This section of the Standard is organized to assist the Professional Service Consultant, in-house Architects, Engineers, and Maintenance in design, alter, and construct projects to meet Campus sustainability goals.

With the university's creation and implementation of the 2015 Illinois Climate Action Plan (iCAP) and 2016 signing of the Second Nature Resilience Commitment, the University of Illinois at Urbana-Champaign has made a commitment to being a model of sustainability. These two documents provide guidelines and a narrative for sustainable future planning, including the aggressive goal of carbon neutrality by the year 2050. Building design, energy infrastructure and usage, and site elements all contribute to this policy's implementation. All new university facilities must be designed to promote the most environmentally and financially responsible construction, maintenance, and use.

OVERVIEW: The University of Illinois at Urbana-Champaign (University) has an abiding interest in energy efficient buildings and a sustainable campus environment. This section of the Standards prioritizes the implementation of sustainable elements in the design of Campus facilities by emphasizing an overarching requirement of building energy efficiency. Guiding requirements for these Standards are:

- The University of Illinois at Urbana-Champaign's *Illinois Climate Action Plan* (iCAP) which has set targets for sustainability and goals for carbon neutrality and for adapting to climate change. The iCAP is updated every five years.

- State of Illinois mandates requirements established in *the Green Buildings Act* (20 ILCS 3130) which identifies requirements such as application of the Green Buildings Standard, life cycle cost analysis, energy modeling and compliance with LEED®.

- The *Illinois Energy Efficient Building Act* which mandates compliance with the most current adopted version of the *ASHRAE 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings.*

- *The Illinois Energy Conservation Code* (20 ILCS 31050) which mandates compliance with the *International Energy Conservation Code.*

- LEED® *Reference Guide for Green Building Design and Construction*: Version 4.*0 Document for New Construction* shall be used as the rating system on the University's qualifying LEED® projects. This guide shall be used in conjunction with these *Facilities Standards*, to guide design consultants in the implementation of requirements to attain LEED® Certification for Campus projects. This document also reinforces the fundamental idea of the LEED® process, which calls for an integrated, holistic approach to building design; one that should yield energy-efficient, comfortable, healthy, and ecologically-responsible facilities.

LEED® REQUIREMENTS: These *Facilities Standards* includes language to comply with the LEED® Building Design and Construction Rating System developed by the U.S. Green Building Council. The *Standards* require compliance with all Prerequisites and several additional Credits listed in the LEED® Rating System and found in the *LEED® Requirements* section of these Standards. Certain credits only apply to new buildings, additions, and/or major renovations and are mentioned in the notes to the PSC.

ENERGY PERFORMANCE: Beginning with the 2016 edition of ASHRAE 90.1, Appendix G, a new path for compliance with the ASHRAE energy standard is established, based on a Performance Cost Index (PCI). This same methodology may be used to rate beyond-code programs such as LEED®. Thus the building modeler needs to construct only one baseline building to satisfy compliance with ASHRAE 90.1 and to rate beyond-code performance. The baseline building is close to the baseline building of ASHRAE 90.1 2004 Appendix G. The PCI is the ratio of the annual energy cost of the proposed building and the baseline building. To meet compliance with any edition of ASHRAE 90.1 (including 2010 and 2013), one must show that the PCI of the proposed building is less than the PCI target (PCI_t) calculated using the baseline building and the methodology of Appendix G. We

require that the PCI be 25% less than the PCI_t for new construction, and 20% less for major renovations, using the latest adopted edition of ASHRAE 90.1.

The latest version of LEED® may not reference the latest adopted edition of ASHRAE 90.1. This is not a problem, since it is easy to calculate the PCI_t of earlier editions of ASHRAE 90.1 using the appropriate Table in Appendix G. The number of LEED® points earned depends on the percentage that the PCI is below the PCI_t of the edition of ASHRAE 90.1 that is referenced.

SUSTAINABLE TRANSPORTATION: The Urbana Campus adopted a complete streets policy, to better accommodate pedestrian, bicycle, transit, and vehicle movements in a more user-friendly environment. The complete streets concept is to design, build, maintain, and reconstruct public streets to provide for the safety and convenience of all users of a corridor, whether traveling by foot, bicycle, transit, or motor vehicle; regardless of age or physical abilities; and including freight providers, emergency responders, and adjacent land users.

Campus also instituted a transportation policy to give highest emphasis to pedestrian, bike, and transit movement, in that order and de-emphasize vehicular traffic in the University District. See *Streets, Sidewalks and Bicycle Network* section of these Standards for more detail.

SUSTAINABLE STORMWATER: The iCAP sustainability initiatives also focus on strategies to create a more sustainable and high performing site environment. The use of proven hardscape design techniques and advancements in pavement material technology that promotes better storm water infiltration and groundwater recharge throughout campus is encouraged alongside the use of green infrastructure. Potential strategies include the use of rain gardens, bioswales, and/or permeable pavements (including permeable pavers, pervious concrete, and porous asphalt) where possible given site conditions***.***

The U of I has adopted a policy to reduce or, at a minimum, maintain the existing peak storm water runoff characteristics of all land and buildings that are or will be under U of I control. See *Storm Water Drainage Systems* section of these Standards for requirements.

SUSTAINABLE PLANTINGS: Throughout campus, plant selections should favor plants that are native to Illinois. Native plants will be used except in situations where they are programmatically, functionally, and horticulturally inappropriate. Plantings that lend themselves to a positive visual aesthetic, in addition to providing food for pollinators should be also be prioritized. Plants should be selected to match the existing soil and exposure conditions; however, soils and drainage patterns may be restored or modified to support native plantings and plant associations as supported by the project budget.

With increasing public requests for native plantings and the influence of sustainable landscapes, these areas should be detailed using native and naturalized plantings with a strong orderly design ethic. When located around buildings, these planting beds should not be randomly mixed together, but should be carefully thought out to provide plant massings appropriate in scale and diversity to our large educational buildings. Mixed group plantings should be used sparingly and sited appropriately into more courtyard spaces, as opposed to civic or public spaces.

SAFETY AND COMPLIANCE: The U of I is committed to providing safe and healthful facilities for faculty, staff, students, and visitors. See *Safety & Compliance* section of these Standards for more detail.

WATER CONSERVATION: The Urbana Campus is the largest single user of water within the local community, accounting for approximately 20% of total potable water demand. Virtually all of this water is drawn from regional aquifers that serve as the primary water source for many communities in Central Illinois. To reduce water consumption on campus, these Facilities Standards require low-flow fixtures, see *Section 22 40 00 - Plumbing Fixtures*, and once through cooling systems for any equipment are prohibited, see *Plumbing Systems* section of these Standards.