

BUILDING TYPE BASICS FOR

# college and university facilities



second edition

DAVID J. NEUMAN





BUILDING TYPE BASICS FOR

# College and University Facilities

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# College and University Facilities

Second Edition

DAVID J. NEUMAN FAIA, LEED AP

WILEY



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# CAMPUS PLANNING

David J. Neuman, FAIA, LEED BD + C

## OVERVIEW

Campus planning, architecture, and landscape are critical topics at every university and college with a physical setting, for three important reasons:

- They create the *actual environment* that supports the mission and goals of the institution.
- They define the tangible *identity* that the institution portrays to its alumni, faculty, students (both current and future), and the general public.
- They assist in portraying the level of *sustainability* commitment made by the institution.

In short, an academic institution's campus is a critical component of its very existence and survival. This volume is dedicated to translating this important fact into practical terms at the levels of planning, design, and implementation. The chapter authors have each contributed to the phenomenon known as the *campus* through specific plans, buildings, and landscapes, each of which has in its own way contributed to the further development of this unique environment.

While designing the University of Virginia, Thomas Jefferson described his goal as the creation of an "Academical Village" (see Figure 1.1). This term expressed Jefferson's own views on education and planning, but it also summarizes a basic trait of American higher education from the colonial period to the twenty-first century: the conception of colleges and universities as communities in themselves—in effect, as cities in microcosm. This reflects educational patterns and ideals which, although derived principally from Europe, have developed in distinctively American ways.



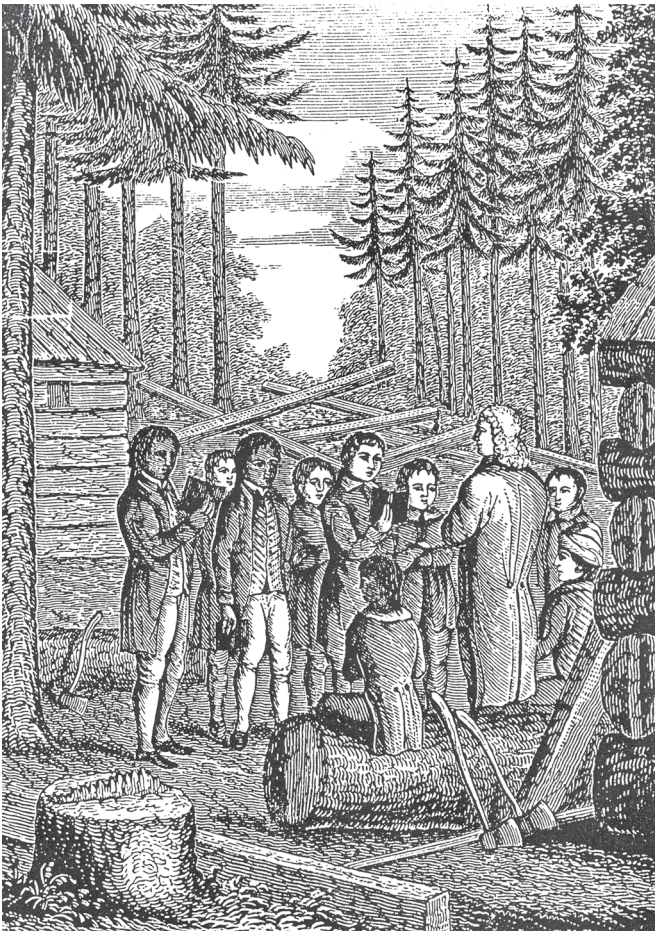
Figure 1.1 "View of the University of Virginia, Charlottesville, & Monticello," from the west. Edward Sachse, draftsman; Casimir Bohn, publisher, 1856. Courtesy of the Albert and Shirley Small Special Collections Library, University of Virginia.



## CAMPUS PLANNING

Campuses have their origins in the Western tradition of the Greek *agora* and in the Socratic approach of open debate in the public realm. The term *campus* itself was derived from the Greek terminology for a “green” or open landscaped area, and later, the Roman military “camp” of well-planned order. At once, the concept represents a paradox of freedom and control that continues to this day. Although the Greeks may have viewed the campus as a setting to spur the commerce of ideas, the Romans saw its order in terms of colonization and a way to

▼ Figure 1.2 Woodcut print depicting the teaching of Native Americans and American colonists.



bring their brand of civilization to the conquered “barbarians.” This approach is not unlike that of the early British colonists wanting to establish colleges in the fledgling communities in the American wilderness for instruction of not only their own children but also the native population after it had been “pacified” (see Figure 1.2).

The new colleges symbolized both a continuation of cultural roots and a belief in the future of the pioneering spirit. The campus itself became the symbol or icon of the college and, later, the university.

Although the overall character of a university’s physical plant can be simply a result of growth and change, a well-functioning and icon-laden campus results only when it is carefully planned and keenly managed. The qualities of such a place may be described as follows:

- Enduring planning framework
- Compelling landscape character
- Context-sensitive architecture
- Consistent perimeter treatment
- Carefully managed interface among all of these elements

The key is to incorporate these principles rigorously in every decision related to campus planning, from small to large. It is this “sense of place” in its entirety that makes for a campus’s intelligibility, functionality, and overall aesthetic. Thus, relatively simple matters, such as maintaining a consistent sign system or a standard exterior light fixture, are important components to the appearance and sense of order of the campus. Some have argued that the campus itself has transcended into the realm of art. “Unlike the two-dimensional art of painting, the three-dimensional art of sculpture, and architecture, in which the fourth dimension is function, a campus has a fifth dimension: planning. The well-planned campus

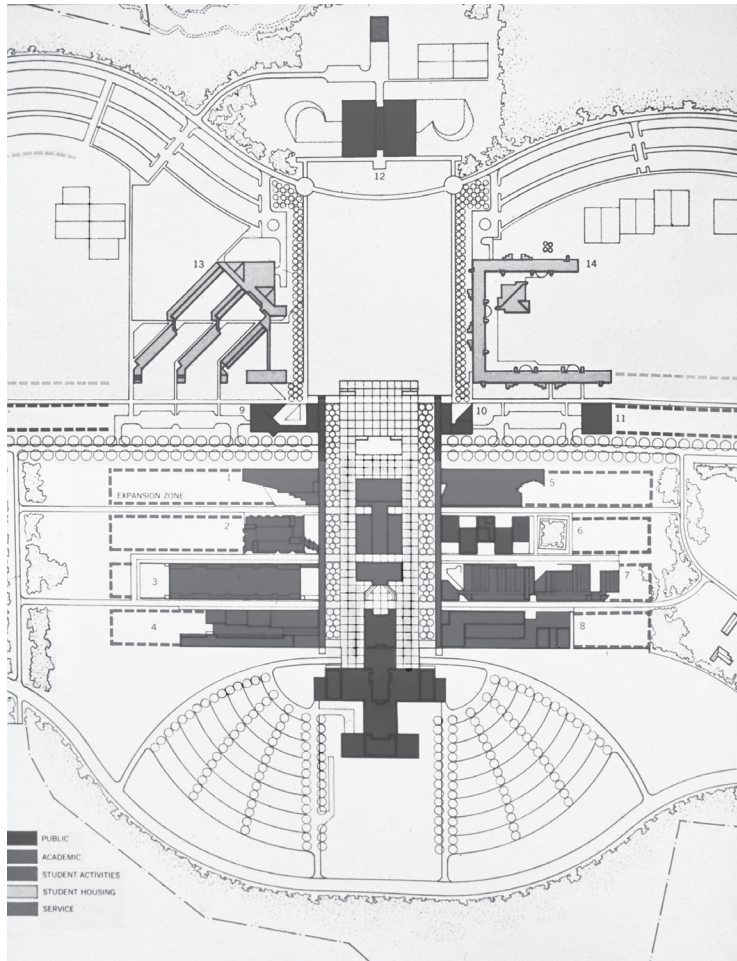
belongs among the most idyllic of man-made environments and deserves to be evaluated by the same criteria applied to these other works of art,” wrote Thomas Gaines in 1991.

The campus is not just leftover spaces between buildings. It is, in fact, a series of designed places that reflect the values of an institution’s wishes to be known for. It is a culturally dynamic, complex landscape setting. The campus must be a place that feels safe, encourages participation, en-

hances social interaction and appeals to students, faculty, staff and visitors on many levels [see Figure 1.3].

—Dayton Reuter, *State University of New York*

Those who carry on the mundane daily activities of operating and (re)developing the typical campus may balk at this statement; however, others have for years asserted the campus’s role as *utopia*. This role carries with it not only the expectation of striving for physical perfection but also the spiritual



◀ Figure 1.3 State University of New York, Purchase. Master plan by Edward Larrabee Barnes.

sense of enduring faith in human “improvement.” This serious responsibility was once shouldered by our cities, but seemingly has now been lost in the postmodern era of globalization and exurban development.

