Every aspect of the design should be reevaluated systematically to achieve a better design. Materials should be dimensioned to minimize waste using standard material sizes wherever possible. Minimize on-site finishing of materials to make it easier to keep the building free of off-gassing from these operations. It is generally easier to control these finishing processes in a factory setting. Be clear about environmental requirements expected in the specification, including VOCs, recycled content, and avoidance of materials that have been banned by regulatory agencies. Design for flexibility and adaptability wherever possible, to allow the building to serve for a longer time without additional work. Provide for recycling at each work area and at the loading dock. Experience has shown that recycling is more likely to happen when it has been made convenient to do so.

**FIGURE 16-12**
Sometimes simply using fewer materials is a way to control environmental impact. In this case, a simple sealed concrete floor eliminates the need for more toxic finishing processes.

### SPECIFICATIONS AND CONSTRUCTION DOCUMENTS

Specifications and construction documents require special attention. The industry typically relies on "standard" specifications. However, many of the materials or requirements for environmentally superior buildings may be new. New specifications will have to be crafted that carefully outline the expected environmental performance requirements. Develop a construction waste specification based on research of the local community. If demolition is to occur prior to construction, clearly define what is expected to be done with the materials to be removed. Clearly define those materials that will be salvaged for later reuse.

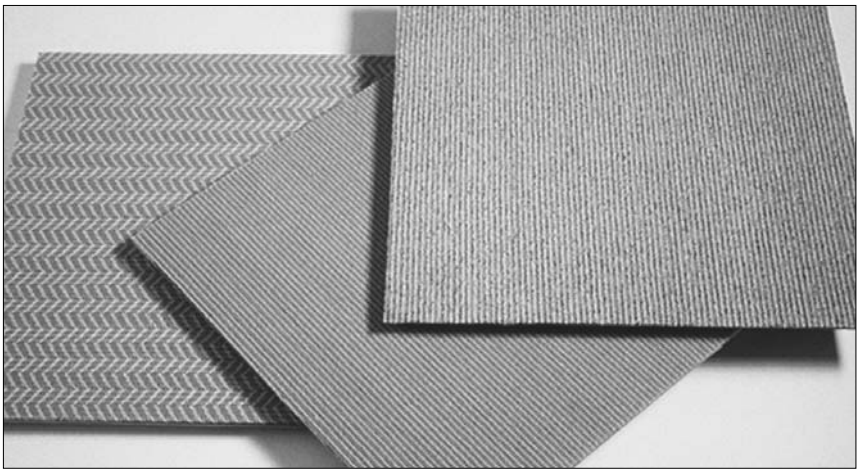

FIGURE 16-13
Cargill Dow LLC has developed a fiber made from polylactic acid, a corn byproduct. Interface Inc. has designed carpet tiles, shown here, and fabrics made of this breakthrough material.

The pre-bid conference should clearly outline the environmental goals and any unique features or requirements. The design team should encourage all contributors to the project to seek new ways to minimize construction waste and to be open to suggestions, beyond the ones already incorporated into the project, for using salvaged materials.

### BIDDING AND CONSTRUCTION

If the construction team was not involved in the project from the beginning, the design team should pay special attention to identifying the overall environmental goals for new members of the team. The team might consider an environmental education session similar to those at the beginning of the design phase. It should pay particular attention to construction waste materials, and any special construction sequencing required. If a construction manager has been involved from the beginning, this educational effort should be directed to the subcontractors' bidding on the project.

Once contracts have been let and construction is about to begin, the design team should prepare a team overview of the project and its environmental goals. Most of these issues, materials, and systems will be new to most of those who will construct the project. If the design team makes clear the issues involved and the goals for the project, the construction team has the best chance of meeting the objectives of the project. As with the design team, it is frequently helpful to identify one person within each subcontractor's crew to be the environmental shepherd to ensure a smooth flow of information and to provide a daily reminder of the specifics of the mission. Many contractors have found it useful to cover a week's outstanding environmental