

## ***Moving Forward: Findings and Recommendations from the Consultative Council 2013 Report Summary***

Buildings are becoming increasingly complex. At the same time, the businesses, policies and participants that support the built environment in the United States make for an industry dynamic that also is complex. Despite these complexities and numerous priorities, the U.S. building industry has come together under the National Institute of Building Sciences Consultative Council to address challenges, identify findings, make recommendations and seize opportunities to improve the nation's buildings and related infrastructure, and, thereby, the thousands of communities that depend on them. The Consultative Council has issued a number of reports highlighting the industry's annual priorities. In 2013, the Council focused specifically on priorities in several key areas, and provided clear recommendations for action. These areas are discussed below and are in addition to recommendations from past reports that still remain relevant.

### **The Building Workforce**

There is a growing concern—within building-related disciplines and the building industry as a whole—about the dearth of new entrants to the workforce and, in particular, the lack of new candidates for the skilled trades. Despite the fact that the building industry has made significant advancements in the utilization of technology over the years and industry professionals have the ability to earn a quality living, young people (and their parents and other influencers) appear fixed on attaining careers in other sectors of the economy.

While the Obama Administration and others have focused on the implementation of science, technology, engineering and mathematics (STEM) education programs as a means to interest students in scientific and technical careers, few such programs specifically highlight the building sciences. The Institute's engagement with the National Aeronautical and Space Administration (NASA) and the Total Learning Research Institute (TLRI), which is introducing students to building science and building systems through their participation in a Facility Operations Challenge on Mars City, can serve as an example for linking building sciences with other STEM-related efforts.

Over the past few years, changes within the educational system (particularly at the high school level) have seriously influenced the ability of the building industry to attract students to pursue building-related careers. The shuttering of industrial arts or "shop" classes and other hands-on training facilities at the high school level has limited the opportunities to expose large numbers of students to the buildings trades.

The shifting focus of parents, guidance counselors and federal, state and local departments of education on promoting a two- or four-year college degree in lieu of a trade school has proved detrimental—despite the fact that trade school graduates often have lower student loan debt, are employable and productive immediately, and can earn respectable salaries.

Therefore, all building industry participants should make it a priority to recruit and mentor young entrants into the building professions, skilled trades and related fields. In addition, the Department of Labor and the Department of Education should work with stakeholders to develop a comprehensive national workforce strategy that includes technical education, continuing education and engages K-12 students, parents, teachers and guidance counselors.

### **Use of Non-Potable Water**

Though not suitable for drinking, non-potable water can be used for many other purposes. Yet, even though much of the nation has suffered a severe drought in recent years, in many states, due to the lack of clear guidelines for usage, this valuable resource is literally going down the drain. However, national criteria have not yet been established to address the minimum microbiological and chemical properties required of water for various end uses.

The Consultative Council recommends the U.S. Congress pass legislation granting the EPA the authority to set uniform national water quality criteria for all appropriate end uses of non-potable water in much the same way it does for potable water under the Safe Drinking Water Act. The agency should also establish appropriate monitoring and assessment criteria and techniques for each end use. Such action will enable rapid increases in the use of non-potable water throughout the United States, reducing demand for potable water and the energy used to transport and treat it. Removing the current patchwork of regulations will also permit the development of non-potable water technology, facilitating growth of an industry with a potentially worldwide export market.

### **The Energy/Water Nexus**

The energy/water nexus is a term increasingly used to describe the interdependencies between water and energy resources. Huge volumes of water are consumed in the energy sector for generating electricity and extracting and processing natural gas and other fuels used in buildings. In addition, the processes to pump, treat, heat and deliver water all require expenditure of a significant amount of energy.

However, the energy/water nexus extends beyond the generation of energy and the distribution of water, and its implications need to be better understood in order to provide guidance to standards developers on beneficial strategies for the efficient management of energy and water in buildings.