---

A public or private institution such as a college or university, occupying its own tract of land . . . is peculiarly well situated to reap the inestimable fruits of forethought and skill in planning. Nowhere is it more essential to have the physical plant beautiful and well-knit together; nowhere should it be more feasible to enlist the careful thought of well-trained minds, to weigh and reconcile all component parts, to profit by the past, to measure accurately the present, to forecast the future as well as it can be forecast. . . . [We] have called this kind of planning an art; it is also a science.

—Charles Z. Klauder and Herbert C. Wise, 1929

---

Can campuses reach for such high ground? Certainly, aspirations to the utopian can be read into works ranging from Klauder and Wise’s *College Architecture in America* (1929) to *Architectural Planning of the American College* by Larson and Palmer (1933) to Paul V. Turner’s seminal work, *Campus: An American Planning Tradition* (1984), to *American Place* by M. Perry Chapman (2006). Moreover, Robert A. M. Stern’s *Pride of Place: Building the American Dream* (1986) and Richard P. Dober’s series of campus-related books (1962–2000) place the American campus squarely in this role as a model for human settlement.

The result of this careful planning and execution by means of the campus landscape and its buildings is often assumed to be at best a didactic environment. In 1923, the Commission on Architecture of the

Association of American Colleges asserted that “a grouping of buildings, on a properly designed campus, constructed in accordance with simple and chaste architectural standards, has an art and a life value which the students . . . will assimilate unconsciously. . . . [Therefore,] it is possible for every college, even with limited means at its disposal, to contribute to the elevation of life by careful attention to its campus program.”

Although Jefferson, his confidants Benjamin Latrobe and William Thornton, and many others have shared this concept, there is perhaps no stronger example than in the development of the Frank Lloyd Wright–designed Florida Southern College campus, which its longtime president, Ludd Spivey, described in part in 2001 as “[a] great education temple in Florida” (see Figure 1.4).

Wright himself labored on this project for more than 20 years, some of the time without compensation, because he believed that a truly site-responsive American architecture was necessary to foster the American ideals of individualism and democracy. Although he was never able to complete his goal of “Broadacre City,” he came to believe that “When Florida Southern College as now planned becomes a reality—the great future will have begun in earnest.” In fact, not only was the physical campus to work well as a college and be economical to build, it would produce, Wright believed, “. . . new clarity, the chord between Florida character and beauty and the life of your many boys and girls—as they have it day by day with you down there,” as he wrote to Spivey in 1941.

Other examples of notable newer campuses begun in the twentieth century range from the Illinois Institute of Technology





◀ Figure 1.4 Florida Southern College, Lakeland. "Courtesy of Florida Southern College Archives".

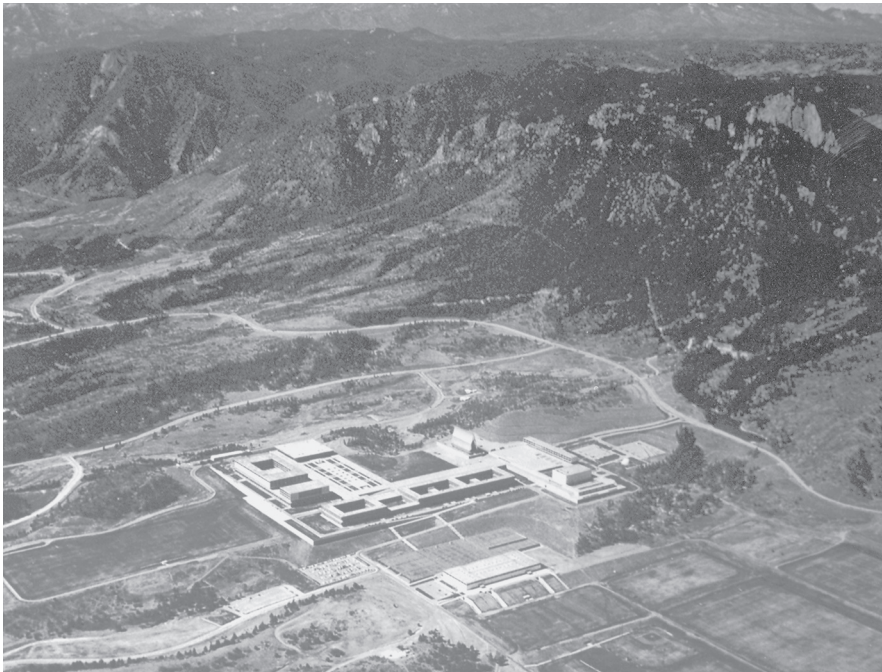
(1938–1940) by Ludwig Mies van der Rohe to the U.S. Air Force Academy (1954) by Walter Netsch of Skidmore Owings and Merrill, Philip Johnson's neo-Jeffersonian University of St. Thomas (1956), and William L. Pereira's circular plan, derived from the Garden City concept of Ebenezer Howard, for the University of California, Irvine (1963). Each of these examples underscores the belief that a well-ordered campus environment is critical to its educational mission and the well-being of its users; it is modernism's version of utopia (see Figures 1.5–1.7).

These plans, as well as a host of other new campus plans created in the last several

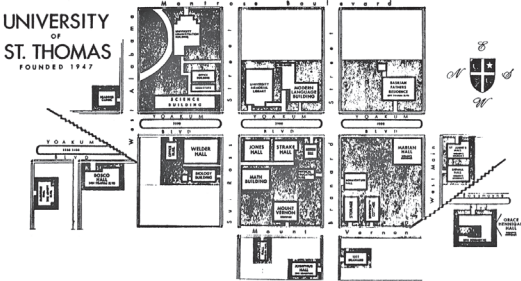
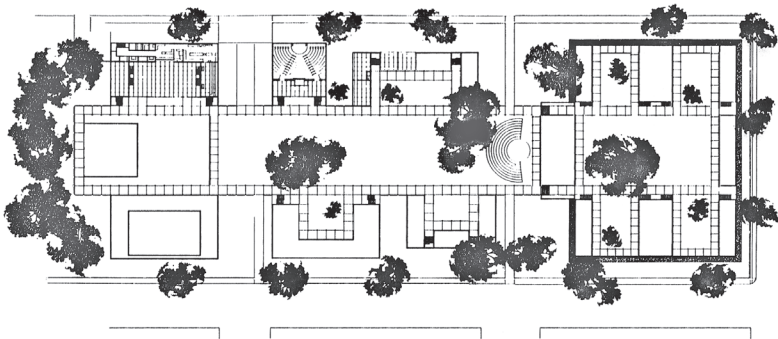
decades, have their critics, especially among those who regard them as too rigorous in their order and/or too monolithic in scale. In many instances, these may be valid criticisms, but they should not lead to an opposite belief—that disorder and haphazard physical development are better. One needs only to look at the many originally well-planned campuses of the nineteenth and early twentieth centuries that have been victimized subsequently by lack of planning to see the general chaos, poor image, and inefficient land use that resulted. A balance between a commitment to order and an ability to adapt to changing needs is the better option to pursue.

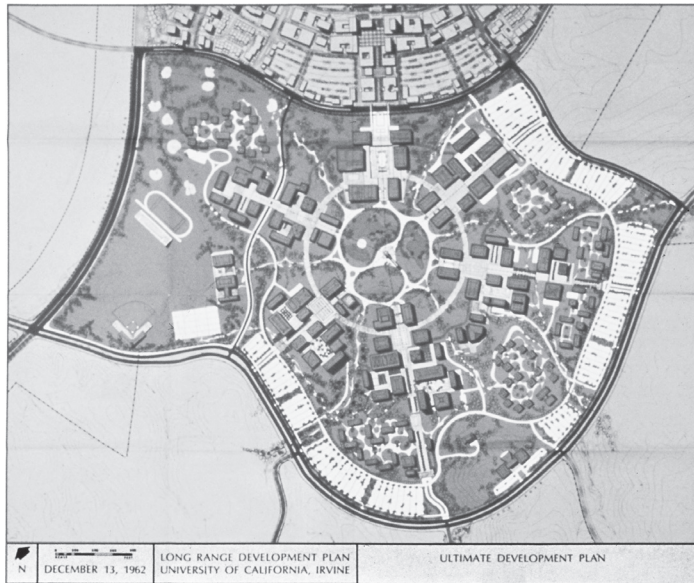
CAMPUS PLANNING

► Figure 1.5 Aerial view of the U.S. Air Force Academy, Colorado Springs, Colorado, 1962, by Skidmore Owings and Merrill.



► Figure 1.6 University of St. Thomas, Houston, Texas. Site drawings of the campus plan by Philip Johnson. Courtesy of the University of St. Thomas.





◀ Figure 1.7 Long-range development plan, University of California, Irvine, 1963, by William L. Pereira Associates. Courtesy of the University of California, Irvine.

