



Mastering Movement™ Academy

Mastering the Physical Movement of People
Entrance, Interior, and Parking Solutions

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Mastering Movement™ Academy

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Course Overview

In this presentation we examine the solutions that contribute to resilient, safe, and inspiring interiors. We will explore innovations in wall, door, and flooring systems and how these elements work together to protect the building from continual deterioration.

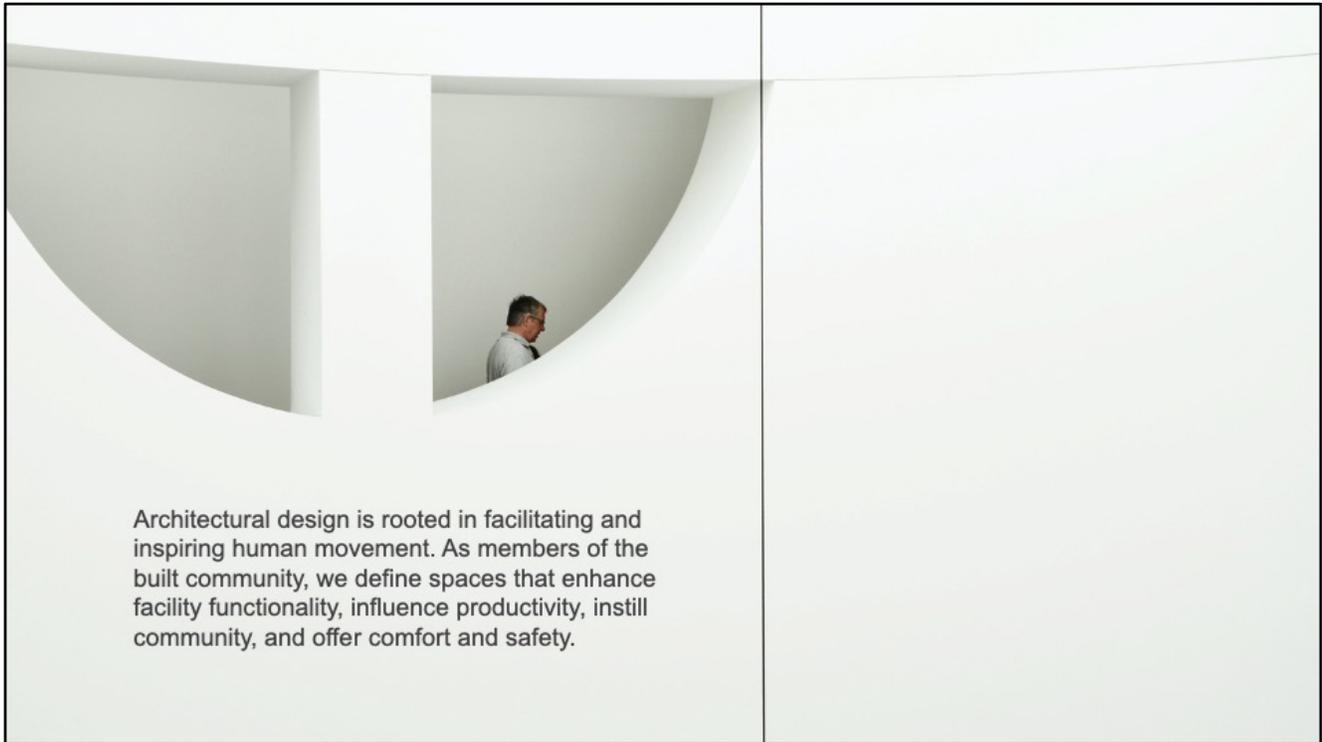
This course will explore:

- How the movement of building occupants applies to safety, well-being, and comfort.
- Flooring, wall, and door systems designed to protect building interiors and occupant safety
- How functional elements can elevate aesthetic design and even become design focal points.
- Emerging performance criteria that is enhancing occupant safety and reduces facility maintenance and lifestyle costs.

Learning Objectives

AT THE END OF THIS PRESENTATION, YOU WILL BE ABLE TO:

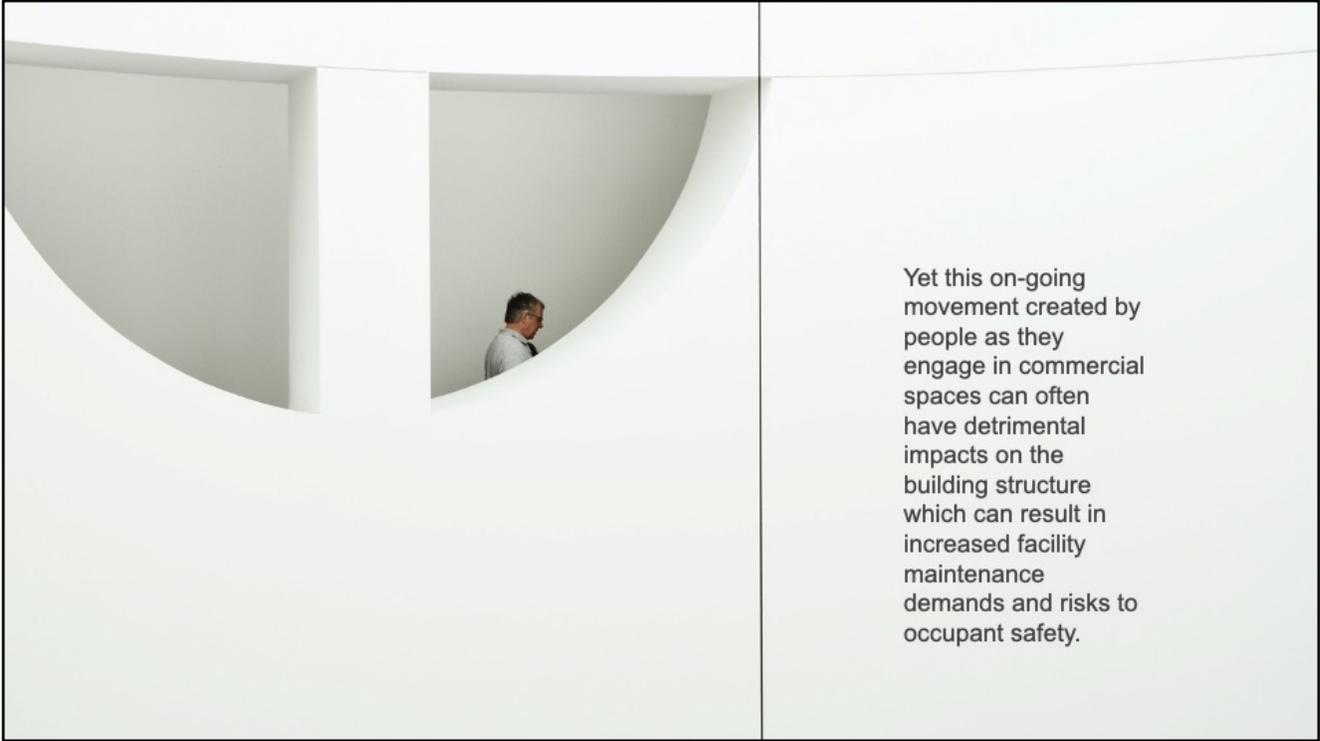
- Discuss the obstacles hindering entrance and building interior performance and safety.
- Understand the systems that support interior building performance and occupant health, hygiene, and safety.
- Understand how aesthetic design can enhance occupant comfort and healing.
- Specify integrated entrance and building interior systems to increase occupant safety, and support the well-being of the occupants and reduce costs.



