Using LEED as a Resource for Campus Sustainability Planning:

A White Paper

Prepared on behalf of the U.S. Green Building Council

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I. Introduction and Intent

Increasingly, universities and colleges throughout North America have indicated interest in developing sustainability programs on their campuses, in terms of both strategies to physically "green" school facilities and systems as well as develop social programs that support sustainability goals. Such institutions recognize their unique opportunity to assume leading roles in improving and enhancing their social and environmental impact; to pioneer an emerging field; and to create long-term value within their own community.

Green building and comprehensive campus planning are direct and powerful means to contribute towards sustainability planning at a university or college. The built environment has a profound impact on the natural environment. According to the U.S. Green Building Council (USGBC), buildings "annually consume more than 30% of the total energy and more than 60% of the electricity used in the U.S. Each day five billion gallons of potable water is used solely to flush toilets," and a "typical North American commercial construction project generates up to 2.5 pounds of solid waste per square foot of completed floor space."[1]Similarly, the organization and layout, infrastructural systems and networks, and general plan of a campus affect resource consumption and emissions. In influencing whether students and staff use transit or a personal vehicle to commute to and around campus, or whether a university's buildings are powered independently or from a high efficiency central plant, comprehensive campus planning efforts play a central role in determining the impact of the institution's built environment on the natural environment.

While exciting, designing and launching sustainability programs takes a coordinated effort across the institution. Institutions must plan for and make strategic decisions regarding:

- Overarching goals of an initiative;
- Physical and programmatic scope;
- Approach to design and development;
- Financial and administrative capacity;
- Strategies for maximizing environmental, institutional, and local benefit while balancing financial considerations and capturing potential long-term economic value; and,
- Strategic planning to ensure a holistic, self-running program over the long term.

USGBC is uniquely equipped to support this sector in meeting sustainability goals. Through its suite of Leadership in Energy and Environmental Design (LEED) Green Building Rating Systems™, educational programs, and general expertise in issues of green planning and development, USGBC offers institutions a platform to build comprehensive sustainability programs.

Responding to the diverse needs of institutions, USGBC can assist in integrating environmental sustainability on campuses through multiple approaches. Many universities opt to apply the LEED for New Construction (LEED-NC) and LEED for Existing Buildings: Operations and Maintenance (LEED-EB:O&M) rating systems to their construction projects as a component of an institutional plan for sustainability or long-term strategic planning process. Others that have used LEED actively chose to participate in USGBC's Portfolio Program and within it the technical pathway of volume certification, which allows universities to streamline the LEED certification process for an entire real estate portfolio

[1] US Green Building Council LEED for New Construction Reference Guide Version 2.2, Third Edition, Washington, D.C.: October 2007 P.12

by earning credit for green actions that will be applied across all buildings. Finally, USGBC's newest rating system, LEED for Neighborhood Development (LEED-ND), offers a means to integrate principles of environmental sustainability into new, large-scale developments such as campus expansion projects through a holistic approach to neighborhood planning.

This document intends to provide universities and colleges with an understanding of how USGBC and LEED can apply to the process of designing a sustainability initiative to ensure maximum social, environmental, institutional and economic benefit. By providing such information, it assists institutions in determining the most appropriate LEED program for each campus. The following sections will:

1. Discuss the concept of sustainability as it applies to a campus and the rationale for launching a sustainability initiative.
2. Describe USGBC's relevant programs and share experiences of universities that have implemented these programs.
3. Highlight major recommendations and challenges in setting up and implementing a green building program.
4. Discuss available resources to support institutions in their current sustainability planning efforts.

Equipped with such information, USGBC intends to help universities and colleges to begin the journey to sustainability with confidence.

II. What is sustainability and what does it mean for a university?

Sustainability is a term that has grown rapidly in popularity in recent years. Sustainability is commonly defined as the ability to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.[2] At an institution of higher education, the concept of sustainability can be applied to education, research, and learning as well as the physical imprint of the campus itself on the natural environment. Through green building and strategic planning and design of campus facilities and systems, a university can greatly reduce its impact on the natural environment while also serving as a living laboratory for the advancement and education of sustainability.

Higher education institutions are in a unique position to both lead and benefit from campus-wide sustainability initiatives, and green building in particular. As driving forces behind innovation and progress, universities and colleges face a singular opportunity to lead in addressing the challenges of climate change and environmental sustainability, not only through research and academic learning, but through applied action. Green planning and development projects offer an opportunity to leverage talents of professors and experts across disciplines, and to think strategically and long-term about the campus and it's systems as a whole.

