportioned and located to relate to building massing and facade design.

PARKING GARAGE SIGNAGE

- Should be consistent across campus.
- Should be designed for a first-time visitor, easy and quick to understand.
- Should clearly distinguish whether the garage is visitor and/or permit parking.
- Should display the number and location of spaces available.
- Should be scaled and designed to be seen from a slow-moving vehicle.

BUILDING SIGNAGE

- Changes in style or design of signage should occur only after careful analysis and any changes should be adopted as a campus standard going forward.
- For office, academic, and housing buildings, entry canopy signs are appropriate.
- For student amenity buildings or spaces, canopy, storefront, projecting blade, and window signs are appropriate sign types.
- Building address numbers should be oriented and scaled for both pedestrians as well as vehicular traffic.



Existing Building Identification Styles

Landscape Guidelines

Introduction

NKU is located within the historic and ecologically rich Bluegrass region of Kentucky with proximity to the vibrant urban center of Cincinnati. The 2020 Campus Master Plan identifies opportunities to strategically refine the campus core, enhance the student experience, and define the campus perimeter to support a welcoming, engaged university contributing to the region's vitality. The landscape guidelines support the Campus Master Plan by defining strategies and objectives for design and maintenance of campus landscapes, streetscapes, gateways, and furnishings to ensure a coordinated network of open spaces that support the mission and strategic vision of the university.

The broad recommendations in the landscape guidelines are intended to guide context-specific improvements when renovating existing landscapes or in conjunction with new construction. Interventions to campus landscapes should begin with observation; studying the way landscapes are utilized currently should inform how users might like to use open spaces within the context of the recommendations identified in the guidelines.

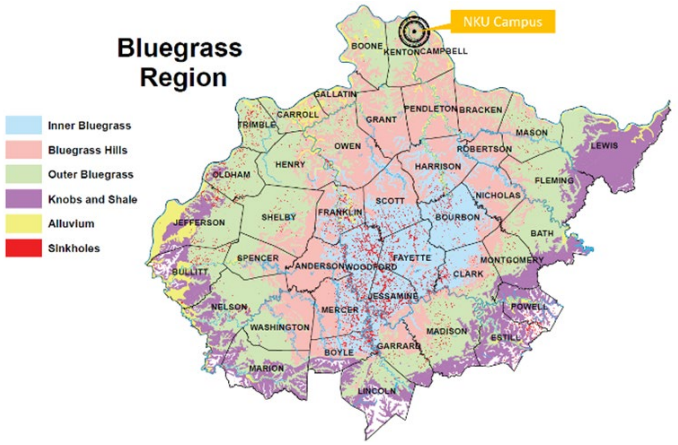
Landscape Goals

- Continually improve campus landscapes to support a distinctive, memorable campus that leverages NKU's setting in northern Kentucky.
- Reinforce a network of open spaces with diverse scale, character, and uses.
- Utilize consistent materials and furnishings that contribute to a cohesive campus.
- Reinforce connections between the campus core and perimeter open spaces.
- Enhance campus gateways, branding, and wayfinding.
- Utilize buildings of an appropriate scale and character to effectively define and activate open spaces.
- Reduce labor-intensive maintenance requirements.
- Progress sustainability goals, environmentally sensitive stormwater management, and stewardship of the campus for future generations.
- Optimize opportunities to create memorable and iconic outdoor spaces.

NKU AND THE BLUEGRASS REGION

The Kentucky Bluegrass region is a diverse set of landscapes categorized into three distinct ecoregions: the Inner Bluegrass, the Hills of the Bluegrass, and the Outer Bluegrass. The iconic rolling grassy hills of the Inner Bluegrass are the result of weathered limestone and nutrient-rich soils. These soils supported rich grasslands and large interspersed shade trees providing grazing for herbivores, from bison prior to settlement to prized thoroughbred horses in the present day. Moving north from the Inner Bluegrass, the landscape transitions to hardwood forests without pastures, and finally to the Outer Bluegrass.

NKU is located within the Outer Bluegrass, consisting of landscapes from rolling pastures to densely forested areas. A mixture of underlying limestone and shale results in a variety of soil types and thin soils subject to erosion, where the underlying bedrock is exposed. Much of the Outer Bluegrass, and likely the entirety of the NKU campus, was primarily forested prior to development. The prominence of shale and limestone and a rich palette of native plants present throughout the region are opportunities for interpretation in both hardscapes and planting at NKU. The university is strongly encouraged to utilize local materials and strategic management techniques inspired by Bluegrass landscapes to create a campus of enduring landscape character, promoting NKU's unique location in Kentucky.