Architectural design is rooted in facilitating and inspiring human movement. As members of the built community, we define spaces that enhance facility functionality, influence productivity, instill community, and offer comfort and safety.

Mastering the movement of people requires resilient design that preserves building integrity, promotes safety, and supports occupant well-being.

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Yet this on-going movement created by people as they engage in commercial spaces can often have detrimental impacts on the building structure which can result in increased facility maintenance demands and risks to occupant safety.

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Charlotte Douglas International Airport

Interiors Designed for Occupant Movement

People Are on the Move



2.9 million

airline passengers
cross through American
airports daily"
(US alone)



54,200+

hotel properties in the
United States, filling over **5
million** guestrooms,
with more than **1.1 billion**
guests annually in the
United States."



500+

students housed
for the average
high school



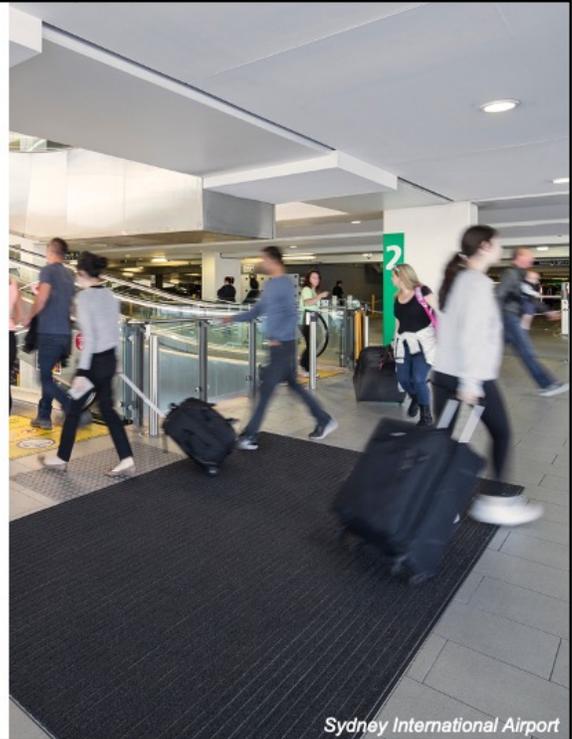
5,000+

patients admitted
every year for
the average
hospital

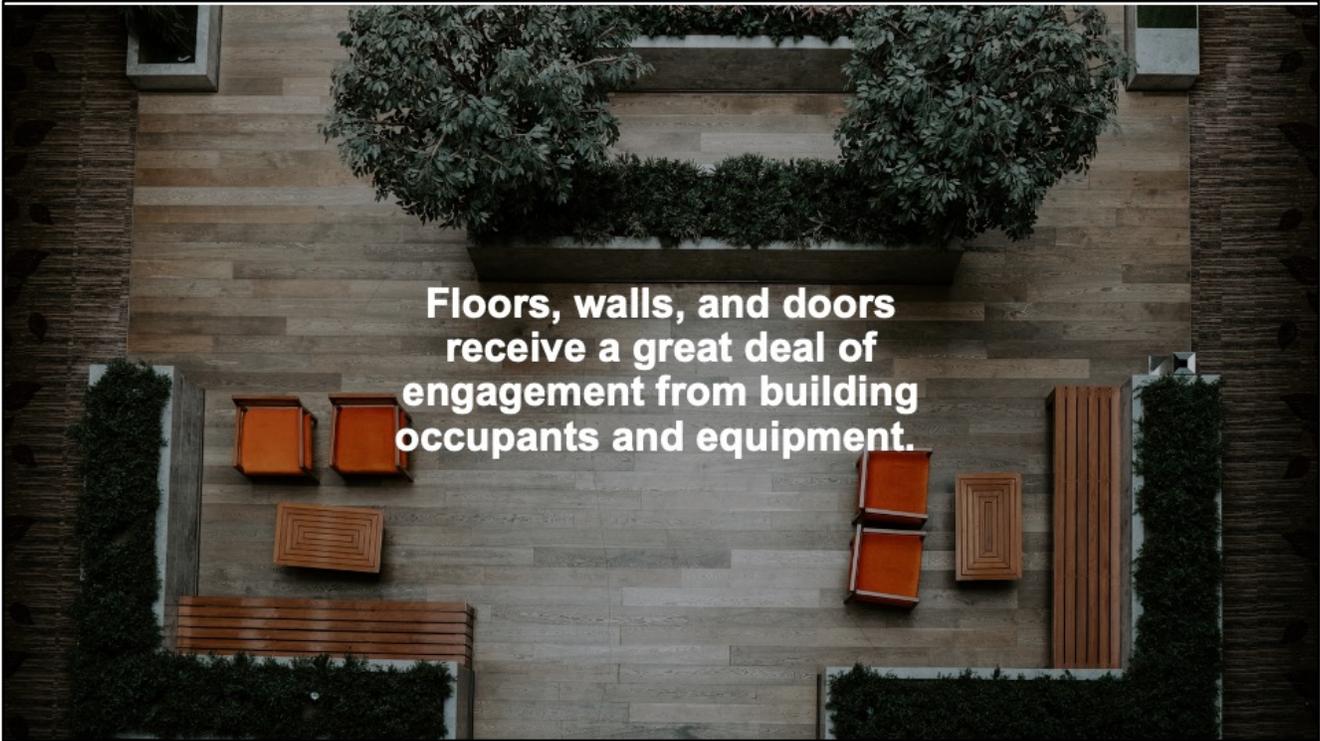
Consider these statistics – From healthcare to educational facilities, airports, and hospitality environments – more people are on the move every day.