# CAMPUS PLANNING CASE STUDY 1

## LONG RANGE DEVELOPMENT PLAN

### *University of California, Merced*

**Planner:** Office of Physical Planning, Design and Construction, University of California, Merced

**Consultant planner:** RACESTUDIO

**Distinction:** 2011 Honor Award: Planning for an Established Campus, Society for College and University Planning (See Figure 1.8)

*UC Merced is committed to developing a physical presence that will model a healthier future for the region and the world . . . this approach will produce a campus whose urban planning, architecture, infrastructure, and landscape are uniquely regional in*

*character and responses, while modeling sustainable design excellence on a global scale.*

—Richard Cummings, University of California, Merced, principal planner

### Project Objectives

1. Meet anticipated increases in enrollment demand for the University of California.
2. Serve historically underrepresented populations and regions.
3. Model environmental stewardship.
4. Avoid unnecessary costs.
5. Maximize academic distinction.
6. Create an efficient and vital teaching and learning environment.
7. Attract high-quality faculty.
8. Provide a high-quality campus setting.
9. Accommodate student housing needs.
10. Provide student support facilities.
11. Provide athletic and recreational opportunities.
12. Ensure community integration.



## CAMPUS PLANNING

► *Figure 1.8 UC Merced plan.* Bruce A. Race, FAIA, AICP, RACESTUDIO.



13. Provide regional harmony and reflect the San Joaquin Valley's heritage and landscape.

### Areas of Focus

- A compact, pedestrian-oriented campus
- Distinct academic, residential, and research communities

- Natural, low-water environments
  - Multimodal circulation
  - Distributed services and utilities
- (See Figure 1.9)

► *Figure 1.9 Town and gown district.* Bruce A. Race, FAIA, AICP, RACESTUDIO.



## PROGRAMS AND PLANS

Although this book emphasizes buildings, addressing both their specific planning and design requirements, overall planning for the campus environs, accomplished in four tiers, must occur to ensure success.

### Four Tiers of Planning

The broadest tier is overall *land use planning*. As government agencies or specially

appointed authorities, at the federal, state, and/or local levels, generally control land use patterns at most campuses, this is the critical basis for all physical planning. Increasingly, this level of planning is called “framework planning,” in which the various elements of land qualities, infrastructure, existing development, and so on are outlined into a “framework” for use in future strategic planning efforts.

# CAMPUS PLANNING CASE STUDY 2

## ONE OHIO STATE FRAMEWORK PLAN THE OHIO STATE UNIVERSITY, COLUMBUS

**Consultant planners:** Sasaki Associates

**Distinction:** 2011 Institutional Innovation and Integration Award, Society for College and University Planning, 2010

### Fundamental Strategies

- Empower agile decision making.
- Concentrate academic activity.
- Regenerate the core.
- Invest in civic infrastructure.
- Transform the River and Green reserve.
- Strengthen connections and identity.
- Enhance residential life, neighborhoods, and recreation.
- Promote partnerships.

### Civil Infrastructure

- Invest in infrastructure, transportation, transit, and open space.
- Develop a pedestrian core.
- Make the campus navigable with a restored street network and dynamic wayfinding.

- Park once (or not at all) using remote high-density parking areas.

### One University

- Be transinstitutional.
- Ensure academic mission drives the physical environment.
- Integrate strategic, physical, and financial activity.
- Concentrate activity.

### Space

- Build no net new academic space.
- Prioritize adaptive reuse and renovation.
- Link space allocation to utilization.

### Practice

- Enable agile, data-informed decision making.
- Require that projects meet multiple goals.
- Develop partnerships that complement the academic mission.
- Decrease energy use and identify alternate energy sources, promote transportation options, enhance water resources, champion natural habitats, and manage material use.

### Campus Life

- Create 24/7 campus.
- Improve existing on-campus residential districts; do not create new ones.
- Recognize the whole campus as part of the learning environment.
- Enhance neighborhoods in support of live/work philosophy.

(See Figure 1.10)



## CAMPUS PLANNING

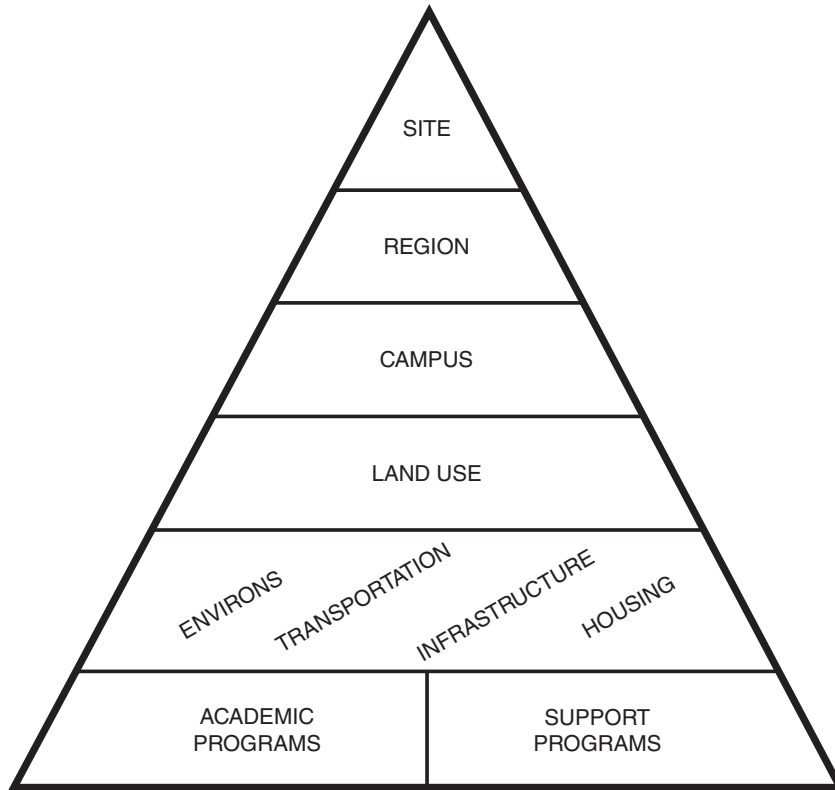
► Figure 1.10 Long-term vision. The Ohio State University and Sasaki Associates.



Land use planning must be distinguished from *campus planning*, which reflects specific urban design intentions. Within the campus plan is *district/precinct planning*, which views the campus at the scale of the neighborhood or specific program affinity level (e.g., sciences or engineering; residential or athletics; etc.). Next comes *site planning* designed to fit each individual facility into the overall fabric. All of these lead to the point where every new (and renewal) project contributes

to building a campus that is greater than the sum of its individual parts.

Underpinning these levels of physical planning are the core academic and support programs themselves as well as the specialized plans linked to the campus infrastructure, ranging from utilities to food service to transportation. (See Figure 1.11) Plans as diverse as Frederick Law Olmsted's for Stanford University in 1888, which appears to borrow from Arturo Soria y Mata's concept



◀ Figure 1.11 Integration of planning levels. David J. Neuman, FAIA.

# Integration of Planning Levels

of the ordered “linear city” along a planned transportation mall (see Figure 1.12), to Edward Durrell Stone’s plan for the State University of New York at Albany in 1962, with its well-distanced sea of parking lots, illustrate the inherent order that supporting infrastructure of various types can demand of a campus, especially in an era of fast-evolving technologies (see Figure 1.13).

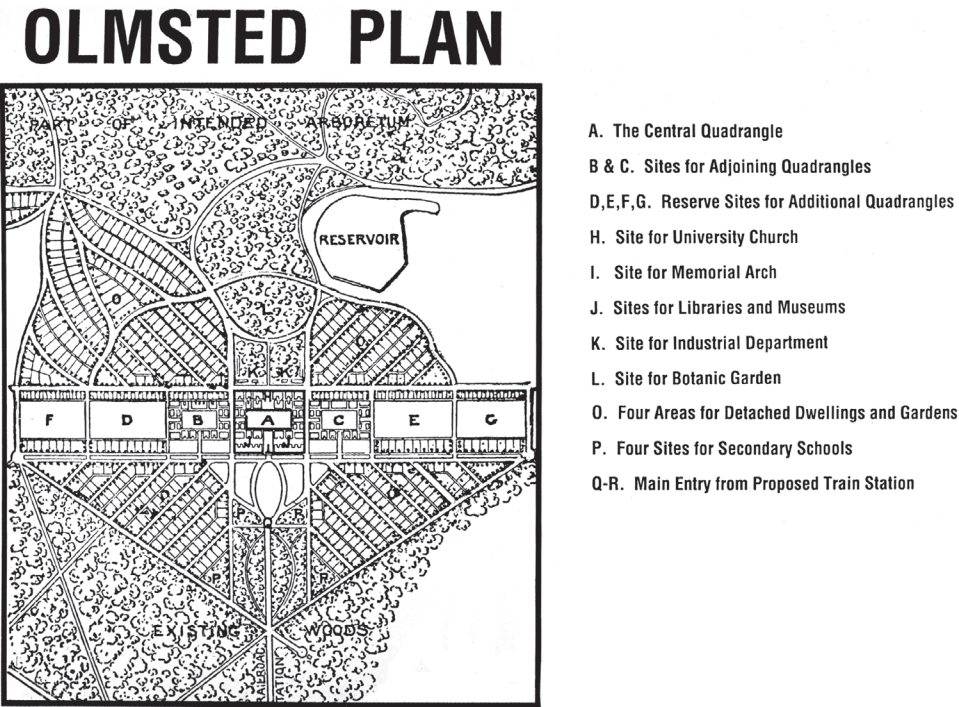
## Program Areas

Every educational campus has at minimum two core program areas: *academic* and *administrative*. Each has its own requirements determined by the size and complexity of its

