



## Today's design concepts: Beginning of future innovations

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What's considered new and innovative today in the world of green design will be tomorrow's standard according to engineers who are in the forefront of sustainable designs intended to make more efficient and environmentally friendly use of resources such as water and solar power but also to conserve non-renewable resources for future generations.

A survey by the American Council of Engineering Companies of New York (ACEC New York) of its 240 member firms statewide regarding the application of green concepts to design projects has revealed some consistent advances in the learning curve for the new design mindset, while acknowledging there are still challenges ahead.

As sustainable design is increasingly mandated by government agencies and more frequently requested by private clients, engineering firms are responding quickly. They are participating in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program and conducting in-house workshops and charettes to prepare staff engineers for the LEED Accredited Professional status. One of ACEC New York's larger member firms, DMJM Harris, now has more than 500 LEED Accredited Professionals. Almost without exception, all of our member firms are training a percentage of their staff for accreditation to meet the new and future challenges.

### Lessons Learned

Building green employs sustainable, environmentally friendly concepts to promote site reclamation, energy efficiency, water conservation, the use of renewable and recycled materials and indoor environmental quality. According to the majority of survey respondents, the most important initial steps for a successful project are intensive cost/benefit analysis and getting all of the design issues on the table for all of the stakeholders early in the process. This includes the engineers, architects, contractor and client. Team collaboration and consensus will avoid costly changes and misunderstandings once the project is underway or completed. The use of proven products, materials and technology is also recommended, as is compliance with the LEED requirements for record keeping during construction. Incomplete records could prevent the owner from getting the LEED certification desired.

### Challenges Ahead

Among the biggest challenges, however, is dealing with the perception held by some clients that sustainable projects cost too much. "The most critical issue we face is educating the client that they need to implement the recommendations we make," said Linda Thomas of Ecology and Environmental Engineering. "Despite their paying for our extensive efforts to conduct detailed engineering-based analyses and to develop technically defensible data, clients often fail to take the next step, which is to implement the recommendations so as to reap the benefits of their assessment investment. Failure to implement recommendations results in the false perception that sustainability projects don't provide operational cost savings," she added.

Other comments in the survey expressed the difficulty in applying LEED principles to existing buildings and the concern by some that cost modeling at present is too narrow in scope and time for some projects. In applying these green technologies, we must also be aware of unintended consequences," said John Williams of HDR, Inc. Rama Kanthan, Tammy Petsios and Melissa Targett of Parsons Brinckerhoff agree. "The definition of sustainable development, as defined by the Brundtland Commission, created by the United Nations in 1983, is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Until we are able to include the costs of depleted finite resources in the prices that we pay for goods, we are borrowing from future generations so that we can live inexpensively now," they concluded.

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