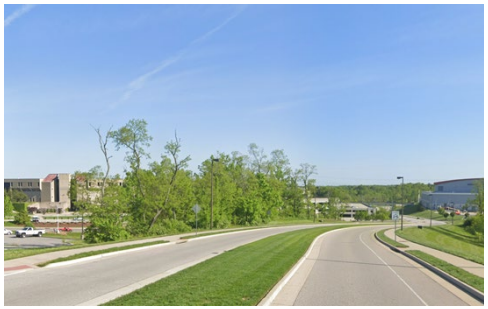
Bluegrass Landscapes

CAMPUS LANDSCAPES OVERVIEW

NKU has a variety of campus landscapes within two distinct campus regions – the campus core and the campus perimeter. The campus core features a compact, interconnected urban setting with a network of open spaces engaging academic and administrative buildings. Previous master plans reinforced the concept of a compact campus core beginning with the original plan for the university in 1970 and onward as the university continued to grow. A broad range of open spaces from sunken plazas to large quadrangles serve as key components, facilitating physical connectivity and social engagement internal to NKU and to the broader community.

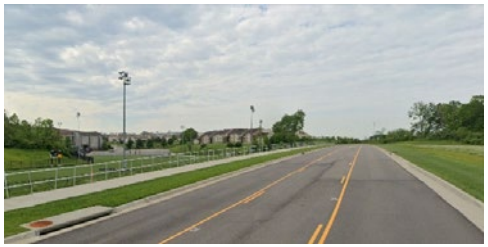
AcademicCore

Landscapes outside the campus core comprise the perimeter region of campus. Landscapes in the campus perimeter feature transitional landscapes defined less by building elevations and increasingly by grassy plateaus and slopes, sporadic shade trees, and perimeter wooded buffers. Vehicular circulation and parking lots often flank landscapes and the rolling topography of the region is more apparent. Depressions in the landscape are utilized as mowed stormwater swales and detention ponds.



University Drive Looking North

Nunn Drive Looking West



Norse Boulevard Looking South

Johns Hill Road Looking West

Landscape Typologies and Functions

On a campus, the network of open spaces is a critical link between buildings, people, and campus culture. Students, faculty, staff, and the greater community engage with campus landscapes in a variety of ways. A range of open spaces, from plazas to natural edges, enable a range of activities such as gathering, recreation, and transportation. The landscape design guidelines outline the major open-space typologies on campus, their characteristics, and key elements for their success.

PLAZAS

Plazas are primarily hardscape, paved spaces defined by buildings which at their best encourage socialization and engagement. Active first-floor uses such as food or student services are recommended. A successful plaza is a hub for social gathering and is enhanced by pedestrians passing by, resulting in a sense of active community life. A variety of seating, effective shading, and art are all elements that can contribute to a successful plaza. The campus core features multiple plazas, the largest of which is the Central Plaza flanked by Founders Hall, Steely Library, the Fine Arts Center, and Landrum Academic Center.

Central Plaza

Key guidelines and objectives

- Provide comfortable seating options in both sun and shaded areas. The perimeter of plazas often offer shade, a sense of enclosure provided by foliage and hardscape elements, and views to open gathering areas, all located outside areas of heavy pedestrian traffic.
- Ensure that plaza areas include larger zones that are unobstructed by permanent improvements and able to be configured for planned and impromptu gatherings that use a tent, for example.
- Consider opportunities to increase transparency of plaza-level, interior functions adjacent to plazas.
- Ensure adequate lighting for nighttime use. Suspended overhead lighting is an opportunity to further define spaces as “outdoor rooms.”
- Provide adequate access to power outlets and wi-fi.

QUADRANGLES

Like plazas, quadrangles are iconic campus spaces organized around a central lawn defined by campus buildings and a logical network of pathways. Shade trees and foundation plantings typically transition between buildings defining a quadrangle and an open lawn. These centrally located spaces should support ceremonial events and impromptu gatherings. At NKU, the Oval is an iconic quadrangle with a contemporary interpretation.

Key guidelines and objectives

- Utilize a simple palette of trees and turf.
- Consider providing colorful movable furniture to encourage use of turf spaces.
- Plant layered foundation plantings to transition between open space and building entrances.
- Provide lighting and seating along the quadrangle's perimeter.
- Establish a clear and rational network of pedestrian paths.
- Consider establishing a name and branding for important exterior spaces as part of a broader effort to emphasize the variety of campus open spaces.

NKU Original Quad

NKU Oval

COURTYARDS

Courtyards are more intimate, small-scale spaces that primarily serve adjacent buildings. Defined by walled edges, these spaces can provide protection from winds and add shade in hotter months with views from building interiors. Courtyards at NKU within the campus core are typically flanked on one side by a building face and defined on other sides by lower retaining or seat walls. In some cases, courtyards are sunken, such as the Fine Arts Building and Landrum Academic Center.

