

Trampled under foot

Flooring and the medical center

Amid the sophistication of a medical facility, there are also those most basic of needs that mean so much to the overall health and warmth of a space. Light, air, design and decoration are all of little consequence to the details of medical care, but influence patients and clinicians alike nevertheless.

When these elements are done well, they are almost invisible to most hospital visitors and workers. They create a virtually ethereal feeling that architects and interior designers have been striving to perfect for centuries. When they are not done well, however, they are impossible to ignore.

Of all these quasi-ethereal elements, the one that just might have the biggest impact is flooring.

Everywhere one can go, it is there. From the entryway to the trauma center, it needs to be all things at all times. It needs to be flexible to the specific need of the situation yet somehow find harmony with its environment.

The challenge confronting architects and interior designers charged with identifying the right types for the right situations is the utter complexity of the task. The solutions are never easy since it is not just a matter of selecting one type and style over the other but also taking economic and environmental impacts into consideration. To further complicate matters, the answers to economical and environmental questions are not absolute.

"There is no perfect flooring solution for a hospital," said Renee Schreiner, facility designer of OSF Saint Francis Medical Center in Peoria, Ill., a member of the American Academy of Healthcare Interior Designers and the International Interior Design Association.



Flooring is a dynamic element that has a long-term impact — since flooring types can last from five to more than 20 years — and it is a major decision that is commonly directly handled by a representative of the owner of a facility and a third-party design professional. Yet, product advances occur at a rapid pace and renovations and additions are common irrespective of flooring life.

So, solutions are uncommon and usually dependent on need and the location. Unless intentionally designed so, one medical facility will never have exactly the same types of flooring in the same locations as some other facility. A hospital, however, does have distinct areas that call for specific types of flooring: main entry, waiting rooms and family areas, corridors, patient rooms and treatment areas.

Entry and family areas

The first impression is said to be the most important, and this might be especially true in a medical context.

“It sets the stage of the brand and quality of the facility or health system,” said Linda Gabel, senior associate with NBBJ and a member of the American Academy of Healthcare Interior Designers and Healthcare Forum Advisor for the International Interior Design Association.

According to Schreiner, the most important concern besides imparting a positive image through a main entry and waiting area is keeping up with the high traffic volume.

“It is important that the flooring materials we have in these locations are easily maintained,” Schreiner said. “In a main entry, it is hard to shut down to clean.”

Solid vinyl tiles are used at OSF due to the ease of maintenance, Schreiner said, and while vinyl composition tiles have low acoustic value, noise has not been an issue at her facility.

“We thought that sound might be a problem, but it has not been an issue at all,” she said.

According to Gabel, carpet is also a

1. Sheet vinyl is the flooring of choice at Northwest Community Hospital Pediatric Emergency Department in Arlington Heights, Ill.

2. Porcelain tile carpet is in use at Advocate Lutheran General Hospital, Center for Advanced Care in Park Ridge, Ill.

3. Since the main lobby area of St. Mary’s Medical Center North in Powell, Tenn. is connected to a cancer center and medical office building that have marble, a honed marble with an occasional ‘dot’ of the polished marble was used to add sparkle. Less than 5 percent

of the total marble tiles are polished.

4. Forbo floors was the choice at Balboa Naval Medical Center Pediatric Intensive Care Unit in San Diego, Calif.

5. Southwest Washington Medical Center E.W. and Mary Firstenburg Tower in Vancouver, Wash. have a traditional look in the acute care area.

6. To add a more child pleasing atmosphere, a ‘bamboo’ solid vinyl tile is used in the pediatric elevator lobby at OSF Saint Francis Medical Center.

prime option for such areas since it provides a warm and acoustically pleasing environment. But, again, maintenance can be an issue.

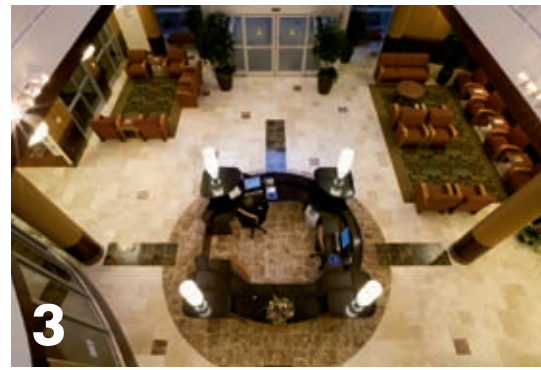
“The commitment to carpet in high maintenance areas requires clear life cycle expectations of replacement. Patterned or textured resilient-backed broadloom or carpet tile with performance fibers and backing systems are good choices for healthcare settings,” Gabel said.