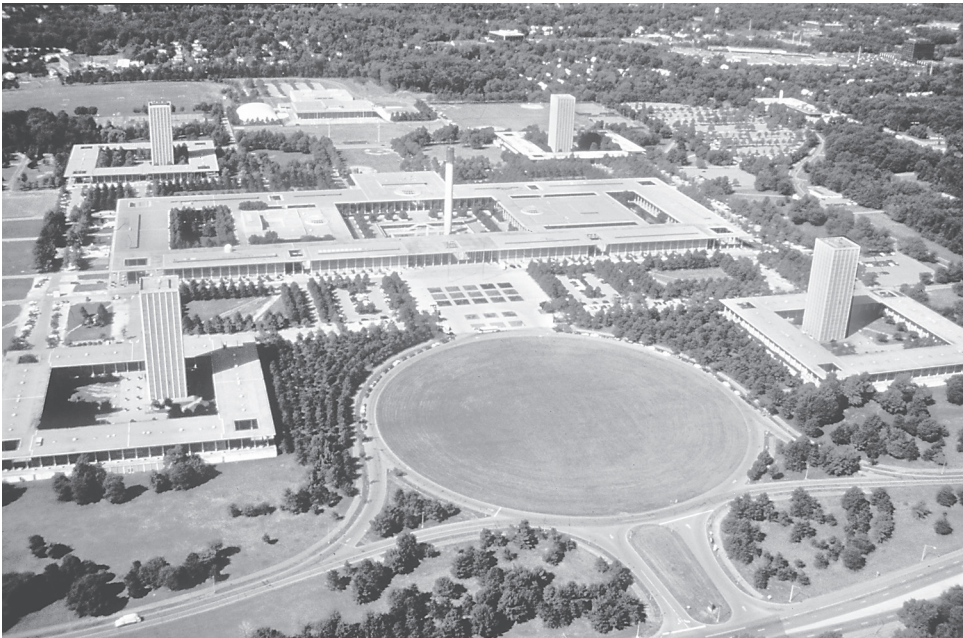
mission—from small college to major research university. A small college may be as basic in its mission as to have only a few hundred students engaged in learning traditional liberal arts; while a major public research university may have tens of thousands of full- and part-time students at all levels of study and research, in hundreds of specific and customized programs at several distinct campus locations. This academic diversity, in turn, drives the level of administrative and support needs. Basic services, such as admissions, registration, and facility operations, are augmented many times to meet the demands of increasingly diverse

# CAMPUS PLANNING

► Figure 1.12 Stanford University, Stanford, California, Olmsted illustration, 1888. Courtesy of Stanford University.



► Figure 1.13 State University of New York, Albany, by Edward Durrell Stone. Aerial photograph of the campus, 1992. Courtesy of the University Archives, University Libraries, University at Albany, State University of New York.





student bodies and very sophisticated academic programs.

Three additional program areas have grown to such a degree as to be considered separately in defining an institution's overall program: *housing*, *recreation/athletics*, and *student services*. Each has specific facility needs as well as specific land use relationships to the others and to the core academic and administrative programs. In developing (or reviewing) an institution's plans at any level, the fundamental programs in all five areas must be understood by the assigned planning team for the results to function in the near term and to be sustainable in the long term.

In the past, the decision to have a campus housing program was often voluntary. An academic institution could decide whether a resident population of students, faculty, and/or staff would enhance the core academic mission. Rural (and some suburban) institutions generally had little choice but to have student housing, if they were to attract students. Urban institutions could choose not to have a residential component because available rental housing existed nearby or might be developed by independent real estate interests. Economic conditions have changed to the point that nearly every institution, small or large, must now provide some form of housing services. This may range from rental subsidies and off-campus rental directories and placement assistance to on-campus accommodations, such as traditional dormitories, fraternity/sorority/co-op houses, and apartments for students, with even condominiums and single-family houses for faculty and staff.

The reasons for this shift from "voluntary" to "necessary" on-campus or campus-controlled residential programs are the conditions of the local real estate market, a desire to have residential learning programs,

or both. Local housing markets must be gauged in relationship to student, faculty, and staff incomes. Residential education allows for a specific, often intensive, approach to an in-depth learning experience, particularly at the undergraduate level. Thus, from nearly every institution's perspective, land use planning now embraces three necessary program areas: academic, administrative, and residential.

For most institutions, the program list has also grown to include both recreation/athletics and student services. Increasingly, students, as well as faculty and staff, have insisted on recreational programs and related facilities to complement traditional collegiate athletic facilities for organized sports at both the intramural and varsity levels. The number of sports teams and their specialized facilities has burgeoned because of the diversity of interests and as a result of the legal requirements of Title IX, which mandates equality of opportunities for both men and women. In addition, in many students' minds, recreation has become synonymous with good health and attractive appearance. This has led to the expansion of traditional athletic venues, such as gymnasiums, sports fields, and aquatics facilities, as well as specialized recreation and exercise facilities for dance, aerobics, and strength training. In addition, faculty and staff have demanded (and received access to) recreational facilities to support their own interests and wellness.

An increase in returning and other non-traditional students has expanded the demand for student-related services such as child care, commuter student locker and study areas, career counseling, and financial aid assistance to the point where the planning and facilities development for these types of specialized programs are a major commitment on many campuses. Despite the advent of e-learning and the virtual

## CAMPUS PLANNING

campus, most colleges have not seen these approaches to learning replace traditional on-campus facility needs. Rather, colleges have had to provide additional services, often to nontraditional students, to satisfy the rising expectations created by the digital revolution and the World Wide Web. These new requirements range from providing convenient Wi-Fi access in many campus locations (e.g., classrooms, libraries, student centers, and student rooms) to creating more readily accessible student service programs—for example, specialized financial counseling. This new definition of student services has thus spawned a facility-oriented program of its own, which often overlays the core programs and increasingly commands its own specialized buildings, such as career development centers, particularly at community colleges (see Figure 1.14).

### Infrastructure

No discussion of campus planning is complete without a mention of infrastructure. Infrastructure has become more than merely a support system for the core programs. It is a fundamental program of its own, with its own detailed planning and facility needs. It embraces myriad conventional utilities and specialized facilities, ranging from central plants to information technology centers to parking structures that hold a campus together, both literally and figuratively.

Although some infrastructure facilities are aboveground and visible in scale and presence, a significant amount of infrastructure is below ground, in tunnels, in duct banks, or directly buried. It is apparent only when being installed or under repair. Such facilities cannot be taken for granted. Indeed, they are becoming an

► Figure 1.14 Campus Center, Foothill College, Los Altos Hills, California. Perkins + Will. © 2008 New York Focus, LLC—[www.newyorkcityfocus.com](http://www.newyorkcityfocus.com).



increasing concern because of their cost, their availability, and/or their environmental consequences. Rising energy costs, increasing demand for data service lines, global warming and sustainability, parking rates, bicycle facilities, and the like are all part of the daily milieu of a contemporary campus. Infrastructure has thus become a major concern to be debated and funded as well as balanced with the demands of other core programs.

Although these six programs (academic, administrative, housing, recreation and athletics, student services, and infrastructure) form the general basis for land use, campus, district, and site planning, many institutions add other programs that are outgrowths of their specific academic programs (e.g., a medical school has a need for a teaching hospital and related clinics). Another related development is the campus research park, where private corporations can buy or lease

land and build facilities to avail themselves of the talent pool of faculty and graduate students at the host academic institution. In some cases, these facilities are made part of the overall land use plan for the institution itself.

Campuses of the future, like those in the past, must anticipate change and accommodate growth. Resultant campus planning issues are as likely to be driven by a larger student population as by rising expectations of the traditional campus community and its surrounding host community. Colleges and universities are increasingly called upon to serve “town,” as well as “gown,” for everything from extended learning opportunities to athletic events to performing arts and recreational facilities. Successful campuses will be those that plan accordingly and implement these public/private ventures in a spirit of openness and with an expectation of collaboration.

