

# Sustainable flooring benefits hospitals in a variety of ways

February 8 2011

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(PhysOrg.com) -- Sustainability in construction and design continues to gain traction as stakeholders become more aware of the benefits of sustainable materials. The healthcare design industry, in particular hospitals, is putting more of an emphasis on how flooring materials can deliver benefits over the lifecycle of their facilities.

A recent study by Georgia Tech research associate Jennifer DuBose and College of Architecture graduate assistant Amaya Labrador shows that several elements need to be considered when choosing the correct floor for a hospital environment.

“We were able to create some guidelines for ensuring proper selection and installation of resilient flooring for hospitals,” said Dubose. “The feedback was essential as we looked at different floor materials in a variety of settings.”

DuBose said the research examined six hospitals that had selected and implemented sustainable resilient flooring, as well as survey responses from more than 600 people.

The study investigated the experience that architects, installers, facility managers and users had with alternative, green resilient flooring materials in hospital settings, focusing on several types of resilient flooring materials, including rubber, polyolefin and linoleum.

According to DuBose the research shed light on the lesser-known

products. “We were able to identify key issues that I hope will lead to increased adoption.”

The research took into account several [sustainability](#) components for each flooring material included: indoor air quality from cleaning chemicals, cleaning procedures and back injury, working with harsh chemicals, durability, cost of ongoing maintenance, worker comfort and noise reduction were all components of sustainability that were investigated for each flooring material.

DuBose’s research shows that each flooring material has different benefits for the user. Each flooring material was rated for aesthetics; downtime needed for maintenance, comfort level, initial cost, infection control, sustainability, health and life cycle costs.

Hospitals can choose a floor based on the component of the floor that is most important to them. For instance, a rubber floor has the advantage of being comfortable underfoot, needing little downtime for maintenance, and efficient for infection control while having a long life cycle.

However, if initial costs are the most important criteria, then VCT or sheet vinyl might be the best option. Linoleum got high marks for comfort, infection control, health and sustainability.

The research also showed that flooring installations are dependent on the overall process, which has several elements that all need to be done correctly to have a successful floor.

“Curing the slab, training the installers, selecting the right adhesives and using them in the right place are all part of the equation,” said DuBose. “In many ways the process is as important as the material.”

This research project was led by the Georgia Institute of Technology, with collaboration from Green Guide for Health Care™, Healthy Building Network and Practice Greenhealth. Funding was provided by the Health Care Research Collaborative. The Research Collaborative was initiated by Health Care Without Harm, an international nonprofit coalition that promotes environmental responsibility in health care, and is coordinated by faculty of the University of Illinois at Chicago School of Public Health, with support from the Pioneer Portfolio of the Robert Wood Johnson Foundation.

## **Recommended Steps For Flooring Success Based on Feedback Gathered through the Research Project:**

One of the main purposes of this research effort was to capture lessons learned from people who had used rubber, polyolefin and linoleum in order to share those lessons with other [hospital](#) design stakeholders. From the case study interviews, we gleaned some lessons that should help you succeed with your resilient flooring choices.

1. **Determine the needs:** Before making a decision on what material to use, talk to the end users and find out what their needs are - for example, the performance requirements for the space, the ability for maintenance to get in and have access for cleaning, and the look that they want. See Table 3 for a quick guide to which materials help meet specific goals
2. **Touch and test samples:** Obtain samples that people can see and feel and, if possible, install a small area of multiple types of flooring for users to evaluate. Put some of your tougher staining substances on the product and let them sit for an hour before cleaning to evaluate stain resistance.
3. **Do your research:** Get the manufacturer to provide references for

other hospitals that have used the product in a similar application. Call those other hospitals and get feedback from clinicians, environmental services and the facility manager. Go and visit, if possible, to see the floor firsthand. Ask your insurance company to test the coefficient of friction for the material when it is dry, wet and when freshly finished to see if the product will provide you with a safe environment.

4. Make an inclusive decision: Narrow the selection down based on the information and feedback gathered in the previous steps. Involve select, key people from the affected departments in the final decision.

5. Ensure a quality installation: Set clear guidelines for preparation of the subfloor to create the conditions needed for the specified flooring material. Check the qualifications and experience of the installer and verify references and feedback from the other projects they have done. Allow adequate time in the construction schedule for acclimatizing the building before installation. After installation, allow the required amount of time before permitting traffic into the area.

6. Inform the stakeholders: Make sure environmental services staff are trained in the proper maintenance procedures and have the appropriate equipment and supplies. Educate the clinical staff about the flooring choice and what they should expect in terms of the cleaning protocol.

7. Measure the results: Check in with the environmental services department and clinical staff to document their impressions of the floor after several months in service. Track any impacts such as comfort, acoustics, falls or reduced maintenance costs that were anticipated.

8. Institutionalize the findings: Based on the performance of the flooring material, make changes to the system standards and procedures so that other facilities or future projects in the same system can benefit from your experience.

Provided by Georgia Institute of Technology

Citation: Sustainable flooring benefits hospitals in a variety of ways (2011, February 8) retrieved 24 April 2024 from

<https://medicalxpress.com/news/2011-02-sustainable-flooring-benefits-hospitals-variety.html>

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