Schreiner said the use of carpet at OSF is primarily in the family areas of her facility since those areas should be softer, warmer and more like a home atmosphere.

“Solid vinyl has a lower acoustical value than carpet,” she said.

Corridors and hallways

Everyone that has entered a hospital has undoubtedly been confronted with a meandering maze of corridors and hallways that inevitably lead to the seemingly unending stream of patient rooms and treatment centers. Unlike in the entry and waiting areas, corridors



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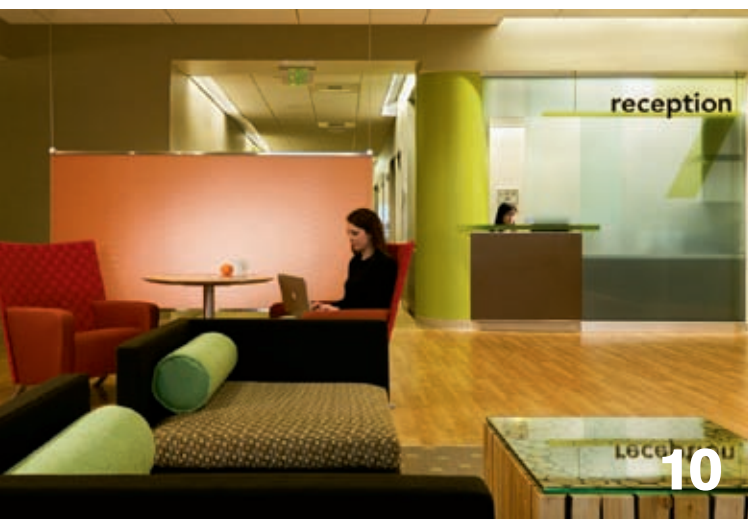
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- 7. OSF Saint Francis Medical Center utilizes sheet vinyl patterns within corridors to add accents and color.
- 8. Rubber flooring is used at Advocate Good Samaritan Hospital in Downers Grove, Ill.
- 9. A no-wax, wood-look sheet vinyl was used to bring warmth to this large cafeteria at St. Mary's Medical Center North in Powell, Tenn. The patterned borders, in coordinating wood tones, help define the space and tie the finishes together.
- 10. Southwest Washington Medical Center E.W. and Mary Firstenburg Tower in Vancouver, Wash. uses a simulated wood grain look in their acute care reception area.

A breakdown of some common seamless flooring products

Sheet vinyl

Sheet vinyl is the largest category of seamless resilient flooring with a number of options available, including heterogeneous, homogeneous, recycled content, cushioned and slip resistant. Sheet vinyl products can be coved where needed.

>HETEROGENEOUS products are susceptible to tearing due to their lower psi and are not recommended for high traffic areas. Slip resistant sheet vinyl is an excellent choice for areas that may become wet, including toilet rooms and operating rooms as well as for use on ramps. It cannot be waxed as the slip resistant characteristics will be rendered ineffective. We have had success with wood-look sheet vinyl products for several applications where a warmer environment is desired and carpet is not an option.

>HOMOGENEOUS products are excellent choices for high traffic areas, sterile areas and areas where staining is probable. At this point, there is a limited offering of sustainable options available although manufacturers are beginning to address this issue. Most sheet vinyl products contain PVC, found to be harmful to compromised patient populations and infants. It is not recommended in neonatal intensive care environments according to the most recent perinatal guidelines. It has a long life expectancy with proper maintenance, of up to 15 years.

Linoleum

Linoleum was initially developed in the late 1800s and has seen a recent resurgence due to the increased focus on sustainability. It is quieter underfoot than sheet vinyl, can be welded to create a seamless floor with either a cold or hot weld and it can be coved. It does require floor finish and routine maintenance, but should not be waxed. Its disadvantages include a lower psi than sheet vinyl or rubber, and ultraviolet rays and harsh cleaning chemicals can cause its color to yellow. Bleach-based solutions can leach out the pigments, dramatically fading the flooring. Recently, some manufacturers have introduced products with higher psi, scuff and scratch resistance as well as resistance to chemical discoloration. It also is not recommended in areas that may become wet, such as dialysis or hydrotherapy.

