

Construction Law

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Focus on Higher Education

Mayor Bloomberg's Challenge

On June 6, 2007, Mayor Michael Bloomberg announced nine universities accepted his challenge to reduce their greenhouse emissions 30% in the next ten years. In October 2008, 4 more universities stepped up to the challenge.

The four universities that accepted the challenge in October are Berkeley College, Pace University, the School of Visual Arts and Weill Cornell Medical College. They join Barnard College, Columbia University, Cooper Union for the Advancement of Science and Art, 23 Campuses that make up The City University Of New York, Fordham University, New York University, Pratt Institute, St. John's University, The New School, and Rockefeller University.

Ten schools have already completed a greenhouse gas inventory to determine their total carbon footprint and develop a long term action plan to meet their 30 percent greenhouse gas reduction goal by 2017. These ten schools have now integrated greenhouse gas reduction into their long-term strategic plans and their schools' business plans.

Source: Office of the Mayor

Ten Strategies to Comply with the Mayor's Challenge While Engaged in a Construction or Renovation Project

1. Conduct a preliminary environmental survey.

The first step toward effectively integrating environmentally friendly strategies into a

construction or renovation project is to conduct a preliminary environmental survey that maps out the essential environmental effects of the project and collects all relevant data. For example, the environmental considerations of a newly constructed dorm with 400 rooms, including bathrooms, corridors, storerooms, ventilation, lighting and heating, must be assessed to determine the most effective method of proceeding. Without a full preliminary assessment, goal setting becomes wholly ineffective.

2. Determine environmental objectives.

Once the environmental assessment has been completed, detailed goals must be established. It is essential that school's administration collaborate with the design professionals, environmental consultants and contractors to create a written plan for implementation. The effective "reach" of the program can be expansive because green building techniques can be used to diminish energy costs, water costs, site-clearing costs, landfill dumping fees, material costs and employee health problems. It has become clear that environmental design, implemented effectively, can easily yield operational savings and a better return on investment. To maximize effectiveness, it is critical to involve the entire design team to take full advantage of environmental strategies and to maximize design synergy.

3. Formulate an environmental action plan.

The cornerstone for carrying out the environmentally innovative program is in the details. Factors such as climatic considerations, optimal thermal efficiency, solar heating consideration and HVAC system performance criteria must be included. It is imperative that air and moisture infiltration factors, which may limit or eliminate mold contamination risks, be included. A Building Management System is a key tool for evaluating overall building performance because it provides a method for measurement. As a part of green building plan implementation, it is also essential to create this



type of metric, both to measure energy consumption and to assist in determining whether environmental compliance goals are met.

Material considerations are integrally important to ensure that designs meet environmental goals. Selection of material is especially important with respect to the type of material used, recyclability, recycled content, embodied energy, hazardous constituents and life cycle analysis. The best commercially available materials and technologies must be used to minimize consumption of energy and resources and to maximize the use of natural, recycled and non-toxic materials. Innovative, natural, renewable and recycled materials that reduce toxic emissions from unsustainable manufacturing processes should be used, whenever possible. "Green" materials, once a scarce resource, are now more readily available with more options to choose from and the costs related to using such materials are decreasing.

4. Combine architectural qualities with environmental considerations.

Environmental considerations are an integral component of the design phase. The first step of the renovation project includes a meeting of the newly formed interdisciplinary design team. Together, the environmental goals of the project can be set and prioritized. It is likely that the most essential environmental impacts of a project are already determined at the overall design

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phase, i.e., when the university and architect arrive at the main design concept, long before engineers and contractors are normally allowed into the process. To achieve environmental design, it is imperative that the entire design method, approach and discipline be overhauled. Every component, every guideline, every mark of the pen must consider the implications of the meaning of “environmental.” Before any analysis or action is taken to implement environmental design strategies or products, it is important to understand the life cycle of a building and the costs (economic and environmental) attributed to each phase.

