



KEY POINT SUMMARY

OBJECTIVES

To study the long-term costs of different flooring materials while describing key factors such as durability, safety, and aesthetics.

A life-cycle cost analysis for flooring materials for healthcare facilities

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Key Concepts/Context

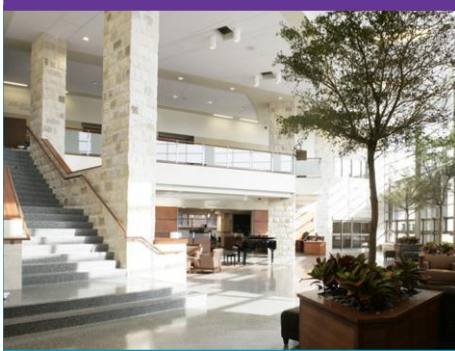
When deciding which flooring materials should be installed in a healthcare facility, designers must consider how the material will affect building occupant safety, long-term hospital costs, and overall appearance. Using a variety of flooring types, ranging from hard materials to soft installations, is one way to optimize the functionality and safety of a given space within a hospital. Considering the wide range of flooring materials available and the multiple considerations needed for designers to make informed decisions, there is a growing need for further research into the lifespan and application of different flooring types in healthcare environments.

Methods

Life-cycle cost analyses (LCCA) were carried out on a variety of flooring materials according to the standards outlined by the National Institute of Standards and Technology (NIST). NIST protocol for flooring selections includes the following steps: clearly defining the flooring-related problem, finding feasible alternatives for flooring material, and identifying common parameters and assumptions across flooring types. The authors use these analyses to provide a tool that may be used for future cost analyses underlying flooring construction.

Findings

Analysis of flooring material durability, cost, and maintenance needs showed maintenance costs can prove to be substantial in all scenarios, especially when compared to the initial cost of flooring materials themselves. Calculations showed that maintenance costs of hard and resilient flooring after one year of installation were 200% and 300% of their initial costs, respectively. Hard and resilient flooring surfaces also contributed to about 2.5 times more equipment costs. Soft flooring was found to be the most cost-effective material, with MCT flooring showing a



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Limitations

The authors note that since most of their data were derived from industry data, a number of incongruences were present in the information used to draw this study's conclusions. Warranty information was often inconsistent and maintenance schedules were not always clearly described. Average prices were used as the basis for LCCA calculations; the authors note this is a limitation, as the actual prices of the materials may vary greatly.

Design Implications

Flooring materials can greatly enhance the functionality, safety, and visual appearance of healthcare spaces. Designers should carefully consider how a given flooring material could contribute to these factors, and how the overall cost of installing, maintaining, and replacing those materials might factor into hospital finances.

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