Sustainability planning and green building also provide opportunities to generate long-term value for an institution. As long-term landholders with assets that are generally concentrated within a given area and connected through shared infrastructure, universities are in an optimal position to capture the long-term benefits associated with green building, including cost savings. Delivering high-performance,

[2] United Nations General Assembly (1987) *Report of the World Commission on Environment and Development: Our Common Future*. 96th Plenary Meeting, 11 December 1987. Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment.

healthy green buildings that enhance learning may also help a university in building and maintaining a competitive edge amongst its peers – and a means for attracting top faculty, staff and students.

In addition to creating internal value, sustainability planning within an institution can positively impact the local community and foster positive relationships between university and city. As significant landholders within communities, universities and colleges have tremendous economic and fiscal impact as well as physical impact on local infrastructure and resources. Demonstrating a commitment to reducing negative impacts (such as air and water pollution, energy and water use, and waste) while stimulating the local economy through local purchasing programs through green planning and development provides an opportunity for a university to serve as a responsible developer and for new avenues for coordination between universities, the surrounding community, and the city as a whole.

In the process of sustainability planning, LEED can play an important role in structuring and guiding the green building and planning processes. Utilizing the rating systems early in the planning and design stages of a project enables the project team to take a holistic approach to development, drives innovative and cross-cutting design solutions, and ensures environmental benefit across the full spectrum of ecological considerations. LEED also offers an opportunity to validate and recognize an institution's commitment to sustainability. Finally, it connects its participants to resources and assistance for green projects as well as other institutions undergoing similar projects to allow institutions to share and learn from each other's experiences.

III. Overview of USGBC Programs

The USGBC offers several programs that may be applied within a university or college campus setting, including individual LEED programs for New Construction and Existing Buildings, the Portfolio Program and within it, volume certification, and the LEED for Neighborhood Development program. Each program offers a unique means to fulfill an institution's goals regarding sustainability. This section describes these programs and under what situation they might be appropriate and valuable for an institution by highlighting experiences of other universities and colleges.

Choosing the appropriate program or set of programs depends on a variety of factors that are unique to each institution and should be carefully considered. They include, but are not limited to, an institution's:

- Commitment to achieving sustainability;
- Experience with green building and comprehensive/green planning;
- Management capacity and available resources;
- Appetite for experimentation regarding environmental design; and,
- Type of project.

Factors that may influence the choice in USGBC program are evaluated in Table 1 on the following page.

TABLE 1. RECOMMENDED CRITERION IN SELECTING A USGBC SUSTAINABILITY PLANNING PROGRAM

	LEED-NC / LEED-EB	Volume certification	LEED-ND
COMMITMENT			
Strong commitment to green building	✓	✓	✓
Strong commitment to comprehensive/green planning			✓
EXPERIENCE			
Prior experience with green building and comprehensive/ green planning	✓	✓	✓
CAPACITY/ RESOURCES			
Robust management and staffing for green planning and development		✓	✓
EXPERIMENTATION			
Appetite for experimentation in green design	✓	(✓)	
PROJECT TYPE			
Buildings			
New Construction	✓	✓	
Renovation	✓	✓	
Single Building	✓		
Multiple Buildings (Portfolio)		✓	(✓)
Comprehensive Campus Planning / Large-scale Development			
Comprehensive Campus Plan (Urban Design, Infrastructure & Systems, Building Synergies)		(✓)	✓
Residential or Mixed-use Neighborhood	(✓)	✓	✓
Public Private Partnership Projects			✓

√ Recommended
(√) May be recommended under certain circumstances

Individual Building programs – LEED-NC and LEED-EB:O&M

The LEED for New Construction Rating System offers a comprehensive guide to planning and developing a green building from the ground up. It challenges the development team to holistically integrate a range of environmental considerations in designing and constructing a building – including sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. Projects must satisfy prerequisites in each category and earn points for implementing a range of green policies and practices to achieve varying levels of certification.

Across the country, LEED-NC has been applied successfully on campuses for new academic and administrative office buildings, libraries and residence halls. Emory University is an example of such success, where one LEED-certified laboratory building became an inspiration for a campus-wide green building policy and multiple other certified and planned projects. See Box 1 for further information.