5. Have staff members review construction plans and equipment selections.

The university’s green commitment is expressed not only in its design and infrastructure, but also in its management and operations as well. To assure efficiency, staff members must review the architectural plans and equipment selections. Melding existing systems with the new ones being installed through a renovation cannot be assured without a good deal of communication. Adopting this strategy during renovation will help bring the entire university up to current environmental standards. In addition, a building manual is pivotal to the green renovation. Without a detailed document describing the environmental goals, targets and systems, it is virtually impossible for the operations team to understand and manage for optimal environmental performance. A building manual should include at least the following: (1) explanation of environmental goals and priorities, (2) description of design intentions and system synergies, (3) design details of each environmental component, (4) operational details of each environmental component, (5) maintenance details of each environmental component and (6) any documents relating to environmental regulations and certification.

6. Consider air, water and solid waste procedures.

The renovation period provides an ideal time to review and implement environmentally friendly procedures. For example, air quality is greatly affected by the types of cleaning materials a property uses. The air filtration system is another area that should be evaluated. Other types of materials including paint, adhesives, carpeting and air fresheners should be reviewed. Selecting the proper building and maintenance materials is one of the most important steps to avoid indoor air quality problems.



Water conservation is another important area. Water conserving fixtures and engineering leak detection systems are also important, as is solid waste minimization.

7. Hold regular meetings during the course of the project.

Meetings are necessary to review the effectiveness of implementing environmental compliant steps. These meetings are needed in addition to typical job progress meetings conducted by the construction manager or contractor. Attendees would include the administration, architect, engineer, general contractor and the facilities and engineering department. Accurate, detailed minutes are critical for effective management.

8. Make smart engineering choices to ensure resource conservation.

In New York City buildings account for 79% of all carbon emissions and throughout the country buildings consume 71% of the total electricity and are responsible for 39% of our total energy consumption. This does not include the energy that was used during construction. One-sixth of all water pumped out of natural flows is consumed in buildings. Colleges and Universities are inherently energy-dependent. Nearly every activity within a campus consumes resources, and thus, opportunities to conserve abound. Energy conserving practices are well documented, can be employed quickly and are easily quantified as to the benefits and payback periods. Other forms of resource conservation that are not as common include water conservation, and reducing material consumption in the design, construction and operation throughout the campus. Indirect forms of resource conservation include converting on-site vehicles to alternative fuel sources, recycling, and providing education opportunities to designers, contractors, guests and students.

9. Make “green” decisions when choosing energy systems.

Energy management system strategies now include the creation of “smart rooms” – rooms that can automatically adjust heating and cooling temperatures, and electricity usage. Smart energy management systems monitor room conditions via infrared technology. The system can be used in classrooms, dorm rooms and offices. Energy management systems can monitor and, in most cases, control the chiller plant, boilers, domestic hot water distribution systems, major air handlers and fan coil units, trash compactors, exterior lighting and any retail and restaurant areas. Measurable electric savings can be realized by choosing the right energy management system for the property. Indirect savings include labor, plant operations management, electrical components and equipment life.

10. Educate employees about your “green” renovation.

An efficient, successful environmental organization is one where all the employees, including managers and contractors, are aware of the goals and practices of the organization. To achieve maximum success, it is important to have an educational program in place that allows for participation throughout the organization. Consider implementing the following educational strategies:

- Develop an environmental management system that includes managers and employees from all departments.
- Involve each department by empowering employees and managers to benchmark, to set targets and to compete among departments for environmental efficiency and performance.
- Organize an environmental seminar by inviting local and international speakers, such as attorneys, consultants or employees of local environmental institutions and companies.
- Offer volunteer opportunities for your employees to take time off to volunteer for environmental causes.

CONCLUSION

By adopting many of the strategies discussed, universities can conduct a successful green construction and/or renovation project with reduced operating costs and meet the demands of the Mayor’s challenge.