## CAMPUS PLANNING CASE STUDY 3

### MASTER PLAN

*Haverford College, Haverford,  
Pennsylvania*

**Architect/planners:** VSBA, Inc.

**Distinction:** 2010 Honor Award, Planning for an Established Campus, Society for College and University Planning

*The master plan will serve as a living document and decision making tool, providing guidance for the development of the college well into the future. The*

*plan will balance our ambitions for academic and institutional development with our commitment to sustaining the physical beauty of the campus and its buildings. The plan aims to be comprehensive, historically responsive, and environmentally proactive, and to take into consideration what Haverford College has been in the past, where it is today, and where it sees itself going in the next quarter of a century.*

—Haverford College Master Plan website

### Key Spaces (see Figure 1.15)

#### College Walk

- Featherbed Orchard Walk
- Founders Green
- Green space

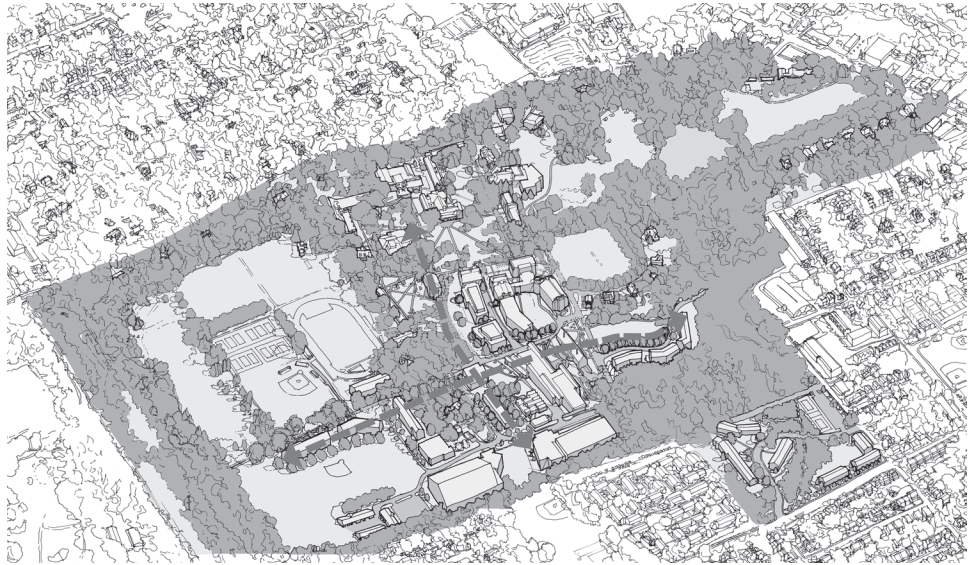
#### Campus Facts

- College founded: 1833



## CAMPUS PLANNING

► *Figure 1.15 Plan, organizational axes.* Courtesy Venturi, Scott Brown and Associates, Inc.



- Plan completed: 2010
- Campus size: 216 acres
- Size of student body: 1,168
- Oldest planned college landscape in United States
- English gardener William Carvill laid out the grounds of the campus
- Tree to student ratio: approximately 3.25
- Arboretum campus
- Name derived from Welsh word for “goat crossing”

### Key Concerns

- Preserving and maintaining historic buildings and landscape while updating them to serve evolving needs
  - Providing greater degrees of accessibility, especially to those with impaired mobility
  - Creating space for community activities at many different scales, campuswide
  - Encouraging environmental stewardship
- (See Figure 1.16)

### Areas of Emphasis

- Improved student residential space that includes better social space as well as needed beds



*Figure 1.16 Founders Green.*

- Improved student social, activities, and performance and visual arts space; new facilities in fine arts, music, theater, exhibitions, collections; and digital media (film, photography, etc.) that serve to integrate the campus through a distributed model of arts facilities

- Improved and increased classroom, research, and academic departmental space around the Founders Green core

*Founders Green is the symbolic heart and center of Haverford's campus. An important component of the plan is the realignment of the College's physical campus with its mission by returning more*

*academic uses to buildings in and around the Green.*

—Haverford College Master Plan

*[W]e'll remain true to our legacy (and our promise) as we grow and adapt in ways that are informed by who and what we are, and value.*

—College president Stephen Emerson,  
February 2008

### CAMPUS PLANS, DISTRICT PLANS, AND SITE PLANS

Overall land use plans set the general direction for the development of the academic campus in much the same way as a general or comprehensive plan guides the overall development patterns and functional land use compatibilities of a city or county. For an academic institution's overall land use plan to work well, refinement and detail are required at several levels. These levels are the urban design level (*campus plan*), the neighborhood level (*district/precinct plan*), and the individual facility level (*site plan*).

Each of these physical plans and refinements is necessary to make the campus vision a reality at the individual user's level of experience and engagement. They cannot be replaced by one grand "master plan," as has been tried with very limited success in the past and, unfortunately, continues to be attempted at present. "The fixed master plan should be replaced by a physical framework that differentiates between the urban form of the campus as a whole and the opportunity for incremental, circumstantial design shifts within it." Regulating plans and sections should "define road, parking, utility, open space, and landscape configurations as

the permanent physical order of a campus," as architect Stefanos Polyzoides remarked more than a decade ago; and those administering a campus must understand this over time as well.

Boards of outside experts and/or carefully structured campus/community-based committees can assist in implementing well-developed plans, but they cannot be expected to invent the plans on their own. Sound institutional planning and administrative commitment to such planning must be both long-term and dedicated.

### Campus Plan and District Plans

The campus plan represents the pictorial medium for expressing the core programs and their future aspirations. It unites two-dimensional adjacencies as viewed in plan with the three-dimensional realities of topography, landscape, and building massing to bring about well-functioning and aesthetically pleasing environs. It is the urban design for a campus—*urban* as defined by a community's social welfare, and *design* as defined by creative and inspiring possibilities. It is not a "master" plan, because it must respond to change and be adaptive to new program developments and future



## CAMPUS PLANNING

► Figure 1.17 Campus plan, University of Wisconsin, Madison, 2005. University of Wisconsin–Madison, Ayers Saint Gross.



generations of faculty and students. Although rendered illustrations and models (traditional or digital) are needed to convey the intent of the campus plan and its urban design, these images must be more evocative than specific in content. This allows for a more strategic and creative response by subsequent campus planners and consultant-based design teams who carry out the various campus facility components over time.

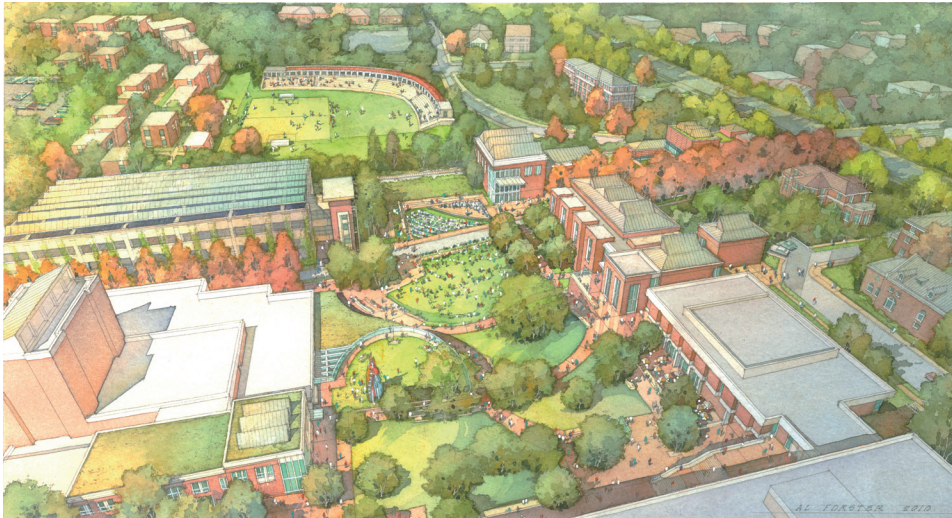
The *district* or *precinct plan* becomes a more detailed vision of a particular area of the campus. It interprets the campus plan at the level of a specific campus neighborhood. This area can be defined by its use, such as a residential grouping or an academic cluster of interrelated studies and research. Plans of this type identify specific requirements to be addressed as the area grows and/or changes. Common requirements include service ways and loading docks, bicycle paths and disabled access routes, food services, shared landscape activity zones, and so forth. District plans should be used not only to verify common needs but also to execute them and to address their specificities,

timing, and funding requirements. This level of planning is frequently overlooked when it is, in fact, critical to the overall implementation of the campus plan and the site planning for individual structures. (See Figure 1.18; Color Plate 1.) Because they are mid-range in concept, district plans must be updated frequently as growth occurs or programs change. These updates offer the opportunity to stage workshops in the different precincts of a campus to engage faculty, staff, and students in providing experiential feedback on the daily use of their facilities and landscapes as well as in planning the future aspects of their neighborhood.