Box 1. LEED-NC Certification in Action: Emory University's Whitehead Biomedical Research Building

In 2002, Emory University's Whitehead Biomedical Research Building became the first silver-level LEED certified project in the Southeast United States as one of the original pilot projects for the LEED-NC standard. The research facility is an eight-story, 325,000 gross square foot laboratory building. The facility incorporates many green features, including an energy recovery system made of four desiccant cooling enthalpy wheels that use air exhausted from the facility to preheat and precool outside air before it is drawn into the building; condensate recovery for cooling towers that divert an estimated 2.5 million gallons of condensate water per year from the county's sewer system; and storm water harvesting from the roof and plaza for reuse in irrigation.

Sources: Laura Case, Emory University and U.S. EPA, Laboratories for the 21st Century, Case Studies
http://www.epa.gov/lab21gov/pdf/cs_emory_508.pdf

While LEED-NC enables institutions to produce the highest-quality new buildings possible, LEED-EB:O&M offers an opportunity to improve the existing building stock on a campus with respect to environmental performance. LEED-EB:O&M provides a method for owners and operators of existing buildings to implement sustainable operations and maintenance practices and reduce the environmental impact of a building over its functional life cycle. Specifically, it addresses exterior building site maintenance programs; water and energy use; environmentally preferred products for cleaning and operations; waste stream management; and ongoing indoor environmental quality.

The program targets single buildings that are owner-occupied as well as multiple building projects, making universities an ideal fit for the program. University of California Santa Barbara (UCSB) is one example of a program that has used LEED-EB with success. For further information on this project, see Box 2.

Box 2. LEED-EB Certification in Action: University of California Santa Barbara's Girvetz Hall

In February of 2006, University of California Santa Barbara's Girvetz Hall was certified LEED-EB Silver and became the first building in the University of California system to receive such an award. Originally built in 1955 and one of the oldest buildings on campus, the university's Facilities Management department worked with a project team to green Girvetz Hall through operational and maintenance changes. To achieve certification, the team installed waterless urinals, upgraded the building control system, and installed new heating valves with individual thermostats. Further, custodial services implemented a green cleaning program consisting of green seal cleaning chemicals; zinc floor finishes; and recycled bathroom paper products and trash bags.

Source: Perrin Pellegrin, University of California Santa Barbara and Association for the Advancement of Sustainability in Higher Education, Weekly Bulletin, 3/9/06
http://sustainability.ucsb.edu/_client/pdf/pr/AASHE_Bulletin.pdf

Portfolio Program

Portfolio Program

USGBC's Portfolio Program offers institutions an opportunity to streamline the green design and LEED certification processes for both new construction and existing buildings across a real estate portfolio. Through the technical pathway of volume certification, universities and colleges can prototype LEED credits and apply them to numerous projects in order to certify multiple buildings. For example, a

university may propose to earn LEED credit for implementing a green cleaning product policy that will be applied in a number of buildings on campus pursuing certification. Complementary to this, institutions that make a commitment to greening their real estate portfolio may receive additional customer services, one-on one attention from USGBC, and recognition of leadership through the Portfolio Program.

The Portfolio Program is ideal for universities and colleges that are strongly committed to green design and have internal policies to deliver LEED projects. It is also suited to universities that have experience in managing and delivering at least one LEED certified project and expect to undertake multiple others within the next several years. In addition to UCSB, Syracuse University is committed to using volume certification for existing buildings. The university recently decided to pursue the program after realizing the great impact it could create if it applied LEED-EB:O&M to its approximately 300 buildings, as well as the timesavings and reduced need for management capacity possible through credit prototyping. To begin, the university examined and classified its building stock by type, including residential, office, historic, and modern, and selected 16 buildings across these categories to participate in the pilot program. Currently in the process of prototyping credits, the University believes that participation in the program will enable a streamlined management process for each project as well as the capacity to focus greater energy on special individual credits, including innovative design solutions, for each building.

Another example of the use of the Portfolio Program is the commitment made by University of California Merced to achieve LEED certification for its existing buildings, in addition to a commitment to achieving LEED certification for all new construction since 2002. The university seeks to take advantage of a central energy plant that powers multiple buildings on campus and offers a means to streamline energy credits for multiple buildings. The campus has a two tiered strategy for achieving its LEED objectives. First, it has campus-wide site development & infrastructure credits that will apply to every project. Second, the campus develops a project specific strategy to achieve the remaining credits. Prototype credits help streamline the review process with USGBC and in turn save the campus money. The campus currently has four LEED certified buildings and others pursuing certification in the design and construction phases. According to the Assistant Project Manager for Physical Planning, Design and Construction at the University, working towards LEED certification in projects helps the project team to expand their thinking about ways to meet different environmental goals and serves as a terrific reference guide.