Rubber sheet flooring

Rubber sheet flooring is available in 2 or 3 millimeter thicknesses and is sustainable as well as quiet underfoot. It does not require a floor finish, although solid appearing patterns will show scuffing and soil readily. Flecked patterns and textures are available and are a more suitable choice. It is an excellent choice for operating rooms due to the characteristics described above as well as its high stain resistant qualities and its inherent slip resistance. It has one of the highest psi ratings of any product. It can be welded with either a hot or cold weld and can be coved. The product must be installed by a qualified installer. *Source: Jocelyn Stroupe*

PHOTOS: ALINA SHANNON; NBBJ/BENJAMIN BENSCHNEIDER; SCOTT McDONALD/HEDRICH BLESSING; HDR ARCHITECTS; OWP/P; SWMC

and hallways have requirements that go beyond the aesthetic.

Making the correct choices before installation takes on increased importance in these areas, for although it is hard to shut down a waiting room or an entry, shutting down a corridor in order to remove and install new flooring is a massive undertaking.

"It becomes very difficult to replace flooring in and around patient rooms because we usually have to shut down patient rooms," Schreiner said. "So we try in our selection process to make the right choices."

She said at OSF they primarily use sheet vinyl in corridors due to its long life and established record of durability and performance.

Carpet is an option for many hospitals' hallways and corridors, but with the exponential rise of the number of obese and bariatric patients and heavier mobile medical equipment, many of the hospitals are clamoring for harder surfaces. Consequently, in such cases the higher psi rating of the product, the better.

On the flip side, nurses are walking the halls throughout the day and their pediatric health must also be taken into consideration — they want to feel softer surfaces.

As a consequence, designers are tasked with finding solutions that rest somewhere in between concrete and turf. Rubber flooring is also an option for hallways and corridors.

"The advantages of rubber flooring are sound absorption, it is good for nurses' underfoot comfort, does not require routine stripping and waxing

which eliminates that cost and sound from the care environment," Gabel said, "But on the negative side, most people tend to think it has a more institutional appearance unless you can add patterning to the floor. It also has a much higher first cost, but those are paid back over time by reducing costs related to routine maintenance and claims from the slips and falls of patients and staff."

Patient rooms and treatment areas

Patient rooms and treatment areas perhaps call for the most specific types of flooring solutions.

"In our experience, seamless products are the most appropriate products for (patient care, treatment and support areas) due to the ability to provide a surface that is easily and efficiently cleaned as well as one that allows for carts and equipment to roll easily," said Jocelyn Stroupe, of OWP/P and member of the American Academy of Healthcare Interior Designers and the International Interior Design Association.

"The major product types that fit these criteria are carpet, sheet vinyl, linoleum and rubber. All of these product types can allow for limitless flooring design. Compared to vinyl composite tiles, there is a higher initial cost for both product and installation and it is critical that the subfloor is smooth, level and meets the manufacturer's specifications for moisture and alkaline content."

At OSF, Schreiner said they have stuck with sheet vinyl because it gives off a better appearance that patients and clinicians expect.

"Non-vinyl products are typically no-

wax floors and they have a tendency to scuff a lot and it also has the perception that it is not clean," she said.

But the maintenance factor makes comparing vinyl with some other types — such as rubber — a lot like comparing apples to oranges.

"Vinyl needs a sealer to protect them and there is more maintenance. You may have a lower initial cost, but life cycle costs due to maintenance can be much higher," Gabel said.

The complexities in selecting floor types can be daunting but necessary, especially due to the life cycles for flooring products usually being counted by decades. Identifying needs and priorities is paramount.

"People tend to think all hospitals are alike and they are not," said Gabel. "To get the best solutions, you really have to understand the needs before any recommendations can be made."

Most projects should not proceed until a product has been shown to be effective in the necessary situations.

"It is extremely important when evaluating flooring products for a given project, that mock-up areas are installed in an area that will receive similar use," Stroupe said. "Maintenance practices between hospitals vary widely and a product that is successful in one institution may be a failure in another due to the type of maintenance performed. While there is no perfect floor for every condition and facility, the good news is that products are constantly being improved in order to better meet the challenges of the healthcare environment." ■



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