Key guidelines and objectives

- Demonstrate attention to detail in paving patterns and material use.
- Utilize a variety of ornamental plants to promote texture, scale, and color.
- Provide inviting and flexible seating options supporting multiple activities.
- Consider utilization of courtyards as outdoor classrooms and equip spaces for this purpose.
- Soften walls and building faces with plant materials where appropriate.
- Consider opportunities to improve the transparency of building facades which overlook courtyards.
- Provide access to power outlets and wi-fi.

Examples of Residential Campus Courtyards

AMPHITHEATERS

Amphitheaters feature terraced seating surrounding an event stage and are often situated to take advantage of sloping topography. An amenity for seating and study, amphitheaters provide the ability to host large gatherings and performances, and sometimes provide a means for pedestrians to transition grade changes. At NKU, amphitheaters are embedded in sloped landscapes adjacent to the University Center overlooking Loch Norse, at the entrance to the Fine Arts Center from the Central Plaza, and north of the Hermann Science Center.

Oakley & Eva G. Farris Amphitheater

Key guidelines and objectives

- Provide shade for users where feasible, consider use of solar canopies that provide power for charging stations
- Evaluate opportunities to feature locally sourced natural stone materials.
- Incorporate lighting as a design element.
- Integrate intuitive and accessible pedestrian circulation between terraces and from the high-to-low point.

TRANSITIONAL LANDSCAPES

Transitional campus landscapes are defined by developed edges such as roads or pedestrian pathways, are not typically defined on all sides by buildings, and are part of the open space network connecting to other landscape features. Often containing remnant natural features and topography, these landscapes are less formal than quadrangles. Transitional landscapes can also provide important stormwater and ecosystem functions. Loch Norse, a significant transitional landscape defined in part by buildings, retains a sense of openness, representing an important shift in landscape character from the campus core to the campus perimeter.

Key guidelines and objectives

- Utilize transitional landscapes for regenerative stormwater conveyance and to showcase commitment to sustainability and stewardship.
- Reduce manicured lawn areas in favor of no-mow grasses and bold swaths of perennial plantings.
- Where practical, provide a clear hierarchy of pathways with wider paths to accommodate shared bike and pedestrian traffic.

Loch Norse

NATURAL EDGE LANDSCAPES

Wooded areas are present along much of the campus perimeter. These landscapes exist at areas not disturbed by development of campus buildings or streets. These landscapes can be sloping, with some edges retaining the natural topography. Often, there is an abrupt transition between managed turf area and unmanaged woodlands in these areas.

Key guidelines and objectives

- Evaluate campus edges for reforestation opportunities.
- Create no-mow grass zones to reduce labor-intensive maintenance.
- Incorporate multi-use pathways connecting landscapes in the campus perimeter.
- Stabilize steep slopes with groundcovers and trees where feasible.

Pedestrian and Vehicular Infrastructure

Streets and pedestrian walks connect campus spaces, define edges, and connect open spaces to the broader community. Much, but not all, of NKU's campus is pedestrian-only, with vehicular traffic restricted primarily to the campus perimeter. Both streets and pathways should have a clear hierarchy and scale appropriate to anticipated uses.

PEDESTRIAN WALKWAYS

Pedestrian circulation is of primary importance when designing campus landscapes. The scale of pathways should respond to the anticipated use with a clear hierarchy of primary, secondary, and tertiary walks. Reinforce pathway hierarchy through use of distinctive materials, scoring patterns, and varying widths.

It is recommended that the university adopt a universal access strategy by providing equal access to all buildings from major vehicular and pedestrian routes. Use noticeable tactile pavement changes at cross walks, steps and building entrances.

Key guidelines and objectives

- Primary walks are highly used pathways, typically on a main axis and connecting several large-occupancy buildings. These pathways, typically wider than other pathways, cross large segments of campus and are used continuously. Major cross-campus walkways are opportunities to introduce distinctive features, such as natural stone pavers, to increase visual interest and reflect NKU's unique location in the Bluegrass region.
- Secondary and tertiary pathways should be sized consistently. Materials should be appropriate with uniform and all walkways should be accessible.
- Lighting and signage should be an appropriate scale for pedestrians.
- Specialty paving types, scoring, and colors designed to introduce pattern and scale should be limited to plaza and courtyard areas.
- Pedestrian walks should have a consistent finish, color, and scoring pattern throughout the campus. On accessible routes, sidewalk joints should be no wider than 1/8 inch. To eliminate tripping hazards, avoid beveled or rounded edges.
- All paving should be ADA compliant and provide equal access into buildings from major vehicular and pedestrian routes.
- Avoid stairs when transitioning between grade levels.

BICYCLES

Bicycles can be an efficient way to traverse campus, but may introduce conflicts with pedestrians and vehicles. Design hardscapes and site furniture to encourage safe bicycle use on campus and reduce vehicular traffic and the need for parking.