Similarly to UC Merced, University of California Santa Barbara is showing commitment to LEED certification through the Portfolio Program. The university chose to work on existing buildings rather than new construction because its existing building stock is great while few new construction projects are planned. By tackling the existing building stock the university believes it can make a greater impact with respect to sustainability. The university is excited about using volume certification to address existing buildings because it provides an opportunity to validate the behind the scenes efforts in improving an existing building that often go unrecognized.

<u>LEED for Neighborhood Development</u>

LEED-ND offers campuses that are undergoing major expansion or new large-scale development projects guidance and recognition for integration of environmental considerations into all aspects of design and development. Like other LEED rating systems, a project satisfies prerequisites and earns credits for green practices. However, through the neighborhood development program, is placed on projects'

efforts to implement environmentally responsible planning, rather than applying green only at the building level.

LEED-ND targets development projects orchestrated by a single development entity or public private partnership that is sold or leased to third parties. It can be applied to projects that involve parts of neighborhoods, whole neighborhoods, or multiple neighborhoods. It does not apply to existing neighborhoods. Its credits are aligned to favor developments in an urban or dense setting to take advantage of existing networks and infrastructure and to minimize greenfield development, though projects that are in less urbanized areas are not discouraged from participating. With respect to universities and colleges, the program lends itself to universities that are in the process of expansion or major development, redevelopment or design.

Columbia University, California State University Sacramento and Johns Hopkins are three institutions currently involved in processes to achieve LEED-ND certification for various projects. Columbia University's plan for a 17-acre expansion project in the Manhattanville neighborhood of Upper Manhattan represents an example of a university using LEED-ND, building on the inherently sustainable qualities of a dense, urban setting – including transit access and walkability. The $7 billion project involved an extensive rezoning and land review process that was approved by New York City in 2007. The comprehensive plan will develop the area north of Columbia's historic Morningside Heights project to include more than 6.8 million square feet of space for teaching, research, underground parking, and support services. Its green features will include pedestrian-friendly streets and new publicly accessible open spaces.
(Source: Columbia University, http://www.neighbors.columbia.edu/pages/manplanning/index.html)

California State University Sacramento is also pursuing LEED-ND certification for the Ramona Village project, a faculty and staff housing project. Though currently on hold, the project involves the redevelopment of a 25-acre site for over 400 homes, a community center, a childcare facility, parks and neighborhood businesses. Its sustainable planning features will include transit oriented development, affordable housing, recycled materials and energy efficiency technology. The project is part of a larger campus-wide plan for sustainability, including a campus sustainability committee that has set strategic goals and policies, which was developed hand in hand with the project plans. Project Manager Lisa Hall reports that the team chose to pursue LEED-ND rather than other USGBC programs because the project calls for the development of a new, traditional-style residential village, complete with a common center and parks. The scope of the project aligned itself with the values promoted by LEED-ND.
(Source: Lisa Hall, California State University Sacramento
http://www.fm.csus.edu/Construction_Projects_Ramona_Village.htm)

Unlike Columbia University and California State University, Johns Hopkins University plays a different role in the LEED-ND certification process. The university is an advisor to the East Baltimore Development Initiative, a nonprofit partnership of public and private entities undertaking the master planning and redevelopment of an 88-acre section of East Baltimore near the university campus. The $1.8 billion project will include a two million square foot research park for biotechnology, 1,500 new and rehabilitated residential units, and new green space, retail uses and a public community school campus. For its mission to, "successfully attract market-oriented investment, development, population and enterprise to the East Baltimore community… while equipping community residents with the skills, information and resources they need to benefit from housing, employment, business and educational opportunities," the project touts itself as a model for "responsible development." As a result, the organization viewed the LEED-ND program to be a natural fit for the project's holistic planning approach.

It chose to participate as a project in the LEED-ND pilot program to capitalize on a great opportunity to validate the project's socially responsible development program and generate a powerful "green" marketing strategy. Most credits for LEED-ND certification will be pursued in the residential component of the project in Phase II, including a walkable street grid and recycled building materials. The EBDI project is an example of how LEED-ND can be applied within the context of a public-private partnership. (Source: Layla Winn, East Baltimore Development Initiative and Baltimore Housing Project Showcase: http://www.baltimorehousing.org/index/project_showcase.asp?ItemID=124&rcid=91&pcid=73&cid=91

IV. Lessons Learned – Recommendations & Potential Challenges in applying LEED on your Campus

To understand how to best use LEED programs in the context of campus sustainability planning, USGBC interviewed a broad range of its institutional clients that have utilized or are in the process of pursuing each program. These clients contributed valuable feedback based on their experiences with the rating systems and the organization. This feedback has been arranged in the form of recommendations and considerations for your university to have at hand when building a sustainability program and/or designing/ implementing a green project.