Managing an influx of movement starts with working with clients to assess facility demands and understanding expected usage patterns.

Be sure to specify systems that are rated for and can withstand continual use such as rolling loads or heavy foot traffic.



Understanding how the building will be used and how much occupant traffic is expected will help to dictate system requirements. While every project is unique, protecting the walls, doors, and floors is a vital component of mastering the movement of people. Specifying the right systems for the right application is critical to ensuring your design resists impact, is easy to clean and maintain, combats the growth of harmful organisms, and stands the test of time.



Facilities take a beating. Protection of high-traffic, high-touch areas is necessary to provide a safe, hygienic, durable, and comfortable environment.

Photo by [Annie Spratt](#) on [Unsplash](#)



Primary interior systems include:

- Entrance flooring systems
- Wall protection systems
- Impact-resistant doors

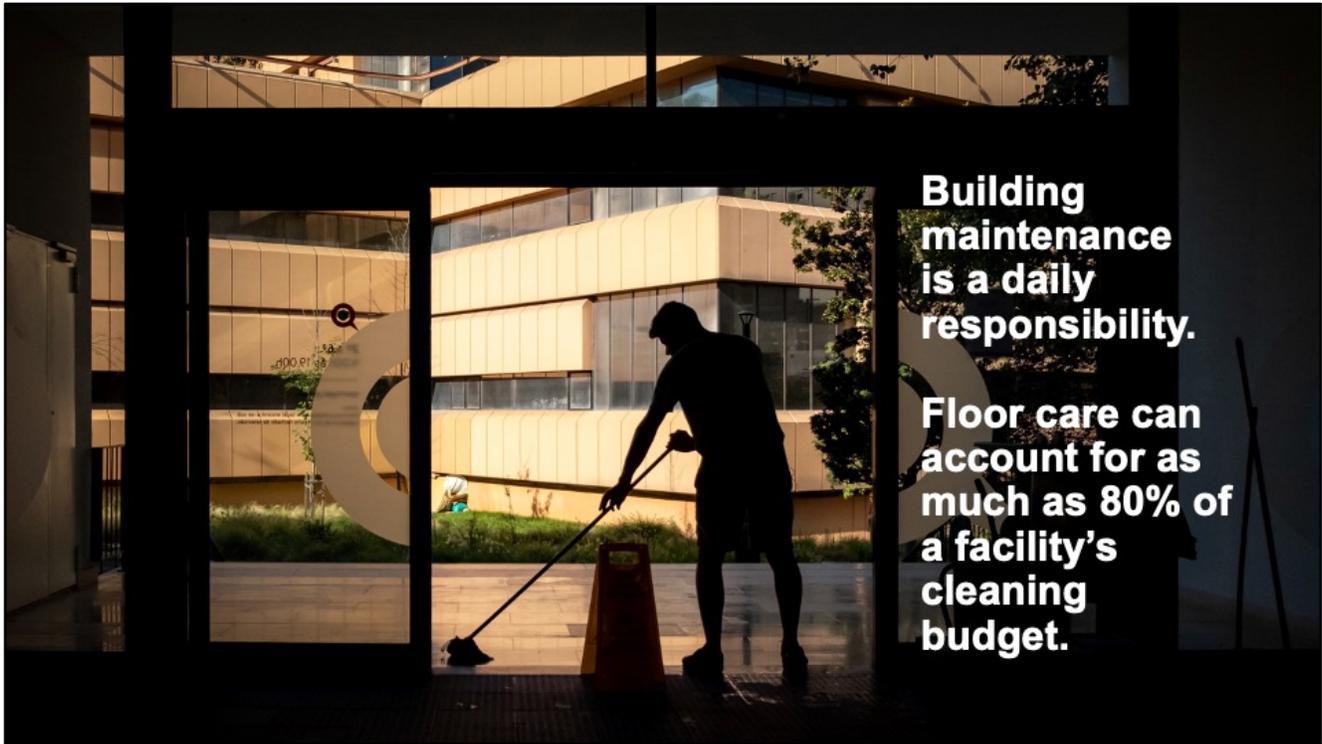
Whether it is dirt and water tracked in on the floor from foot traffic or wall scuffs and gouges from people and furniture, interior damage can quickly degrade the performance and ambience of the building interior. Now we'll take a deeper look at these systems and how you can confidently specify interior solutions to maintain building integrity and occupant safety.



Entrance Flooring Systems

Building entrances are often high-trafficked, weather-affected areas. They can make an impactful first impression with building occupants and they play a critical role in occupant safety and building cleanliness.

Entrance flooring systems protect building interiors from tracked-in dirt and water. A properly specified system contributes to the long-term cleanliness, safety, and appearance of the indoor space. It can also significantly reduce building maintenance costs and time investments.