### Site Plan

Although it is a basic necessity for development of every new facility, a *site plan* is very often done in isolation from its role in campus planning. Realistically, the siting of a facility is one of the most important acts of campus planning, as it must take into account so many important criteria, such as the following:

- Conforming to existing land use, campus, and district plans



◀ Figure 1.18 Arts Grounds plan, University of Virginia, Charlottesville. OLIN.  
Al Forrester, Illustrator.

- Reinforcing physical relationships with relevant academic programs
- Respecting functional relationships to other programs and activities
- Meeting access requirements—pedestrian, bicycle, vehicular, service, and those of the Americans with Disabilities Act (ADA)
- Facilitating use of a site for the present purpose while allowing for future alternative uses
- Minimizing impact on natural and cultural resources
- Providing a developed site that is adequate, but not excessive, for the initial program, future expansion, and support uses
- Promoting site visibility and image as related to the overall campus and the specific program
- Creating an aesthetic character appropriate to the district in terms of architectural design, scale, landscape, setbacks, etc.
- Conforming to local agency requirements for zoning, density, etc. (as needed)

When these criteria, and others developed specifically for each project, are interpreted properly, the results will enhance not only the individual project but also the comprehensive and dynamic outcome of the campus itself.

### SUSTAINABILITY

In planning parlance, the term *sustainability* has existed for many years. Its definition continues to evolve over time, a good sign that the concept is being discussed, debated, and used in making decisions about such diverse issues as energy use, local services, stormwater management, transportation, open space, resource conservation, air and water quality, and building design. But the term must incorporate a balanced concern for three interdependent areas: *equity*, *economy*, and *environment*. All of these “three Es” are part of campus planning.

Within the “three E” context, many campuses are developing guidelines for future planning and facility projects, both new and renewed. A sustainable building

may be called “green,” “high-performance,” or “energy-efficient,” but each of these terms inevitably refers to buildings that minimize the use of energy, water, and

other natural resources and provide a healthy, productive indoor environment. To achieve these goals requires an integrated development process.

# CAMPUS PLANNING CASE STUDY 4

(See Figure 1.19.)

## LONG-RANGE DEVELOPMENT PLAN *University of Hawaii, West O’ahu, Kapolei*

**Architect:** John Hara Associates, Inc.

**Campus planner:** David J. Neuman, FAIA

**Landscape architect:** PBR Hawaii and William Johnson, FASLA

**Distinction:** 2006 Merit Award, Analysis and Planning, American Society of Landscape Architects

*In addition to the development of state-of-the-art facilities, the UH West O’ahu Kapolei campus will be a model of sustainability, incorporating the latest green building technologies and design for the benefit of future generations. In Fall 2007, we enrolled our first-ever freshman class in the university’s more than 30-year history. We are now poised to begin construction of a much-anticipated permanent campus (see Figure 1.21).*

—Gene I. Awakuni, UH  
West O’ahu chancellor

### Key Spaces

- Classroom
- Laboratory
- Maintenance
- Administration

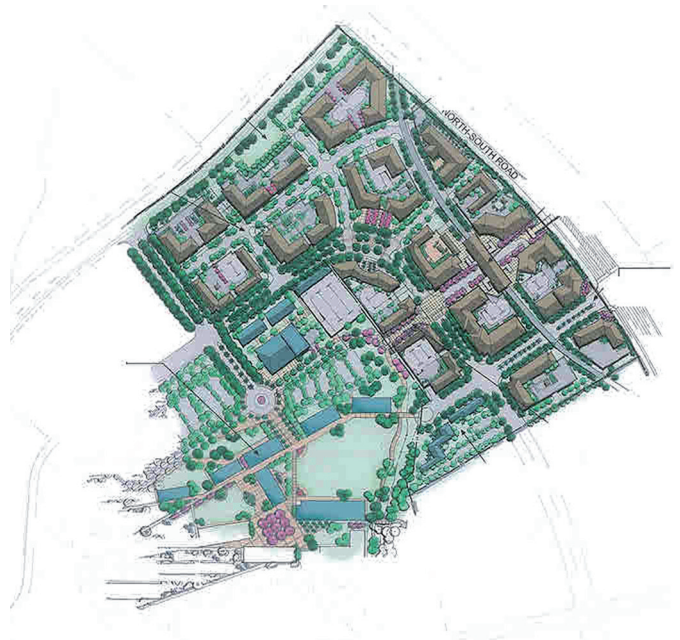


Figure 1.19 Mixed-use village conceptual plan. Photo courtesy of University of Hawai’i–West O’ahu.

- Library/resource center
- Student services/campus center
- The Great Lawn

### A New Campus (see Figure 1.20)

- Ground blessing in January 2009 in anticipation of the new campus
- Incorporate LEED Standards for architectural sustainability
- Organized around a 3.9-acre open space called the “Great Lawn”
- Phase 1 completed for Fall 2012 semester





◀ Figure 1.20 Aerial photograph, 2012. Photo courtesy of University of Hawai'i–West O'ahu.



### Development Plan

- Capitalizes on existing site features.
- Campus master plan will accommodate 7,600 students (742,845 GSF of buildings) with ample area for expansion.
- Initial 1,520 student campus concentrated at core to establish a physical presence for the campus.
- Design to be accessible to a possible lightrail transit stop and University Village.

Figure 1.21 The Great Lawn and obelisk. Photo courtesy of University of Hawai'i–West O'ahu.

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In our every deliberation, we must consider the impact of our decisions on the next seven generations.

—*Great Law of the Iroquois Confederacy*

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AASHE's mission is to empower higher education to lead the sustainability transformation. We do this by providing resources, professional development, and a network of support to enable institutions of higher education to model and advance sustainability in everything they do, from governance and operations to education and research.

—*Mission Statement of the Association for the Advancement of Sustainability in Higher Education (AASHE), founded in 2005*

---

An integrated development process combines design, construction, and maintenance practices that consider the environmental, economic, and social impacts of buildings and landscapes. This process must achieve the building program yet be cost effective. It expands and complements the classical building design concerns of the Roman author Vitruvius, of “firmness, commodity and delight,” in a way that enhances both the interaction among building systems and the optimization of their energy and environmental performance.

---

Then no man can, by natural right, oblige the lands he occupied, or the persons who succeed him in that occupation, to the payment of debts contracted by him. For if he could, he might, during his own life, eat up the usufruct [utility] of the lands for several generations to come, and then the lands would belong to the dead, and not to the living, which would be the reverse of our principle.

—*Thomas Jefferson to James Madison, September 6, 1789*

---

All institutions must be concerned with such environmental issues as water conservation, land use, energy efficiency, and operational costs as well as providing healthful buildings for students, faculty, staff, and visitors. Moreover, the building industry has a great global impact on the environment. More than 30 percent of all energy in the United States is consumed by buildings, and 60 percent of all electricity in the country is consumed by building users. In addition, 12 percent of potable water in the United States is used in buildings. This topic is discussed further in Chapter 2 in a series of case studies of entire campuses as well as specialized buildings.

---

[Sustainability is] development that meets the needs of the present without compromising the ability of future generations to meet their needs.

—*United Nations, Brundtland Commission on Environment and Development, 1987*

---

### LANDSCAPE

The term *academe* is based on the Greek expression for the fourth-century B.C. grove of olive trees planted for Plato's academy. Thus, the landscape is commemorated in its relationship to a “campus” long before buildings were built for academic pursuits as we know them today. Many articles, and several books, have been devoted to the landscape as an element in experiencing the campus. Prospective students are often attracted by the bucolic beauty of a campus as much as by the specific attributes of the campus buildings or even by the specific qualities of the academic programs themselves. Many campuses are in large measure defined by their siting (or setting) if they have not somehow managed to obfuscate it by poor planning, inappropriate landscape,

and/or overscaled architecture. Some campuses are blessed with an unrivaled natural landscape setting, such as the University of Colorado, Boulder, with its magnificent Rocky Mountain backdrop; the Massachusetts Institute of Technology, with its Charles River frontage; and the University of California, Santa Cruz, with its redwood forest overlooking the Pacific Ocean. Other campuses must do with fewer natural attributes and have had to rely on their own best efforts at planning *and* planting to establish a sylvan character, as at University of Texas, Dallas (see Figure 1.23).

The following long-term goals set a positive framework of preservation, renewal, and management for the future vision of the campus landscape:

**Educational Mission** Develop the campus landscape in support of the educational mission of the University.

**Campus Image** Maintain the campus image of buildings in a park.

**Historic Continuity** Preserve and enhance the campus landscape features that provide continuity with the past.

**Stewardship** Provide stewardship to enhance the distinctive natural and physical attributes of the campus.

**Landscape Character** Provide and maintain sustainable, quality landscapes that enhance the use of campus open space.

**Community** Provide and maintain a welcome, safe and accessible campus environment.

University of California, Berkeley, Landscape Master Plan, January 2004.

Campus landscapes share many attributes; among them are scale, juxtaposition, climate responsiveness, and permanence.