For institutions beginning the process of sustainability planning and considering how to use LEED:

Make a Commitment at the Top

While leadership structure varies between schools, all schools stressed the importance of commitment to green design and sustainability at the top and middle. At the top, university and college presidents, chancellors, deans, Chief Financial Officers, Chief Real Estate Officers, capital budgeting entities, and faculty play instrumental roles in promoting and facilitating green design through their support of related policies and decision-making.

Externally, such commitments are often reflected through participation in organizations including the Association for the Advancement of Sustainability in Higher Education (AASHE) and the Association of University Leaders for a Sustainable Future (ULSF), two national member organizations working to promote sustainability in the higher education sector. Another organization is the Climate Registry, a nonprofit that provides meaningful information to reduce greenhouse gas emissions. The Climate Registry establishes consistent, transparent standards throughout North America for businesses and governments to calculate, verify, and publicly report their carbon footprints in a single, unified registry.

Additionally, the signing of documents including the American College and University Presidents Climate Commitment and the Talloires Declaration – national and international official statements and action plans for incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities – are also emblematic of institutional commitments to sustainability. In some areas, similar programs can be found at the state or regional level, such as the New England Governors/ Eastern Canadian Premiers Climate Change Action Plan. Further information on these opportunities can be found in Section IV, Available Resources.

Internally, these commitments are frequently institutionalized through creation of dedicated offices and employment positions, advisory groups, and supportive policies, discussed further below.

Establish Supportive Policies and Programs

Once a commitment is in place, an important next step is to establish policies that support green planning and development and other complementary programs (such as purchasing or local food sourcing). By establishing supportive policies a university can ensure its sustainability goals are met regardless of changing faculty or staff, budget modifications, or other institutional changes that may occur.

As mentioned earlier, it is practice at UC Merced to obtain LEED Silver ratings at a minimum for campus buildings since 2002. At UC Merced, the driving force behind the green building policy was Chancellor Tomlinson-Keasey's adoption of a Long Range Development Plan for the campus and the intention of the University to "set the standards for sustainable use of energy and other scarce resources and to be a model of development in the great San Joaquin Valley." Based on this goal, the University established the Environmental Stewardship Program and is developing specific goals and policies such as the green building policy to fulfill this vision. The University has also established a Sustainability Advisory Committee charged with advising the Chancellor on matters pertaining to environmental policies and practices and to integrate sustainability within existing campus programs in education, operations and public service.

UC Merced also has policies that complement the green building policy which includes a green purchasing policy to ensure environmental considerations are taken into account when those purchasing decisions are made, local produce purchasing and composting of food wastes.

Like UC Merced, University of Maryland also has a mandate that all new construction will achieve LEED Silver certification. The University is also considering requiring certification for existing buildings – which represents a large opportunity given that 50% of the building stock is approximately 50 years old.

Build Institutional Capacity

Equally as critical in pursuing green planning and building on a college or university campus are those who implement the policies and programs made at the top leadership level. Building capacity at the management and staff level to facilitate and oversee the development process from pre-development planning, design, and public process to post construction operations and maintenance are important to ensuring successful projects.

A highly recommended criterion in building such capacity is involving professionals with experience managing LEED projects who can shape and guide the process through a holistic and comprehensive approach. While institutions have taken different routes to building this capacity, those interviewed agreed that naming a Director of Sustainability or equivalent position whose role is fully dedicated to furthering sustainability on campus is of utmost importance. It is also recommended that universities and colleges seek experience related to environmental sustainability within positions including facilities management, operations, and real estate related divisions including development project management.

At UC Merced, green planning and building leadership falls under the campus' Environmental Sustainability Program. The University hired a LEED Accredited Professional and someone with experience in green projects for the position of Assistant Project Manager for Physical Planning, Design and Construction to oversee the implementation of the green building policy. Part of the motivation to fill this position was to build internal capacity with respect to green building in order to minimize the number of consultants needed for each development project. Other key members of the Environmental Sustainability Program include the Associate Vice Chancellor for Physical Planning, Design &

Construction/ Campus Architect and a Campus Energy Manager within the Facilities Management Division.