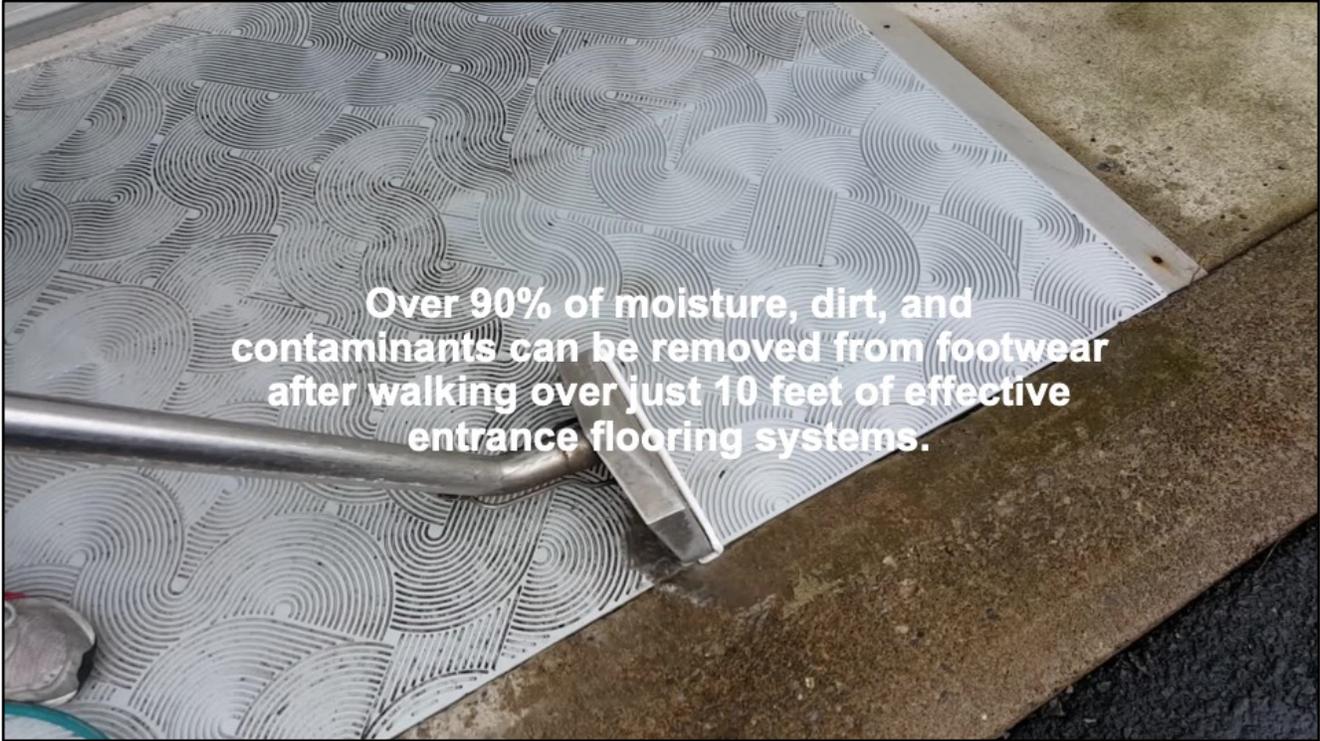


**Building
maintenance
is a daily
responsibility.**

**Floor care can
account for as
much as 80% of
a facility's
cleaning
budget.**

One dollar spent to keep soil out of a building will save \$10 in removing soil once it's inside. As a result, entrance flooring systems create considerable ROI for building owners and facility managers.

Photo by [Gil Ribeiro](#) on [Unsplash](#)

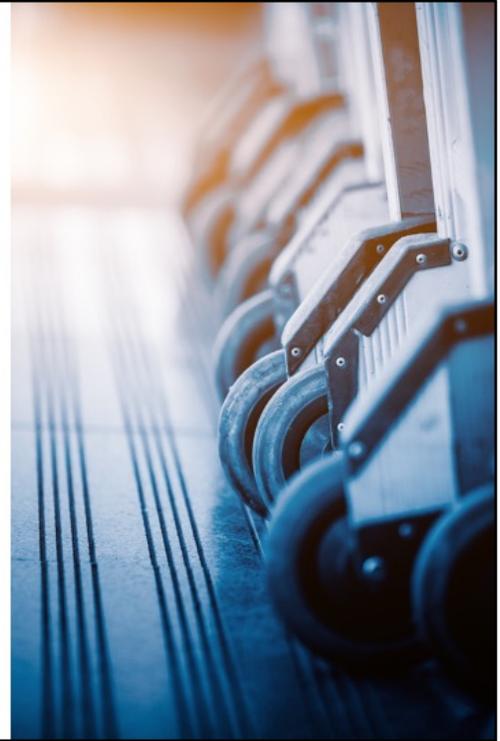


Entrance flooring systems are a low-maintenance, high performance component. Several system styles are available and can be integrated based on your project requirements. Now we will review a few considerations that can assist you when specifying.

Rolling Load

Rolling load performance testing should be provided by manufacturers to evaluate the wheeled weight capacities of the flooring system.

- No official industry-recognized test
- Testing criteria is determined by the manufacturer.



Before specifying an entrance flooring system, you should understand what the rolling load performance requirement is for the facility/project. While it is an industry standard to provide rolling load information on flooring products, there is no official industry standard test – recognized by ASTM or UL, nor a protocol for the equipment used for testing. For example testing can be manipulated using a larger wheel – which would give a higher weight capacity. When specifying products ask for the criteria to make sure you are comparing apples to apples.

Rolling Load

Weighted rolling loads such as wheeled equipment, hand trucks, or wheelchairs can cause damage to entrance mats and grids causing the systems to curl, bow, or bend. This can create a tripping hazard for building occupants.



The building owner, contractor, architect, or anyone involved in the construction process could be held liable for damages and injuries as a result of hazardous flooring systems.

Video courtesy of Construction Specialties.



Types of Entrance Flooring Systems:

Entrance Mat Systems | Entrance Grid Systems | Stainless Steel Grid | Specialty Flooring



Entrance Mat Systems

- Long-lasting durability
- Can often be recessed or surface mounted

Entrance mats enhance traction underfoot while scraping shoes to trap dirt, debris, and moisture. Mats can easily be rolled up for cleaning and when maintenance is required in the surrounding area. These systems can be used in both new construction and existing buildings.