Key guidelines and objectives

- Provide bike racks. Locate racks an appropriate distance from building entries and at locations where the campus perimeter and the campus core intersect. Use landscaping to screen bike racks while maintaining key sightlines.
- Clearly designate bike paths and routes with signage and striping.
- Where possible, separate bicycle traffic from pedestrians by providing separate paved paths.
- When combined paths for bicycles and pedestrians cannot be avoided, dedicated (striped) bike lanes should be delineated, and the combined path should be 10 feet or more in width.
- Restrict bicycles in highly used pedestrian areas such as the Central Plaza. It is proposed that the Central Plaza and other areas where large numbers of students gather be identified as walk-only areas.

Example of a Campus Dedicated Bike Lane

SURFACE PARKING LOTS

Surface lots comprise a significant portion of the campus perimeter. Efforts should be made to minimize the visual impact of surface lots and ensure that lots do not impede pedestrian connectivity within the campus perimeter. Incorporating regenerative stormwater techniques such as raingardens and bioswales to address surface runoff not only addresses stormwater quality and quantity treatment requirements, but also provide an opportunity for introducing visual interest and low-maintenance landscapes on campus.

Key guidelines and objectives

- Where possible, shade trees should be incorporated into parking bays to decrease the urban heat island effect.
- Surface parking should facilitate pedestrian movement and contribute to the pedestrian network of campus.
- Consider using permeable materials in parking lots.
- Screen edges of parking areas.
- Segment parking lot areas into sections with a maximum capacity of 250 spaces.

Example of Integrating Stormwater Management and Screening of Parking Area

STREETS

Campus streets should emphasize pedestrian safety and multi-modal accessibility while accommodating vehicles. NKU has a variety of street types, from the broad boulevard type, Norse Boulevard, to internal access roads, drop-offs, and service drives. Street trees are a key element of street design on campus. They provide shade that enhances pedestrian comfort, serve as a visual barrier to vehicles with the effect of traffic-calming, and provide visual consistency.

Key guidelines and objectives

- Utilize raised pedestrian crossings, planted medians, and changes in pavement material to emphasize key pedestrian zones and enhance pedestrian safety and comfort.
- Integrate standard signage and lighting fixtures.
- Approach landscaping of roads in a consistent manner across campus, including use of street trees.
- Where feasible, incorporate regenerative stormwater management techniques such as rain gardens and bioswales.
- Where feasible, provide eight-to-10-foot-wide sidewalks on campus streets separated from the roadway with an eight-foot-wide planting strip.

Gateways and Wayfinding

PEDESTRIAN WAYFINDING AND BUILDING IDENTIFICATION

Campus wayfinding welcomes and orients campus users including students, faculty, staff, as well as visitors who may not be familiar with campus. Wayfinding can be divided into vehicular signage and pedestrian signage categories. Vehicular signage guides to parking and key destinations, while pedestrian signage provides orientation and guidance to destinations when traveling on foot. A system of pedestrian and vehicular signs and messages reinforces the brand of the university and communicates clear and concise navigational guidance. The university's signage standards should govern all signage installations.

Existing Wayfinding Signage

CAMPUS GATEWAYS

Campus gateways should create a welcoming environment and sense of place for students and visitors, distinguishing the campus from the local community while communicating the NKU brand. A hierarchy of campus entrance gateways for both vehicles and pedestrians at major and secondary entrances should be considered.

Key guidelines and objectives

- Minimize elements such as overhead utilities and other signage in front of and behind gateway elements
- Incorporate a consistent palette of materials and colors that communicate the NKU brand.
- Integrate primary vehicular signage at each traffic circle along Norse Boulevard.
- Incorporate secondary vehicular and pedestrian signage at key intersections along the Norse Boulevard.
- Provide pedestrian signage at key intersections between the campus perimeter and campus core.
- Consider utilizing regional natural materials such as limestone and/or cast-in-place concrete to reflect the NKU brand.

Johns Hill Road and University Drive

TRAFFIC CIRCLES

The campus perimeter zone features four traffic circles that provide opportunities for branding and enhanced landscaping. Public art may be utilized as a gateway element that can engage with larger-scale open spaces such as traffic circles. Signature landscaping or sculpture within the circles would provide a sense of place, a notable landmark, and an opportunity to tie NKU to the surrounding community.

Nunn Drive and University Drive

Johns Hill Road and University Drive

Norse Boulevard and Johns Hill Road

University Drive and Norse Boulevard

Examples of Traffic Circle Sculpture and Landscaping

Site Materials

WALKWAYS

The standard paving for campus walkways is cast-in-place concrete with a broom finish. On primary pathways, edges may be accented with colored concrete. In prominent areas such as building entrances and courtyards, pavers can add visual interest and color.

SAFETY AND LIGHTING

Standard exterior lighting fixtures should be installed at building entrances, pedestrian routes and parking lots, including areas immediately beyond sidewalks. Lighting should be consistent and evenly distributed. Standard lighting fixtures should be visually compatible with the standard furnishings. For perception of safety, areas beyond sidewalks should be lit. Dense vegetation, walls, and other obstructions inhibiting visibility must be no closer than 15 feet from pedestrian pathways and building entrances.