At the University of Maryland, sustainability planning efforts are structured in three arms. First, a newly established University Office of Sustainability focuses on sustainability planning at large – tracking the University's carbon footprint, benchmarking and policy-making. Second, the Department of Architecture and Engineering is responsible for implementing the University's new mandate to achieve LEED Silver certification in all new construction projects. Lastly, the Facilities team is responsible for integrating green practices into the existing building stock. Currently all staff on this team are in the process of pursuing LEED Professional Accreditation.

Emory University facilitates its LEED projects by encouraging its employees in relevant departments (facilities, architecture and engineering, etc.) to obtain LEED Professional Accreditation. It pays for training and offers reimbursement for the exam.

Integrate LEED into long-term strategic planning

The LEED green building process is designed to encourage holistic thinking. As a result, integrating green building within campus master planning or university strategic planning can lead to innovative solutions and synergies that maximize potential environmental benefits and cost savings.

Grand Valley State University (GSVU) in Grand Rapids, Michigan provides an example of success in this regard. The university used its campus master planning process to integrate LEED certification into campus buildings. It also was able to tie the process to the campus' standard landscape master plan, parking master plan and storm water master plan. By integrating the LEED certification planning into a larger comprehensive campus planning exercise, the University was able to consider campus-wide systems and solutions. With respect to storm water planning, the university initially thought they would have to add drainage and expand infrastructure to mitigate excessive storm water runoff caused by large amounts of surface parking on the campus. However, by simultaneously conducting the LEED green building process with campus master planning, the university was able to create an integrated parking master plan and storm water plan that called for porous parking and storm water drainage into a nearby wetland to be used for scientific research. This example highlights the synergies that can be generated from integrating the green building and planning process into larger campus-wide strategic planning. Additionally, GVSU used LEED as a benchmark for crafting the campus' design guidelines for buildings, so all new buildings will be automatically designed to meet LEED standards.

Based on its own experience, Emory University recommends looking at campus programs that are already in place before starting a LEED certification process to take advantage of potential connections and synergies. For example, Emory already has in place a green procurement program; campus-wide recycling; a comprehensive transportation plan; and an energy plan that it can connect to its green building projects to achieve LEED credits.

Think creatively to build support for sustainability efforts

Universities have thought creatively about ways to support their efforts in sustainability planning and green building. They recommend looking broadly at sources for funding and support at the local and state levels, both publicly and privately. At the local level, GVSU has been able to draw on local private foundations and philanthropists for support for their sustainability programs. For example, a local foundation provided funding for a shared sustainability consultant between the city and university when initiating their respective programs. At the state level, those involved with LEED projects at the

University of Maryland take advantage of state allocated funding for sustainability in higher education, where green projects are eligible to receive 3% of capital costs. Similarly, Syracuse University draws on support from New York State Energy Research and Development Authority, which offers various funding and financing mechanisms to support green building in the state of New York.

Involve the city & work synergistically

Given its local and global intentions, sustainability planning is often a meeting point for universities and cities to collaborate and work together. The greater the collaboration between institutions and their respective cities, the more efficiently the process will move forward and the greater the benefits to sustainability planning.

GVSU is an excellent example of where the city and university work together. The university and the city established a common Community Sustainability Partnership to work towards sustainability side by side. The partnership is a network of local entities, including the city, university, local schools, businesses, and community organizations and institutions that support sustainability guiding principles in their planning and operations and are committed to working together to achieve mutual goals surrounding sustainability. The Partnership involves a purchasing coalition and works with local industries to connect them with local and recycled materials. As a result, the University now uses concrete blocks made of recycled materials that are manufactured locally in their construction projects. GVSU and the City of Grand Rapids have also been able to develop their green building policies mandating LEED certification for public and university buildings side by side, largely as a result of their shared environmental consultant funded by a local foundation.

In Atlanta, Emory University presents an example of a positive relationship that can grow from sustainability planning. Since it began its efforts in the early part of the decade, the University has received much applause from the city for its green building efforts. As a result, the city has asked them to participate and assist with the city's own efforts – including green expositions and testifying for the city's green building ordinance that was recently passed.