Entrance Grid Systems

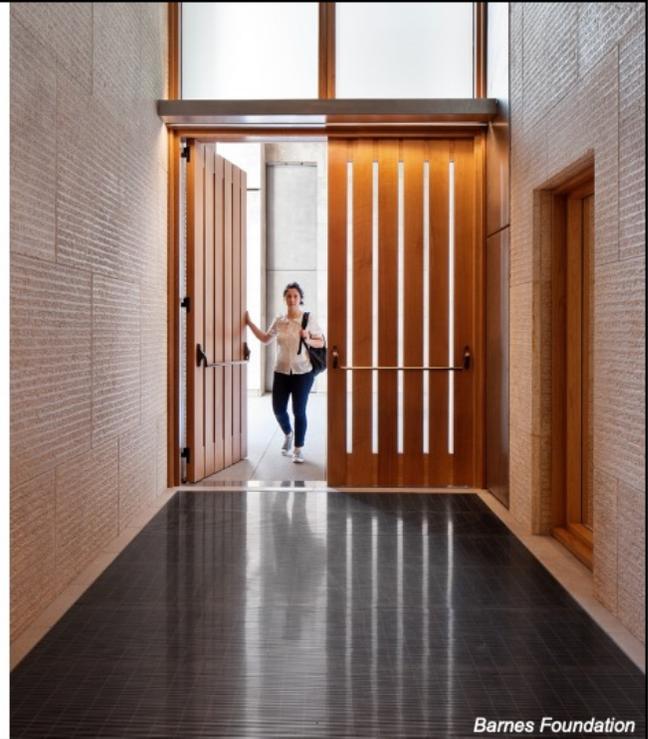
- Incorporates a grid insert that can be carpet, rubber, or abrasive
- Recessed grid design can trap large amounts of dirt, debris, and water
- Systems can be integrated with a drain pan to remove water from rain and snow



Grid systems are ideal for areas where large volumes of dirt or water from rain, snow, or slush may be an issue. The metal grid provides excellent traction and shoe scraping and is easy to clean.

Stainless Steel Grid

- Stainless steel provides heavy-duty resistance and durability.
- The rugged grid design provides unmatched performance in scraping dirt and debris from shoes.
- System is designed to be permanent and integrate with other flooring systems.



Barnes Foundation

Stainless steel not only provides unmatched performance, it creates a high-end, high-tech look and feel to the space. Speak to your manufacturer about material components as some stainless steel systems may incorporate recycled materials.



Specialty Nonlinear Flooring

- Striking surface patterns enhance the visual design of the space.
- Create custom design configurations
- Incorporates carpet or recycled rubber inserts in a wide array of colors
- The nonlinear design allows for better traction and functionality in entrances that have entries from multiple access points.

Aesthetic flooring systems are ideal for projects where the visual design of the space is crucial. Pattern designs can be customized to the space, or you can create a unique design that is customized for your project. Recessed or surface mounted options can be used in new construction or existing buildings to effectively scrape and trap dirt, debris, and water.

Sometimes projects can incorporate several kinds of entrance flooring.

Maybe you work with an owner to include several openings that have a more aesthetic feel and then for back end entrances you provide some traditional system.



Wall Protection Systems

Wall protection systems protect the structural integrity against damage that can occur as a result of building occupants or equipment making contact with the walls. Wall protection systems must meet certain impact resistance test requirements, be easy to clean, and protect against bacterial or fungal growth to support today's increasing emphasis on creating hygienic indoor spaces. Wall protection systems are different from Wall covering such as Type 1, 2, and 3 as defined by the Wall Covering Association.

Traditionally, wall protection systems were specified primarily in healthcare facilities.

Now these systems have evolved with more design options, providing protection and enhancing visual impact in any commercial space including:

- Educational facilities
- Airports
- Senior living and elder care
- Office environments
- Hospitality
- Sports stadiums and fitness facilities



Any building with high traffic from people or equipment should incorporate wall protection systems. Systems can be designed to meet the facility requirements and typically include the following components.



Types of Wall Protection Systems:

Rigid sheet wall protection | High-impact wall panels | Dimensional moldings

Crash Rails | Handrails | Corner guards

These elements can be specified individually or can work together to provide comprehensive wall protection. For example, rigid sheets can cover walls directly or integrate with wall panels to increase durability. Dimensional moldings and protection profiles can be added for even greater resiliency as well as support occupant safety. Next, we'll take a closer look at the unique capabilities of each component and offer recommendations for specifying wall protection systems for your next project.

Rigid Sheet Wall Protection

- Enhanced durability protects walls from damage
- Usually weighs about 58 ounces per linear yard
- Provides an easy-to-clean surface that is resistant to scratches and abrasions that can harbor dirt and bacteria
- Tested to inhibit bacterial and fungal growth
- Typically comes in thicknesses of 0.40 & 0.60
- System Tested for fire protection (adhesive and product)



When specifying rigid sheet, speak to your manufacturer about how it was tested for impact resistance. Currently, there is no standard impact test for wall protection. Manufacturers can use various tests – however, the battering ram test used on installed wall protection in accordance with the ASTM F 476 is a good barometer meeting an impact strength of @50 ft-lbs./inch.

Because wall protection is extruded, it should have enhanced color integration. This prolongs the usable life of the product by reducing visible signs of damage. Even if the material is scratched, signs of wear will be less evident reducing the need for replacement.



High-impact Wall Panels

- The core structure absorbs impact while a rigid sheet exterior protects from scratches scuffs and gauges.
- Multiple depths are available to accommodate nearly any impact requirement and add visual elements to the space.
- Seek options without edge seams to eliminate the collection of dust and bacteria.
- Specify mitered edges as opposed to thermoformed panels for a cleaner edge angle.

When specifying wall protection panels, speak to your manufacturer about impact testing methods and outcomes. Aim for a durability measure that can withstand an impact energy of 110 ft-lbs/inch in accordance with the ASTM F 476 Ram Impact Test.

