

tially less energy than does the average U.S. building. Daylighting of interior spaces not only creates more attractive places to work but also can help reduce energy consumption in a building. If a building uses daylight, it will need less energy for installed lighting. In addition, because lights are a significant heat source in most buildings, using less artificial lighting will also reduce the cooling load in the building. If strategies such as this are designed in from the beginning, they can help reduce the first cost as well as the operational cost of the building, and lower its overall environmental impact.

The Environmentally Self-Conscious Design Process

It is not realistic to think that it will generally be possible to design buildings that perform significantly better environmentally within the traditional design process. The traditional process is generally linear in nature, with each discipline adding its part to the project, and it allows designers little opportunity or incentive to rethink basic issues and work toward more integrated design solutions. In addition, designers have many unanswered questions; they are overwhelmed with the many new products coming onto the market every week, all of which prompt new questions; and in many cases, they do not understand the basic science. The issues, problems, and solutions are far from intuitive. To produce high-performance buildings requires a different approach to design—a self-conscious approach. The sustainable design process outlined below is by its very nature rigorous and deliberate in producing a more efficient design. It provides many more opportunities for synergies for first cost and operational savings within a more collaborative team.

THE TEAM

It is always important that designers select the right team for a project. The design professional should select a team with prior experience with environmental issues even though for a time it will be hard to find such experience. What is perhaps most important is that the design team members share a common understanding that it is important to improve the environmental performance of the design, and are willing to work together for better solutions.

The team will include the owner's representative. Every effort should also be made to include those who will ultimately be responsible for operating and maintaining the final facility for the owner. A knowledgeable building

manager can greatly help the overall performance of a building. This performance includes energy conservation, building maintenance, and other operational issues. It is important that the manager and his or her team have a clear understanding of the overall and specific goals and objectives for the project design as well as detailed knowledge of how particular systems are designed to be operated.

For larger projects, many different organizations may be involved, e.g., the base building architect, mechanical engineers, the construction firm or manager, and telecommunications consultants. For these projects, it will be helpful to identify one person in each firm to be the “green” shepherd, to make sure environmental information and issues within each firm are passed on to and addressed by the team.

To move toward sustainable buildings, it may be helpful for the design team to include additional team members depending on the size of the project and its resources. In larger projects, energy modeling, indoor air quality (IAQ) and maintenance advisors are frequently part of the team. If at all possible, the construction professional responsible for the project should be included from the beginning. If it is a straight bid project, consider having information sessions for interested contractors prior to the official pre-bid meeting, to explain the project and the overall environmental issues and goals that shaped the design. If appropriate, consider including selected building material suppliers and subcontractors as part of the team. If some product suppliers already have preexisting agreements with the client—for furniture systems, for example—they also should be included from the beginning. The more inclusive the team can be made, the better. The entire team should be part of the initial education sessions.

EDUCATION AND SETTING GOALS

Once the team is in place, it will be extremely helpful to start the project with an education and goal-setting session. While this process is increasingly common in projects, environmental issues deserve their own focus. The issues are new to many people, and it is helpful to start with a common understanding of the issues and see what others are doing to create better-performing buildings. The design team should consider holding an environmental charrette or work session for the entire team to learn together and to begin to outline the environmental goals for the project. Such a session is one of the best ways to get people involved.