Involve, educate and draw on the university and surrounding communities

Efforts to educate and involve the university community and the surrounding community regarding green planning and building help universities to build constituencies and support for their development projects and sustainability efforts – particularly early on in the planning and design processes. Recommended activities include encouraging faculty, student, staff and citizen groups to form and involving these and existing organizations in project meetings, focus groups, educational seminars regarding green design, and design charettes. Such activities also afford an institution the opportunity to draw on the ideas, resources, and expertise of people at the university and city, to elicit opinions and find out local priorities and concerns.

For the Ramona Village project, California State University in Sacramento conducted several faculty surveys to find out the priorities and specific needs of the future users of the faculty and staff housing project early in the design phase. From the surveys, the university learned of the faculty's strong interest in incorporating green design features. With the support of faculty and staff, the university chose to pursue LEED-ND. Additionally, from the survey process, the university established a Village Advisory group, involving faculty with expertise in issues of design, health and the environment and those most committed to making Ramona Village a green project. The advisory group contributes to the conceptual phase of the project and will continue to be active throughout the project.

Websites regarding a University's sustainability program and specific project information are also helpful. Emory University is working on integrating green building within its educational program. As a complement to this effort, all freshmen students will live in LEED certified residences as a means to learn outside the classroom. For Columbia University's expansion project in the Manhattanville neighborhood of Upper Manhattan, the university involved the local community in multiple public meetings and maintains a website to keep the public informed of their efforts.

Getting your feet wet: Starting with one LEED project

When beginning a green building program, many universities strongly recommend beginning with one LEED-NC project. As discussed earlier, Emory University had great success with this approach in 2002. The satisfaction with the Whitehead Biomedical Research Building encouraged the university to adopt a campus-wide policy for LEED certification, and also enabled members of the project team to gain experience in applying green design that facilitated other LEED projects. Other schools highly recommended this approach after similar experiences.

For institutions that have green building programs in place and/or are in the process of using LEED:

Internalize LEED to save money and time

Internalizing the LEED process by hiring staff with experience in undertaking LEED certified projects, by encouraging staff to achieve LEED Professional Accreditation, and by offering training programs such as those offered by USGBC can save a university time and money and lead to more fluid planning and development processes. These actions can also reduce the need for a university to hire outside consultants on projects. As mentioned earlier, Emory University encourages its staff to become LEED Accredited through sponsored training programs and by reimbursing those who pass the LEED Accreditation exam. At UCSB, the Campus Sustainability Director had prior experience with sustainable design and was hired to focus "100 percent on LEED projects."

Establish relationships that get the most out of the project team

Universities stressed the importance of establishing relationships with outside members of the project team that will clearly achieve their goals for sustainability. For example, most universities highlighted the importance of selecting outside consultants and/or developers that have experience with LEED projects. Of utmost importance is the integration of stipulations for green design and performance measures into contracts to ensure that goals will be met upon completion of the project and beyond.

As an example, UC Merced follows UC policy that requires all nine University of California schools to achieve LEED Silver or the equivalent of LEED Silver for all new construction. To insure that the campus will achieve its goal for each building, the university has made it mandatory for all projects to enter into an Executive Design Professional Agreement. Additionally, campus construction contracts include LEED Silver requirements with clear performance levels specified.

Documentation: begin early and utilize existing university resources

The universities interviewed largely agreed that starting the documentation process for LEED certification early is highly recommended as the process of gathering data from various members of the project team and from within the university itself can often take longer than expected. They also recommend utilizing existing university resources in compiling project data. For example, the University of California system keeps detailed documentation on many aspects of building performance and resource use. As a result, UC Merced channels such data to use as a 1999 baseline case in determining the school's energy use and forming goals for reducing the use by 50%. UC Merced also reports that

such data is useful in providing documentation for the LEED certification process. Finally, universities recommend making all project team members aware of their various responsibilities with respect to data and information gathering and analysis and deadlines as early in the planning and development processes as possible.

The documentation process can have additional benefits as well. Universities report that having such information available as a result of the LEED process allowed them to understand their own facilities better and make improvements more easily. Universities are also able to use such information to measure their progress with respect to sustainability and market their efforts to the community at large.

Be involved to get the most out of LEED and learn from others

Many universities reported an unexpected benefit of the LEED process: the opportunity to learn from and network with other projects with similar experiences through group conference calls, periodic bulletins, the online project database and other resources made available through participation in the LEED certification process. As an example, California State University in Sacramento has actively participated in the LEED-ND pilot program as a forum to learn about the experiences of similar projects. The project managers of the Ramona Village project keep informed and connected with other projects through USGBC's periodic bulletins and monthly conference calls that enable all pilot projects to call in and share issues, solutions, and questions regarding their projects. The project management team reports that the ability to hear what other projects are doing and how they are handing complex planning and design challenges is very valuable and has allowed them to integrate various ideas within their own project.

