

The 'Greening' of American Universities

An evaluation of the social, economic, and environmental factors

Study Overview

This study evaluated the social, economic, and environmental aspects of green construction to identify the primary factors driving the 'greening' of University facilities in the United States. Key personnel in facility planning and operation from top universities in the United States were surveyed to obtain input concerning their institution's approach and philosophy regarding 'green' construction. The study investigated the social, economic, and environmental factors that influence development decisions. It explored the basis for the green building philosophy and approach for facility development on each campus. The results from this study yield insight regarding the primary factors influencing university decisions to design and build 'green'. The findings from this study provide universities with valuable insight to aid them in more effectively leverage, and respond to, the forces that influence decisions to pursue sustainable development on campus.

Summary of the Findings:

Green Certification: The vast majority of universities pursue 'green certification' on new facilities. Over eighty-four percent (84%) of the universities seek green certification on the new buildings constructed on their campus. However, green certification for building renovation is not typically pursued. Only 26% of the universities seek certification on renovations of existing facilities.

The dominate green certification program is U.S. Green Building Council's LEED rating system. When green certification is pursued, over 90% of the universities utilize the LEED rating/certification system. Within the LEED certification program, most universities (73%) seek a minimum certification level of Silver. Only 8% have established Gold as the minimum certification level and none have set the standard for their university at Platinum.

Selection of Delivery Partners: Sustainability experience is a primary consideration for the selection of the project design team, but not for the selection of the contractor. This may be because architects have traditionally been selected based upon value (qualifications) while contractor selection often relies on a competitive process based primarily on price. However, universities do believe that architect/contractor collaboration during project design is essential to achieve sustainable buildings. Achievement of this collaborative effort would require early selection of the contractor during the design phase of the project. This would encourage the contractor selection process to move toward a value, or qualifications based, selection process that relies less on competitive pricing of an established project scope.

Design Focus/Approach:

Universities are committed to sustainable development on campus and they foster a curriculum that offers students a wide spectrum of classes on sustainability. Key design priorities are

dominated by economic and user considerations including occupant health and productivity, indoor air quality, and budgetary constraints. Social and environmental concerns such as community infrastructure, natural habitat preservation, carbon footprint and onsite energy production have a significantly lower design priority.

University facility development personnel believe that the incorporation of sustainable building materials and systems increases the initial cost of the facility and to evaluate this additional cost (investment) they utilize life cycle cost analysis to assess 'green' alternatives. However, universities typically do not sacrifice building size (space) to incorporate sustainable materials/systems when budget limitations dictate a choice.

Stakeholder involvement during design and building development is primarily 'internal'. Facility personnel and administration are almost always involved while faculty and students normally have a more limited role during building development. Community representatives typically have minimal involvement during planning, design, and construction.

Primary Drivers for 'Green': In summary, universities do not meet Ellington's Triple Bottom Line framework suggesting that profit, people and the planet should be given equal consideration when evaluating sustainable building alternatives. A comparative statistical analysis of the data from this study supports the conclusion that economic and occupant considerations receive top priority. Economic and user issues are more important than either social or environmental concerns during facility design and development. In addition, environmental concerns take precedence over social considerations yielding an order of priority, or hierarchy, of: 1) economic, 2) environmental, and 3) social. Similar to the private sector, economic and occupant considerations receive a higher priority than environmental or social concerns when considering 'green' building alternatives on university campuses.