Dimensional Moldings

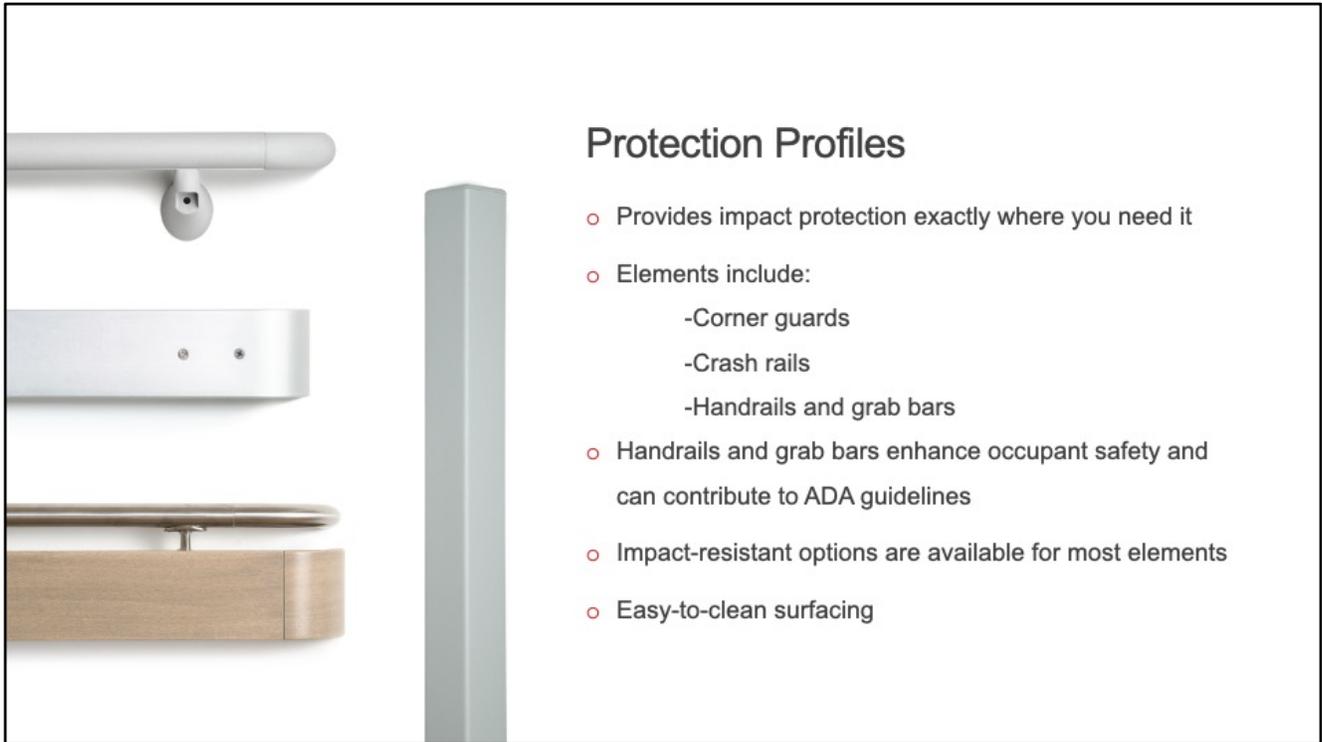
- Ideal for high trafficked areas such as hallways, common areas, reception areas and nurses' stations, or headwalls
- Easy-to-clean surfacing
- Creates high-end/residential aesthetic
- Design elements include:
 - Notched wainscot
 - Feature rails
 - Horizontal and vertical trim
 - Wall base and corner trim



Dimensional moldings are a wall protection that elevates the interior design element.

Components range in length, thickness, and style.

Incorporating wall protection at the time of design allows greater flexibility in creating a cohesive system.



Rounding out the components of wall protection systems:

Solid colors, woodgrains, real wood, and metals can be specified to accompany wall designs and enhance protection.

Unique handrails can be specified based on load and protection requirements as well as facility function and intended occupant use.



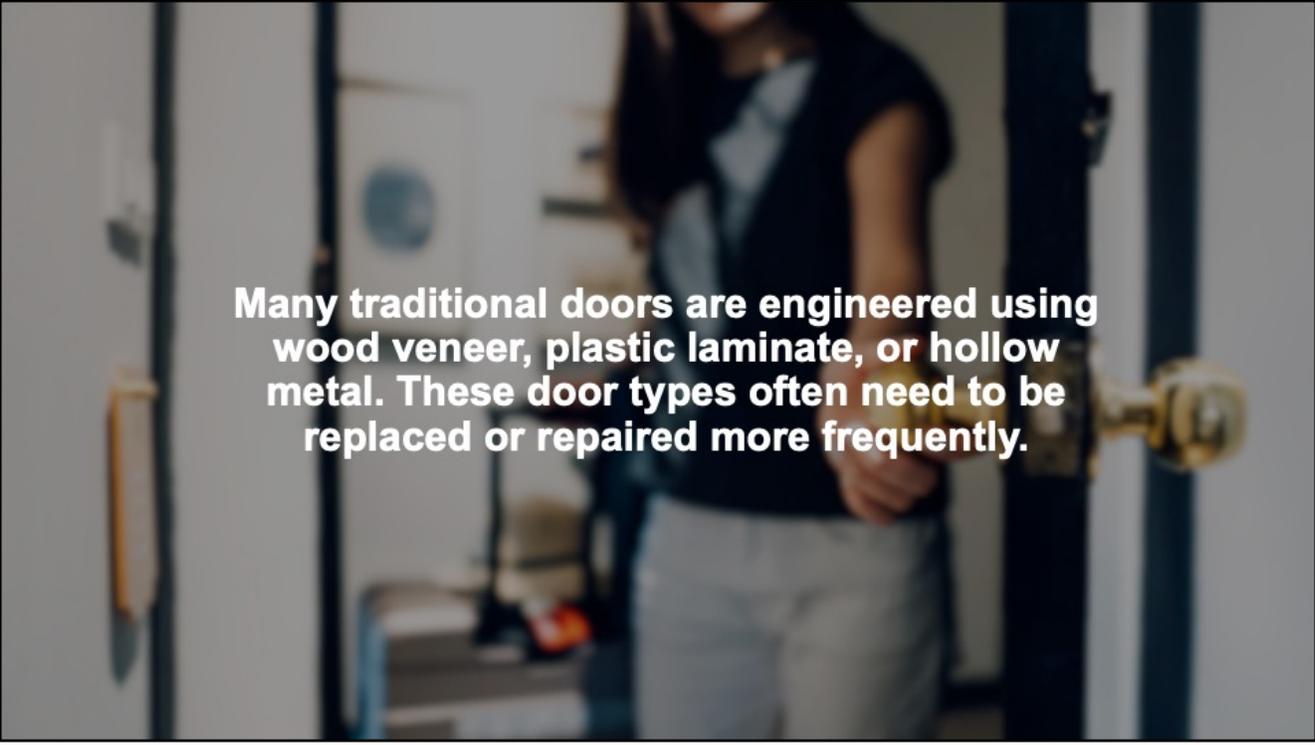
Doors

Commercial doors must provide unwavering durability to withstand heavy facility traffic while also supporting the overall design of the space.