*Scale* deals with the perception of objects (trees, buildings, etc.) in relationship to one another and to the person viewing them. Because this can be a relative perception, it can lead to misunderstanding. For example, to a person from a large city, many campuses seem “rural” in scale, whereas to a person from a suburb or a farm, the same campus may feel quite “urban.” Two keys to the issue of correctly perceiving *scale* relate to consistency with the campus plan’s original intent and commitment to maintaining a perceptible environmental quality over time.

*Juxtaposition*, in a campus landscape, relates to the tension among the layers of the observed environment (e.g., the ground plane in relationship to buildings or trees seen against the sky). This element creates a dramatic outcome essential to the memory of an overall environment.

*Climate responsiveness* entails sustainability and aesthetic appropriateness. Landscapes designed and maintained in response to local microclimates are not only more environmentally friendly to water use and plant longevity but also more economic to maintain.

Finally, *permanence* is a certain lasting quality that is sensed by alumni, as well as by current students, faculty, and staff, who want to believe they are a part of a place that endures, along with its values, beyond a normal lifetime. The campus landscape, when properly developed and maintained, can convey this quality more than the individual buildings themselves, which are frequently modified or even removed.

## ARCHITECTURE

No campus development topic attracts more discussion (and controversy) than architecture, whether it is the design of a new



building or the decision to renovate *or* to demolish an old one. A building's functionality and life-cycle cost warrant serious discussion, but too often these become lost in a debate over the appearance of the building. Few seek to be the engineer of a new building, but many want to be its architect, at least in its exterior design!

---

Gothic architecture has added a thousand years to the history of the university, and has painted every man's imagination to the earliest traditions of learning in the English-speaking race.

—Woodrow Wilson, 1902

---

Every time a student walks past a really urgent, expressive piece of architecture that belongs to his college, it can help reassure him that he does have that mind, does have that soul.

—Louis Kahn, 1962

---

Some claim that universal space is the cure for both current campus needs and future flexibility. Such proposals have been wide-ranging, from the original campus of the Illinois Institute of Technology to the expansion of the Free University of Berlin.

The Free University of Berlin development was viewed as extreme by many architects and campus planners, who decried its loss of sense of place (arguably not true). Others blasted its lack of landscape in the traditional sense (despite its urban setting). Many of these criticisms may have stemmed from fear of change, rather than any inherent flaws. In fact, the very design intent of universal space is filled with a commitment to the principles of an open university and a belief in an accessible physical setting for an educational utopia.

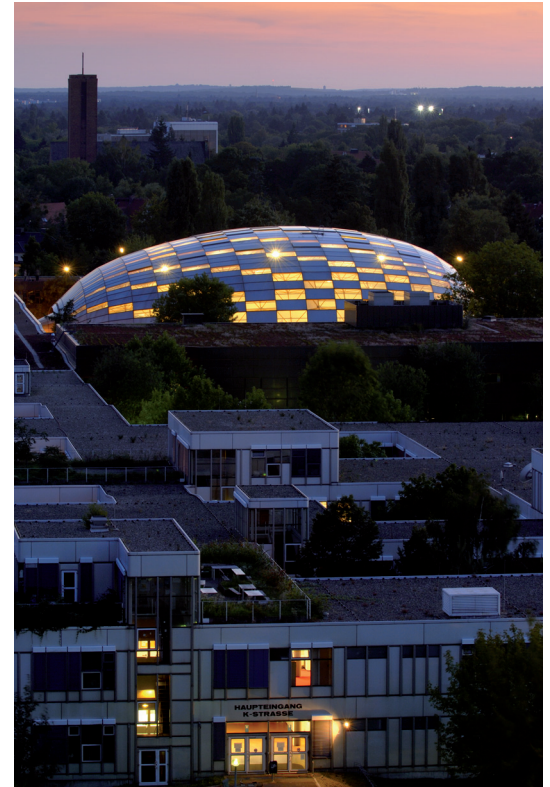


Figure 1.22 Free University of Berlin.  
© Nigel Young/Foster + Partners.

Despite criticisms, the facilities have served the Free University well and have been restored and renovated by Foster + Partners (see Figure 1.22). The Free University also demonstrates the benefits that universal space can bring to universities. Recent critiques of a university's failure to keep pace with current technologies often blame the excessive building constraints of many unduly specialized contemporary buildings as compared with the flexibility of the "old-fashioned" loft spaces in historic campus buildings. Prominent architects Robert Venturi and Denise Scott Brown have continued to stress the inherent

benefits of flexible, high-ceilinged lofts both in their many campus buildings and in their prolific writing. From the University of Michigan to the University of California, Los Angeles, their concept of appropriate campus architecture has housed functions as diverse as student centers, business schools, and medical research labs, all in site-specific, flexible “decorated sheds” as opposed to overarticulated “ducks,” in their vocabulary (see Figure 1.24).

We consider the university as a tool and as a place. Many of its functions and uses are known and many are not. We take as a working hypothesis that the principal function of the university (as distinct from the school or faculty) is to encourage exchange and intellectual regeneration between people in different disciplines, so as to enlarge the field of human knowledge and increase man’s control over his collective and individual activities.

We are convinced that it was necessary to go beyond the analytic study of different faculties or activities in different buildings; we imagined a synthesis of functions and departments where all disciplines could be associated and where the psychological and administrative barriers which separate one from the other would not be reinforced through architectural articulation or the fragmentary identification of the parts at the expense of the whole.

—Shadrach Woods of Candilis, Josic and Woods, Architects for the Free University of Berlin, 1965

In 1997, author and critic Witold Rybczynski called for a campus architectural context in its broadest sense—that is, physical and cultural. The physical refers to scale, massing, window and roof



Figure 1.23 Landscaped entrance to the University of Texas, Dallas. Aerial Photography Inc. / PWP.

treatments, materials, and colors. The cultural speaks to time; as Peter Rowe, former dean of Harvard’s Graduate School of Design, stated, “We are in the twenty-first century. Why should we build in the style of the eighteenth?”; or, as former Harvard



## CAMPUS PLANNING

president Neil Rudenstine put it, “To think that all [our future buildings] should be stamped out in one particular form, would be, I think, a serious mistake” (see Figure 1.25).

There is, however, a distinct line between mimicry and honoring a strong architectural tradition. Many campuses have a robust architectural character, anchored by their original buildings and their own particular use of materials and details. A core campus architecture is an extension of the original plan, but it develops and changes over the years with new building technology, new

codes, and new programs. To achieve a sense of continuity of character while also acknowledging change can be very difficult. The challenge is to be inspired by tradition without stifling innovation. This approach has recently led to various attempts at creating architectural guidelines for developed campuses.



Figure 1.24 Life Sciences Institute, University of Michigan, Ann Arbor. Venturi, Scott Brown and Associates, Inc., in association with the Smith Group and Desman Associates. Photograph courtesy of VSBA, LLC.



Figure 1.25 41 Cooper Square, Cooper Union, New York, New York. Morphosis Architects. Photo: Iwan Baan.

# CAMPUS PLANNING CASE STUDY 5

## CAMPUS MASTER PLAN RICE UNIVERSITY, HOUSTON, TEXAS

Architect/planners: Michael Graves & Associates

*The 50-year Master Plan locates infill buildings within the existing fabric to enhance outdoor spaces while providing covered paths. These paths increase comfort for students traversing in the Texas heat and rain. A new South axis is designed to link the university with the Texas Medical Center, promoting collaborative research and promoting larger footprint buildings which*

*accommodate modern research labs. Upgraded sports, recreation and landscaping are also provided.*