Exterior lighting should be LED and the fixtures should be consistent across campus. For walkways and sidewalks, the fixtures chosen should take into consideration pedestrian safety, aesthetics and energy efficiency. Installation of bollard-type sidewalk lighting should be carefully considered, as these lights are easy to damage.

WALLS

Walls can be utilized to transition pedestrian paths between grades, to screen building components such as loading docks, and as part of a gateway structure. Concrete walls are a significant visual element in the landscape and are often located adjacent to sunken courtyards and at grade changes to mitigate slopes. Some of the walls on campus have been softened with foundation plantings, vines, and finish texture.

Walls in the landscape should generally be used only when needed, be no higher than necessary, and where feasible, consider a railing or site furniture in lieu of a solid concrete wall. With so much vertical concrete on the university's original brutalist buildings, concrete walls tend to become visually oppressive. Something more transparent is effective at balancing the solidity of the concrete buildings. For visually prominent retaining walls in the campus core, utilizing local stone such as limestone or shale is an opportunity to add visual interest and reference NKU's unique location in the Bluegrass. Within the campus perimeter, limestone walls characteristic of the region can be an opportunity to utilize local materials as placemaking and gateway features.

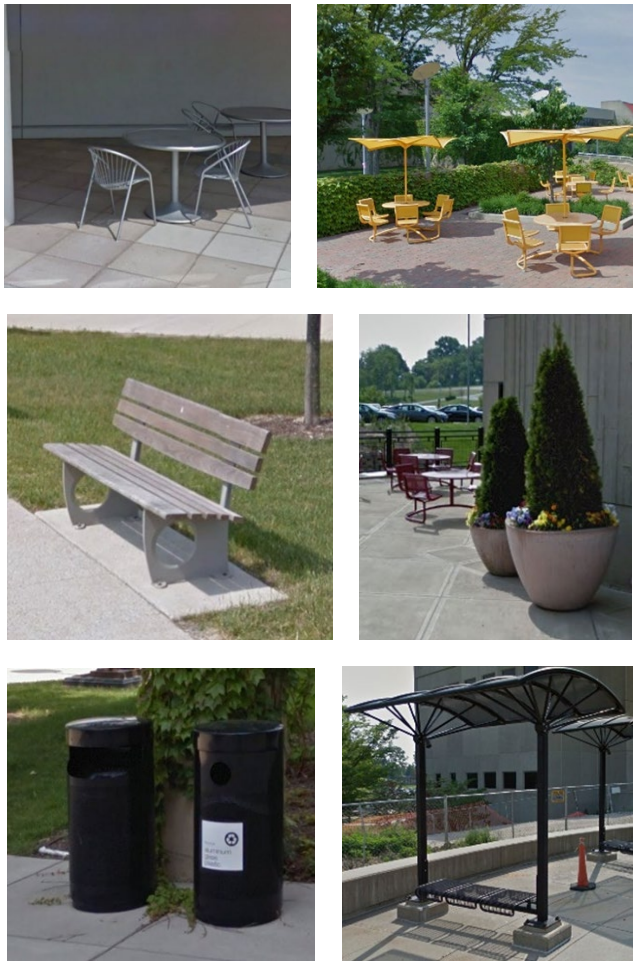
Key guidelines and objectives

- Walls and other obstructions, including dense vegetation inhibiting visibility in the landscape, should maintain a 15-foot distance from pedestrian pathways and building entrances, to ensure pedestrian safety.
- Consider methods to reduce the visual impact of retaining walls and increase interest, such as terracing.
- Soften the hard lines of walls using plant material around the structure.
- Consider utilizing local natural stone where practical.

Finishes and Furnishings

Site furnishings should contribute to a visually pleasing, functional, cohesive campus landscape and provide comfortable and convenient ways to interact with campus open spaces. The proposed furnishing standards feature a low-maintenance, durable, and modern approach to classic components.

To achieve a cohesive campus landscape, site furnishings included in these guidelines include furnishings already existing on campus. Trash receptacles, benches, tables, bike racks, and lounge furniture are included in the standard palette. Furnishings identified in the standard palette are appropriate throughout campus , but color selection may vary by location and with university approval. The extended palette includes furnishings that are appropriate for specific locations such as a residential neighborhood or a roof terrace. Selection of items from the extended palette requires university approval. Planters are not included in either palette. Planter manufacturer, style, and material is site specific as approved by the university.



Existing Furniture Palette

STANDARD PALETTE

Landscape Forms, Petosky Litter, Color: Stormcloud

Landscape Forms, Ring Bike Rack, Color: Stainless Steel

Landscape Forms, Mingle Color: Black and Steel, Yellow for Extended Palette

Forms+Surfaces, Leda

Alternatives with a compatible design that require less maintenance than wood slats will be considered for new installations.