Doors provide privacy, safety, and protection.

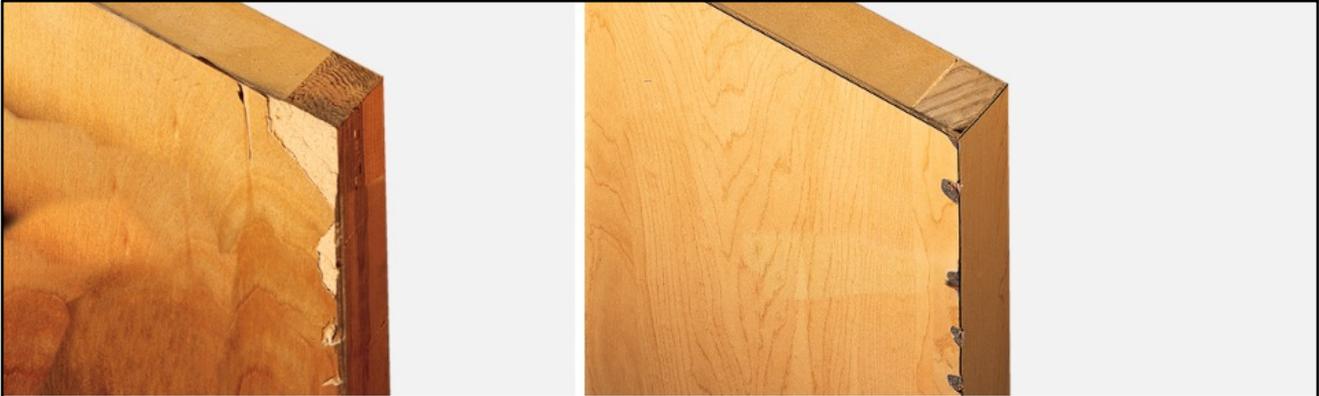
They can be a vital component to seal rooms optimized to meet fire and blast-resistance ratings and can contribute to sound blocking performance.

Door types and performance requirements can vary based on the facility function and intended use.



Many traditional doors are engineered using wood veneer, plastic laminate, or hollow metal. These door types often need to be replaced or repaired more frequently.

Slams, kicks, hits – doors must withstand a variety of impacts from people or equipment such as carts and luggage. Most doors are not engineered to withstand high traffic situations. Door damage isn't only unsightly, it can also create serious risks to occupant safety when environmental or protection controls are compromised.



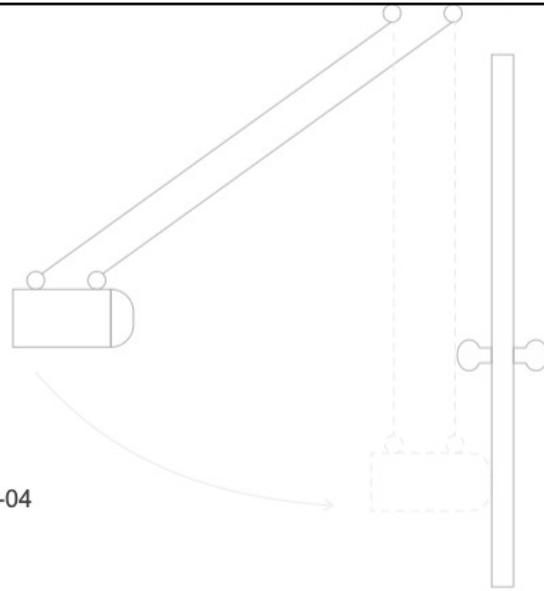
Door Damage is an Industry Wide Problem

WDMA establishes categories based on performance requirements and applications.

The Window and Door Manufacturers Association or WDMA created door categories including Standard Duty, Heavy Duty, and Extra Heavy Duty based on performance criteria and test results. This provides an easy way for specifiers to select doors that meet application requirements.

Durability Testing Standards

- ASTM F476-76, Standard Test Methods for Security of Swinging Door Assemblies
- ASTM D-4226, Impact Resistance Testing
- ASTM D4060-90 Taber Abrasion Testing
- WDMA Industry Quality Test Standards I.S. 1 A-04



Performance testing is essential in understanding not only the durability of the door but also any risks they might pose if performance is compromised.

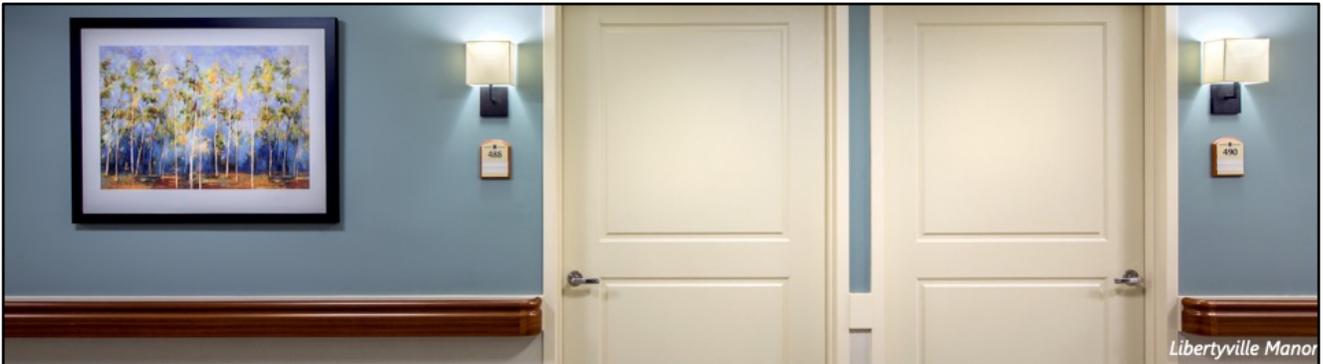
These tests are used to classify the doors for specific applications. As you can see the doors are tested to withstand impact, cycle slamming, and surface abrasion.