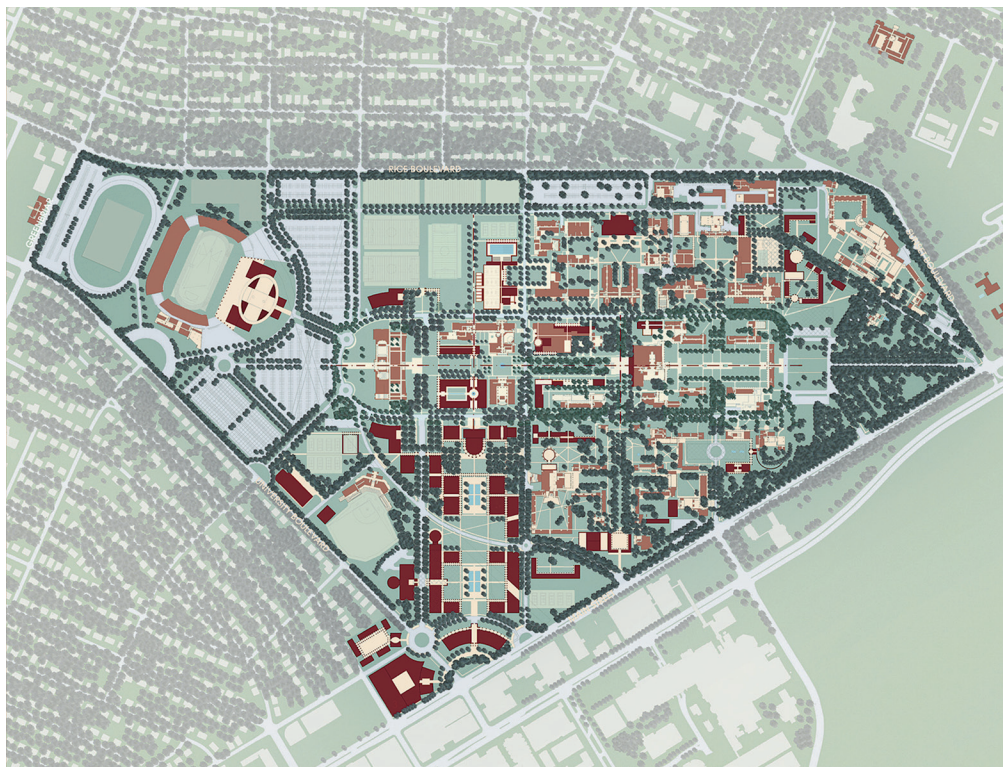
—Fifty-Year Master Plan

### Campus Master Plan Facts

- Project type: master plan, mixed-use university: academic, recreational, residential, commercial/institutional, transportation
  - Services provided: master planning, site analysis, general program verification, feasibility studies, design review
  - Project size: 300 urban acres; 1.6 million sq ft academic and miscellaneous infill projects
  - Project schedule: 11 years (ongoing)
  - Principal-in-charge: Thomas Rowe, AIA, APA, CID
- (See Figure 1.26.)

### Campus Master Plan Goals

- Carefully build upon the principles in the historic campus plan.



◀ Figure 1.26 Fifty-year master plan, 2004. Images courtesy of Michael Graves and Associates and Rice University.



# CAMPUS PLANNING

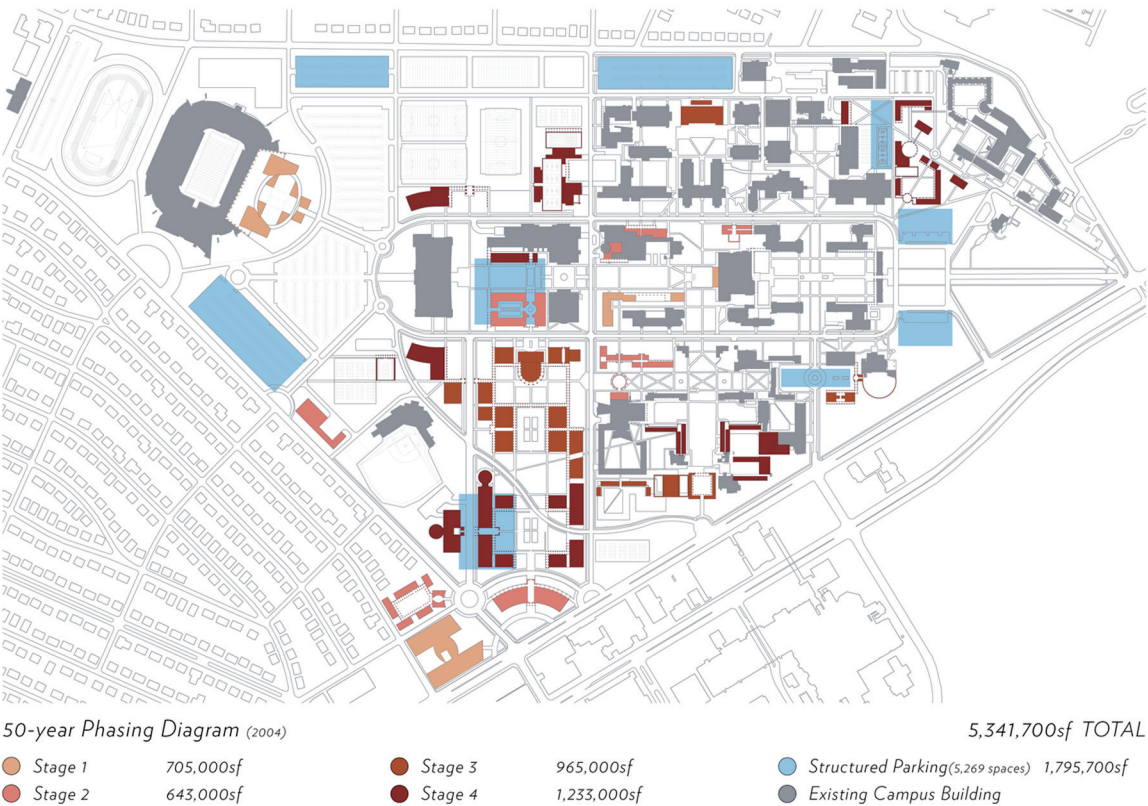


Figure 1.27 Fifty-year phasing diagram.

- Build within the core campus.
- Reinforce connections to surrounding institutions and the city.
- Integrate large floor plate buildings within the scale and fabric of the existing campus.
- Provide housing for projected growth in student population.
- Provide quality athletic and recreational facilities.
- Improve pedestrian, bicycle, and automobile traffic flow.
- Maintain open space by providing subsurface parking.
- Provide for utility and drainage requirements associated with growth.
- Reinforce axes and outdoor spaces with landscaping.

(See Figure 1.27.)

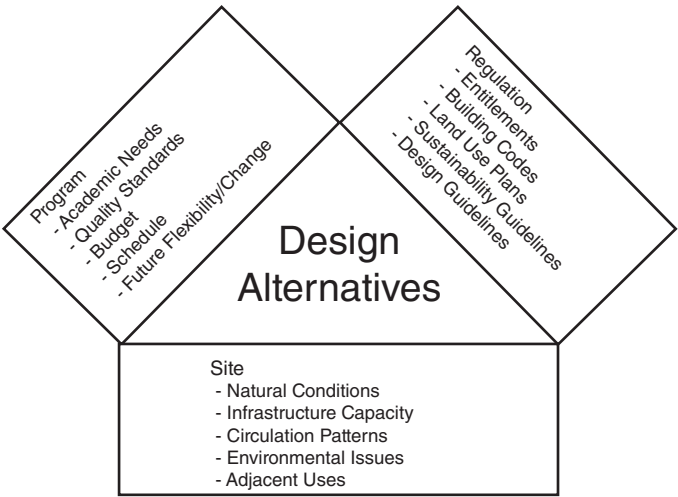


Figure 1.28 Design alternatives graphic. David J. Neuman, FAIA.

## Guidelines

No written guidelines can fully detail all aspects of campus design criteria, nor should they imply direct imitation of any existing facilities. They do stress, however, that a new project should respond to its program, its immediate site, and context, and its cultural heritage. Guidelines should be intended to stimulate creativity based on a given campus, a specific site, and the facility program. The resultant designs will reflect a campus's commitment to its traditions and the relationship to its surrounding environs. This should be a matter of interpretation, not imitation; qualitative understanding, not merely quantitative proscription (see Figure 1.28).

The campus is a balance of physical planning, historical evolution, and technological progress. It also represents the physical responses to its varied users and must be a model of connectedness. It must inspire

confidence in faculty, students, staff, and visitors through honest expression of the various functions and materials employed, the humanity of the overall scale, its sustainability, the detail and finish of its various spaces, its artistic creativity, and an overall physical harmony that reflects the institution's values.

Many a college has suffered architectural ruin through the practice of erecting individual buildings without regard to the total effect produced upon the campus, or to the larger purpose of the institution. Until comparatively recent years it was not unusual, when a new building was to be constructed, for a committee to walk over the ground and select whatever site might be available, without reference to the aesthetic whole or to the future progress of the college. The architect, in most instances commissioned for that building only, was



◀ Figure 1.29 1962 master plan, Southern Illinois University, Edwardsville. Hellmuth, Obata + Kassabaum, Inc.



## CAMPUS PLANNING

without opportunity to employ such vision as he might possess. Handicapped by the shortsighted policy of those in authority, he had no inspiration to produce work of outstanding character; and, even though the building might in itself be admirable, its relation to other structures on the campus would in all probability tend to obscure its excellence. The aesthetic disharmony and architectural mediocrity resulting from such a state of affairs is to be observed on too many college campuses to require specific illustration.

—Jens Larson & Archie Palmer, *Architectural Planning of the American College*, 1933

Guidelines for campus architecture must acknowledge the history of the campus complex and imbue future planning and design with the best ideas of the past, yet inspire creativity in all future campus developments (see Figure 1.30). However, they constitute only one factor in determining the design response to program, site, and regulatory boundaries.

Although not intended to be prescriptive, design guidelines should define the parameters for a compatible design. Therefore, design guidelines provide *guidance* both for the project design team and for the university client team in understanding the appropriate

► Figure 1.30 Illustration of the campus plan circa 1668, Harvard University, Cambridge, Massachusetts. Courtesy of the Harvard University Archives.