Landscape Forms, Americana, Color: Charcoal Grey Standard, Black and Yellow Extended Palette

Landscape Forms, Glide, Color: Charcoal Grey Standard, Black and Yellow Extended Palette

Landscape Forms, Harvest Collection, Color: Charcoal Grey Standard, Black and Yellow for Extended Palette

EXPANDED PALETTE

The expanded palette complements campus standard furnishings with elements that add seating variety in strategic areas and provide an opportunity to incorporate color as a branding element. The palette can be utilized in a variety of open spaces with opportunities for recreational furniture such as ping pong tables in residential courtyards and lounge seating in turf quadrangles.

Landscape Forms, Ollie, Color: Black, Charcoal/Steel, Silver

Landscape Forms, MultipliCITY Table/Bench

Hightower True Love Outdoor Collection, Color: Charcoal Grey

Joola City Outdoor Ping Pong table Color: Yellow

Landscape Forms, Santa & Cole Key Bike Rack, Color: Yellow Residential Areas Only.

PUBLIC ART ON CAMPUS

Artwork in campus landscapes adds visual interest, provides new ways to engage with open space, and offers opportunities to express the values and mission of the university and the local community. Careful consideration should be given to the long-term maintenance and siting of exterior public art.

Key guidelines and objectives

- Evaluate the suitability of artwork, whether commissioned or acquired, for its specific site with respect to subject matter, size, materials, and concept.
- Include opportunities for art in the design process as early as possible to allow successful integration into the design.
- Establish a process for selection or approval of art which includes the involvement of experts in the field to evaluate and help site the piece(s). The university currently has a standing Public Art Committee that carries designated authority and responsibility related to selection and placement of artwork on campus.
- Provide interpretative support for landscape art including information on the artist and why pieces have been selected.

Landscape Standards

Plants are opportunities to express the character and sense of place on campus, providing various colors and textures across seasons. A successful plant palette softens the hardscape and building elements and can be utilized to progress sustainability goals and initiatives while keeping maintenance requirements manageable. New construction and major building renovations are opportunities to invest in landscape and site improvements to improve the overall quality and cohesion of campus landscapes.

General Guidelines

a. The landscape plan should respond to on-site conditions including steep slopes, stormwater management and drainage issues, wind mitigation, existing significant trees, and soil type. It will also serve to improve off-site environmental conditions and adjacencies.

b. Consider microclimates, sun exposure, and moderation of temperature extremes for both plants and people.

c. Use of native and adaptive plants is highly encouraged to increase the environmental value of new plantings while also reducing the need for supplemental watering. Native and adaptive plants also better support habitat and wildlife diversity when compared to non-native specimen plantings.

d. Do not plant anything that is on the local jurisdiction's invasive species list.

e. Low maintenance, drought-tolerant plants are recommended.

f. Plantings should include a mix of trees, shrubs, grasses, and groundcovers/perennials to create multi-layered interest in all seasons.

g. Avoid planting low-branching shrubs and other potentially unsafe, view-obscuring plants close to sidewalks and driving lanes, or in areas that may cause personal safety concerns.

h. Irrigation should be an underground system. Explore opportunities for detaining stormwater and reusing for irrigation purposes.

i. Specified plant sizes and planting methods should comply with ANSI Nursery Stock standards.

j. Avoid the temptation to over-plant when laying out plants in a bed. Allowing room for growth saves money and ensures healthy plants.

LANDSCAPE SCREENING

Plants can be used to obscure exposed loading, service, parking, and back-of-house functions. For loading drives and docks, minimize the size of drives; keep loading-dock doors closed when not in use; and, carefully situate storage and waste areas. Plant the area between fenced loading areas and the sidewalk with ornamental grasses or evergreen shrubs to minimize views toward loading docks. For surface parking lots, emphasize multi-layered planting schemes with consistent shade trees paired with shrubs and lower groundcovers while maintaining sight lines for safety and security. Irrigation in parking lots is important due to reflected heat gain. Ensure proper drainage in all areas of parking lots, and work to prevent salt spray from damaging plant and lawns areas adjacent to pavement areas.

SEASONALITY

A variety of trees, ornamental grasses, and shrubs add structure to the landscape throughout the seasons. Color from trees, perennials, and bulbs in the spring, summer, and fall provide seasonal interest. Some trees and perennials can provide color and texture in winter. Planters can provide a colorful accent year-round. Some desirable characteristics of good seasonality in landscape plantings are:

- Long growing season
- Interesting characteristics in more than one season/ year-round interest and beauty
- Provides food and habitat for wildlife and pollinators
- Attractive when dormant
- Tolerant of dry summer months and cold winter months
- Pollution tolerance

Plantings with Fall and Winter Interest

PLANTINGS FOR THE BLUEGRASS REGION

NKU's campus landscapes are an opportunity to express the unique characteristics of the Bluegrass region. Existing transitional landscapes consist primarily of manicured grass and shade trees, similar in visual composition to the Inner Bluegrass region of pastureland and shade trees. Rather than attempt to recreate the elements that comprise the Bluegrass region, the landscape design guidelines propose an interpretation of the characteristics that are practical for a campus setting.

