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.

DESIGN REFINEMENT AND OPTIMIZATION

Optimization is simply the ongoing review of each design decision or material selection to ensure that it is indeed the best possible selection for the task and goals at hand. For instance, the design team can use an energy model to evaluate energy consumption by load component (lighting, ventilation, plug loads, etc.). The DOE-2 energy modeling system is the best. This modeling system was funded by the U.S. Department of Energy and administered by the Ernest Orlando Lawrence Berkeley National Laboratory. It can work systematically to reduce each load. The most significant benefits will come from the synergy that can be found between systems. Maximizing daylight and minimizing electric lighting, for example, will also reduce the overall cooling load of an office building. If daylight can be used for significant portions of the lighting needs, the overall mechanical system can be smaller.

While they work with the mechanical engineers and lighting designers to minimize energy consumptions designers should also keep in mind the other things that produce high-quality spaces. They should account, for example, for whether there are views to the exterior. Similarly, they should isolate pollution-generating equipment including copiers, fax machines, and printers, to make it easier to exhaust the pollutants involved. And they should make sure there is easy access for maintenance.

As the project progresses, the designers should ask the following questions. Is the design flexible for long-term use? If demolition is to take place prior to construction, are these materials being recycled? Can any of these materials be reused in the new construction? Are there local salvaged materials that can be used? What are the best materials that can be afforded to meet the needs of the project while protecting the environment and health of the building's users? How little is it possible to get by with in terms of resources while still meeting the needs of the client?

FIGURE 16-11
In this demolition of an old hospital, the rigid insulation was salvaged and used in the new facility.