Detailed evaluation, measurement and verification (EM&V) protocols already exist for analyzing energy-efficiency performance, but these protocols need to be revised to properly address the embedded energy savings emanating from water conservation and management programs. The protocols need to properly document where interactive water and energy savings occur, and greenhouse gas emission reduction calculation methodologies need to be revised to correctly recognize the contributions coming from the saved embedded energy in water supply, treatment, pumping and consumer end use consumption.

### **State and Local Regulatory Infrastructure**

State and local governments serve an important function in keeping their communities safe. Unfortunately, many jurisdictions have undergone significant reductions in budgets in the past several years and do not have the resources to fully support their building safety departments. Having the federal government help support that important function, through the provision of technical and financial resources, such as education and training, technical assistance, grants and incentives would help local communities while advancing the national priority of having resilient, efficient, high-performing buildings.

Current funding mechanisms for code departments do not reflect their importance to the community. In many jurisdictions, building departments are expected to cover all expenses through funds collected through permit fees. When construction activity is robust, departments are generally able to maintain adequate funding and save contingency funds for future slowdowns in construction. However, when the economy (and thus state and local revenue) declines, any surplus maintained by the department is seen as a source of revenue for the general fund, thus leaving departments unable to maintain personnel and training. Establishing code departments as independent enterprise functions that can support themselves and assist local residents and businesses—no matter the jurisdiction’s budget challenges—may be an opportunity to circumvent these cyclical impacts.

Code departments need to market their value to change how they are perceived in their communities. Many departments are seen as an adversary to development, when instead, they have the opportunity to serve as advisors to designers, contractors and owners. Up-to-date building codes and strong code compliance can impact a community's resilience to hazard events. This, in turn, affects the affordability of insurance for citizens and businesses. Jurisdictions need to develop and communicate these merits in an understandable way to their citizens. In addition, federal agencies should ensure that any grants given to the states in support of community development, resilience, housing, etc. include requirements for up-to-date building codes.

### **Private Sector Mitigation Investments**

Responding to climate change and other hazards is a cross-sector endeavor with implications for health, safety and economics. To achieve national resilience will require those professionals responsible for national infrastructure, from across all levels of government and the private sector, to work cooperatively to map out a course of action. A multihazard, multi-stakeholder approach is required in order to achieve the nation’s resilience goals.

With the growing incidence of hazard events occurring across the United States and globally—and the increasing costs associated with recovery and reconstruction following such events—there is growing interest and support from all levels of government and the insurance industry for investing in mitigation, whether through building codes or other methods. The Institute's Multihazard Mitigation Council conducted a study in 2005, *Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities*,<sup>1</sup> for FEMA that

---

<sup>1</sup> [http://www.nibs.org/?page=mmc\\_projects#nhms](http://www.nibs.org/?page=mmc_projects#nhms)

identified the value of federal investment in mitigation. However, the value of the private sector investing in mitigation activities has only been identified anecdotally.

The Institute's 2005 *Natural Hazard Mitigation Saves* study, which found that every federal dollar spent on mitigation saves society an average of four dollars, highlighted the need to assess and understand savings beyond just those that accrue to the federal government, but to state and local governments and the local economy. The Institute should revisit the *Mitigation Saves* report. To be worthwhile, a new assessment of the value of mitigation should examine and explain the decision-making process for investments, but it also must look beyond the individual investments and resultant savings made at the building level and look at how individual investments can benefit communities as a whole. This would support multi-stage, multi-sector approaches that will likely prove effective and financially justified, in contrast to a project-by-project approach to identifying and funding mitigation.

### **Conclusion**

As federal, state and local governments, building industry organizations and industry practitioners work to improve the built environment and address their many priorities, the Consultative Council is pleased to provide the above recommendations to advance the industry and the nation. In the coming year, the Council will continue to refine these recommendations and identify other important issues before the industry. To view the full 2013 Consultative Council report, including all of the recommendations, see <http://www.nibs.org/?page=cc>.