No-mow lawns in transitional and natural edge landscapes are an opportunity to draw from the Bluegrass region and reduce long-term maintenance costs. Growing to a height of two to three feet, no-mow lawns form a thick flowing turf with a deep root system that can withstand moderate foot traffic. Before planting, the site should be cleared of competing species and seeded with a mechanical turf grass seeder with a top layer of hydro-mulch. During the establishment period, weeding and watering are necessary.

The campus perimeter is an opportunity for landscape reforestation. An increase in tree cover in these transitional landscapes, in combination with no-mow lawn, will enhance the approach to campus. Recommended tree species present in the outer Bluegrass ecoregion and suitable for the NKU campus setting are sugar maple, oaks (northern red, Shumard red, white, black, post), hickory and ash.

Example of No-mow Grass

Adding Color with Native Plants

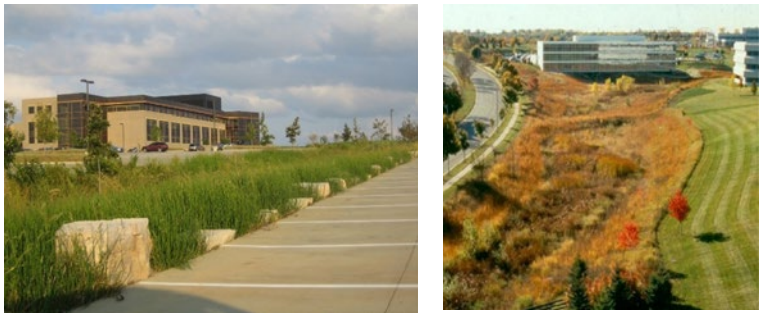
PLANTING TREES ON CAMPUS

The existence of rock just below the surface presents a challenge to planting new trees. NKU design standards include successful tree planting details that mitigate the impact of minimal topsoil and poor drainage due to subsurface rock.

Varying approaches to donations of memorial trees on campus can provide flexibility for unforeseen tree failure or to supplement future campus construction. To provide an opportunity for individuals to make donations, consider consolidating funds toward a campus-wide tree initiative that supports the on-going planting and maintenance of campus trees. Donations could be memorialized in pavers or plaques adjacent to the landscape features and/or a public written catalog of donations.

BIO-RETENTION AND STORMWATER MANAGEMENT

New buildings and infrastructure are likely to increase impervious surfaces, reducing porous surfaces needed to adequately manage stormwater on site. Best management practices for stormwater management should be followed. Where possible, building design should incorporate green roofs and easily serviced, above-grade rainwater harvesting to manage the impact of large storm events. To manage smaller, more frequent storm events, incorporate permeable paving as well as swales, retention ponds, and rain gardens.



Examples Integrating Bioretention and Stormwater Management as a Campus Landscape Feature

Sustainability Guidelines

All new construction and major renovation projects under the ownership of the Commonwealth of Kentucky must adhere to the sustainable design criteria identified in KRS 56.770-784 and 200 KAR 6:070 High Performance Building Standards. NKU is committed to achieving LEED certification on all applicable new building and/or renovation projects. The specific level of LEED certification and applicable version to follow will vary depending on the project size and budget.

Site

Site-related sustainable development guidelines for both landscapes associated with building projects and independent landscape development projects are further defined within the landscape design guidelines. Please reference the information provided in that section.

Water

- **Metering** — Each building should include a building-level meter to monitor its potable water consumption. Irrigation systems and any non-potable water systems should be sub-metered separately to isolate their use. These meters are also used to claim a rebate from SD-1 for sanitation charges, which are based on water consumption. Together, these strategies help the university achieve its long-term resource conservation goals.
- **Fixtures** — Flush and flow fixtures installed in NKU buildings should conserve potable water by conforming to LEED water conservation guidelines.
- **Appliances** — ENERGY STAR or WaterSense Label rated residential clothes washers, non-commercial dishwashers, refrigerators, microwaves and ice machines should be purchased.
- **Non-potable Water** — Explore the use of non-potable water for irrigation, and for toilet and urinal flushing to the extent acceptable to the authority having jurisdiction.