Potential challenges to consider

Through the interview process, universities and colleges expressed challenges as well as opportunities in their experiences with sustainability planning. Awareness and understanding of these potential challenges may enable your institution to avoid or overcome such issues through advanced planning.

Adapting to the green development process

The green development process may involve a larger range of expertise on a project team than a traditional process, as well as a different timeline or management structure. Frequently, project managers with LEED experience have cited the need to bring a range of professionals, including engineers, architects, lawyers, the developer and other project partners and stakeholders, and possibly sustainability consultants to the table at an earlier stage than usual. In particular, it is recommended to discuss the range of responsibilities that green projects will require over the life of the project, particularly submittal documentation for the LEED certification process. It is also often desirable to bring in the public, future users and specialists to provide input into a project in the form of a charrette, workshop or other forum early on in the planning process to identify potential synergies and progressive design solutions. Universities recommend a flexible and adaptive approach when embarking on any green project – and particularly an institution's first.

Weighing the costs and benefits of experimentation and innovation

Experimentation in design and development is not always looked upon favorably – particularly by engineers and developers that are inexperienced with the green development process; wary of testing new products in the market; or concerned about the unknown future management or maintenance needs associated with experimental technologies or practices. Universities and colleges with experience in implementing cutting edge designs and technologies recommend involving future users throughout the development process as a means to mitigate potential risks. They also recommend drawing upon

the expertise of faculty and experts in related fields to vet the merits and potential risks of integrating experimental design and technology into campus projects.

Dealing with internal and external resistance

Inherent within any new learning process, experimenting with green building and planning may generate resistance both within and outside of the institutional setting. Internally, resistance may come within departments that are concerned with potential conflicts between goals for sustainability and specific departmental objectives. For example, a facilities management or other department tasked with ensuring safety may be uncomfortable with potential unknown hazards resulting from experimental designs or technologies. Or, those involved in financial budgeting and may not be accustomed to longer-term payback periods associated with some high-performance technologies. As a result, when confronted with resistance, it is important to listen and try to derive the source of their concern in order to consider potential mitigation strategies.

Externally, resistance often comes from project developers that are wary of the market unknowns associated with green development. To avoid this issue, experienced universities recommend selecting project teams with experience in green design and by stipulating specific measures within development agreements and contracts.

Opposition may also arise from the public at large or from a number of other unpredictable sources. While opposition may not always be foreseen, educational campaigns and high levels of community and stakeholder involvement and outreach are often good ways to assuage fears and build constituencies.

Green building and planning within the context of finite resources and politics

Universities and colleges are not always insulated from changing market conditions, budget or leadership restructuring or political or institutional processes that can cause project hold-ups. As a result, universities and colleges recommend institutionalizing the green building and planning processes as much as possible in the form of establishing university-wide policies and standards that may protect projects from changing conditions.

V. Available Resources

USGBC is a resource dedicated to supporting your institution through the process of sustainability planning with confidence – from program design and development through implementation. Below are tools to help you get started and/or support your institution in its current efforts.

Find out more online

About USGBC

Find out further information on the organization and its programs, products, and services via the US Green Building Council's website. Through the website you can also find out more about educational and training programs for university staff and faculty.

About other institutions using LEED

Find out more information about how other institutions are using LEED programs for sustainability planning:

- California State University Sacramento
- Columbia University Environmental Stewardship: Manhattanville

- Grand Valley State University Sustainability Initiative
- Syracuse University Green Universe City
- University of California, Merced Environmental Stewardship Program
- University of California, Santa Barbara Sustainability
- University of Maryland Campus Sustainability
- Emory University Office of Sustainability
- Johns Hopkins/ East Baltimore Development Initiative Green Initiatives

Learn more by connecting with someone

Contact USGBC
USGBC would be happy to speak with you about sustainability planning and using LEED at your institution. Contact us at leedinfo@usgbc.org.

USGBC members can also utilize the Member Directory to connect with other institutions with LEED experience.

Additionally, universities and colleges may consider associations to connect with others around issues of campus sustainability planning. They include:

- Association for the Advancement of Sustainability in Higher Education (AASHE)
- Association of University Leaders for a Sustainable Future (ULSF)