Energy

- **Metering** — Each building should include a building-level meter to monitor its energy consumption. Major systems, including any on-site energy-generating equipment, should be sub-metered separately to isolate their production and/or use, while supporting the university's long-term resource conservation strategies.
- **Commissioning** — All new energy-consuming systems should be commissioned as part of turnover to NKU. Commissioning should at minimum include system tests and confirmation of functionality aligning with each project's construction documents, operator training, and the development of an operations and maintenance plan. Building envelope commissioning should be conducted in accordance with ASHRAE Guideline 0-2005 and the National Institute of Building Sciences (NIBS) Guideline 3-2012, Exterior Enclosure Technical Requirements for the Commissioning Process.
- **Efficiency and Production** — The scientific community is in agreement that our global society must achieve carbon neutrality over the next 30 years to stave off the worst impacts of climate change. NKU signed the American College and University Presidents Climate Commitment in 2007 and is committed to reaching carbon neutrality by 2050. In support of global efforts, NKU's buildings should be designed to embrace this net-zero commitment.
- **Passive Systems** — Appropriate massing and manual blinds should be prioritized ahead of energy-consuming systems. Building envelope, glazing selections, and energy-consuming systems should be analyzed critically to ensure long-term operational efficiencies are achievable. Building-management systems should be deployed to appropriately take advantage of building setbacks when buildings are unoccupied overnight or during longer breaks.
- **Energy Source** — Electric systems are preferred over natural gas systems as natural gas systems will always require offsets to achieve carbon neutrality. Projects should be energy-modeled through the course of design to ensure total building energy consumption can be offset using rooftop photovoltaics (PV). Accommodations should be included to ensure the future installation of rooftop PV does not unnecessarily disrupt building function. Where building energy use intensity exceeds available capacity for on-site production, design teams should communicate with NKU to empower the university in deploying appropriately scaled off-site solutions.

Materials & Waste Reduction

- **Recycling** — Deploying consistent, campus-wide waste management infrastructure in the indoor environment will increase the ability of the campus community to successfully recycle. Training the campus community in one behavior that can be reliably used in all interior campus settings increases the ease of use for waste-management infrastructure. To the maximum extent possible, landfill and recycling containers should be co-located.
- **Embodied Carbon** — Existing buildings can have enduring historic value, and the preservation of the embodied carbon in their building envelopes and structural systems is critical to stemming climate change. Where possible, existing campus buildings should be reinvented and renewed to meet current and future needs. Where new buildings are required, strategies to reduce their embodied carbon should be utilized. Life-cycle investment vs embodied carbon should be a priority when building structural and material decisions are under consideration.
- **Material Transparency** — Building materials produce significant environmental and human health impacts. NKU projects should prioritize the use of building materials that make information about these impacts publicly available through environmental product declarations, health product declarations, and similar third-party verified disclosures.
- **Construction Waste Management** — Construction produces waste. Management of waste should follow LEED guidelines.

Occupant Wellness & Comfort

- **Source Control** — To preserve indoor air quality and support occupant health, all regularly used building entrances should be equipped with walk-off surfaces at least 10 feet in length to remove particulates from shoes. In addition to removing particulates that can contaminate indoor air, walk-off surfaces improve the longevity of flooring materials by reducing the amount of dirt brought into buildings and ground into flooring materials. Potential hazards such as locations where chemicals are stored, should be equipped with self-closing door hardware and either hard-lid ceilings or deck-to-deck partitions. Such spaces should be exhaust only.
- **Low-Emitting Materials** — Site-applied paints, coating, interior adhesives, sealants, flooring, composite wood, insulation, and furniture can all contain and emit volatile organic compounds (VOCs). Specifications should prioritize the use of low-VOC materials in alignment with the United State Green Building Council's LEEDv4 Low-Emitting Materials threshold, emissions, and content requirements.
- **Controls** — Building controls for lighting and thermal comfort systems should be intuitive and empower building users to modify indoor environmental conditions to meet their unique needs. Such systems should be programmed in alignment with building energy efficiency goals.

- **Daylight and Views** — Providing access to daylight can be a significant energy-efficiency strategy. To the extent practical, all regularly occupied spaces should strive to have access to both daylight and views to support energy efficiency and biophilic connections for building users.
- **Acoustics** — Building designs should work to reduce HVAC background noise, ensure speech intelligibility, and provide acoustical privacy. HVAC background noise is an important consideration in all space types while speech intelligibility is particularly significant in teaching environments. Acoustical privacy should be prioritized in private office and conference room areas as well as living environments.

Ongoing Efforts

- **Occupant Education** — The long-term success of high-performance buildings requires proper maintenance and occupant education. Interpretive signage for both regular campus users and visitors will help to build vested interest and enthusiasm in the campus community for building operations and ensure individual decisions contribute positively to collective goals.
- **Environmentally Preferable Maintenance** — Products and materials specified in NKU projects should be capable of being maintained using environmentally preferable cleansers and cleaning methodologies. Limiting the toxicity of cleansers used in building maintenance protects the health of custodial staff, reduces the presence of toxins in the environment, and contributes to maintaining high indoor air quality for all building occupants.