Impact Resistant Doors

Impact-resistant doors are engineered using a solid interior core and a durable abrasion resistant exterior. Enforced edging and a curved radius design further increases performance.

In certain situations, even extra heavy-duty doors will not hold up. That's where impact-resistant doors come in. These doors are third-party tested to withstand 2,000,000 cycle slams, which is double the WDMA testing standard for Extra Heavy Doors. They typically offer rounded, field-replaceable stiles and edges which can withstand heavy abuse. Field-replaceable components such as stiles and edges help to extend the life of the door over time.



Impact-Resistant Doors – Budgeting

Traditional door types often offer a lower upfront cost.

But the costs of maintenance, repair, and replacement can quickly add up. When determining the cost of a door it is important to evaluate the complete life-cycle costs.

Please check with your manufacturer for the ROI and life-cycle analysis of the specific impact-resistant door you're specifying.



Functional Requirements

Fire-Rated | Barrier-resistant | Lead-lined | Bullet-resistant | Sound Transmission Control

Facility function will dictate the type of door required for your project.

For example, a behavior health facility may require barrier-resistant doors to ensure patient safety.

A patient room may need a Sound Transmission control or STC door for noise reduction and all functional types may be required to be fire rated.

Fire ratings range from 20 ,45 ,60, and 90 minutes.

Fire Ratings

- ASTM E 152 Methods of Fire Tests and Door Assemblies
- NFPA 252 Standard Method of Fire Tests and Door Assemblies
- UL-10C Positive Pressure Fire Tests of Door Assemblies
- NFPA 80 Fire Doors and Windows
- NFPA 101 Life Safety Code



Here are some of the fire-rating tests you would want the manufacturer to provide for a door you are selecting.

Photo by [Andrei Slobtsov](#) on [Unsplash](#)



The latest innovations in impact-resistant doors mean you don't have to sacrifice form for function.

Many manufacturers offer impact-resistant doors that are tested to perform but can also provide visually appealing attributes or even become the focal point in a room.

Specifiers can choose from wood grains or textures that add depth or aid in wayfinding.

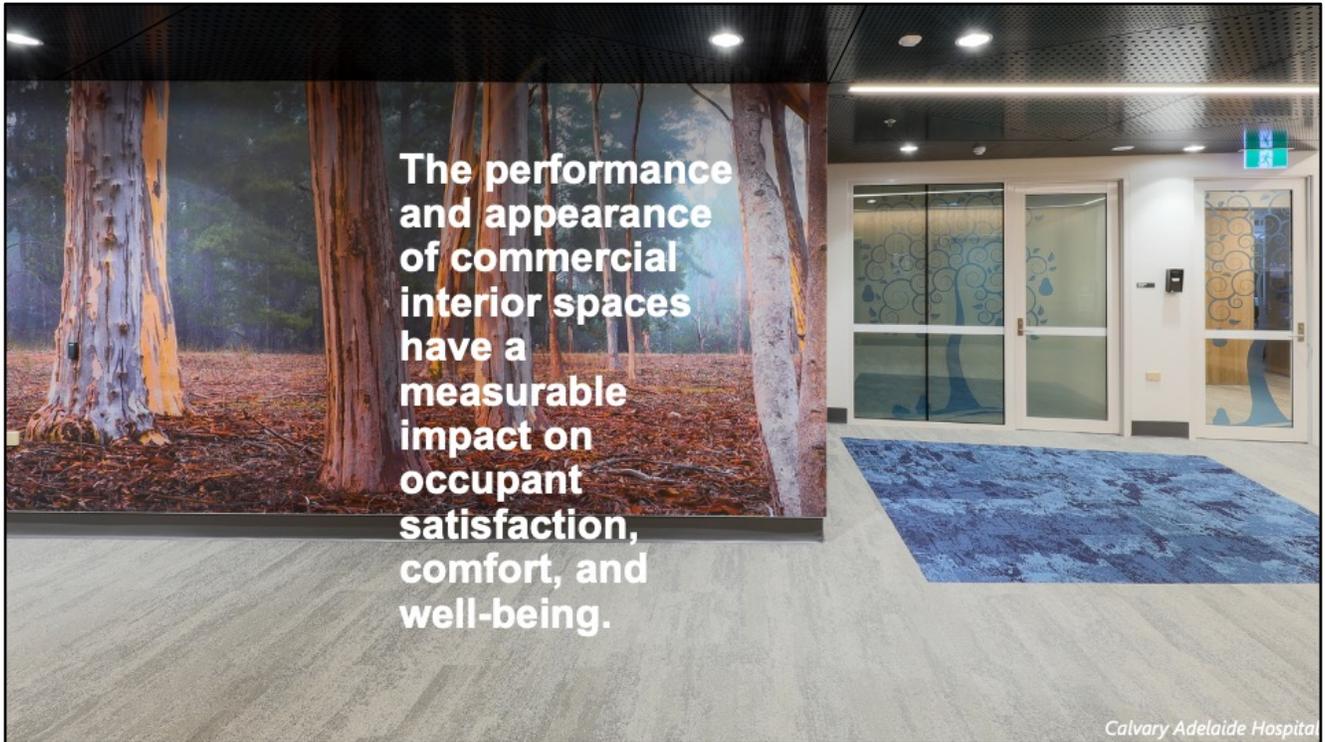
Additionally, some manufacturers offer custom options like graphics, colors, or logos to match or complement client branding.

For markets that demand both performance and visually interesting features such as education, healthcare, retail, and boutique hospitality settings, impact-resistant doors now provide more design options than ever before.



Designing for Human Experience

Environmental psychologists suggest that our physical surroundings play an integral role in how and why we react to our environments. Specifying products that protect the building and its occupants enhance comfort and advance healing.



Our environments can be calming, engaging, and uplifting; or distracting and depressing. In essence, they can either bring out the best in us or hinder our potential.

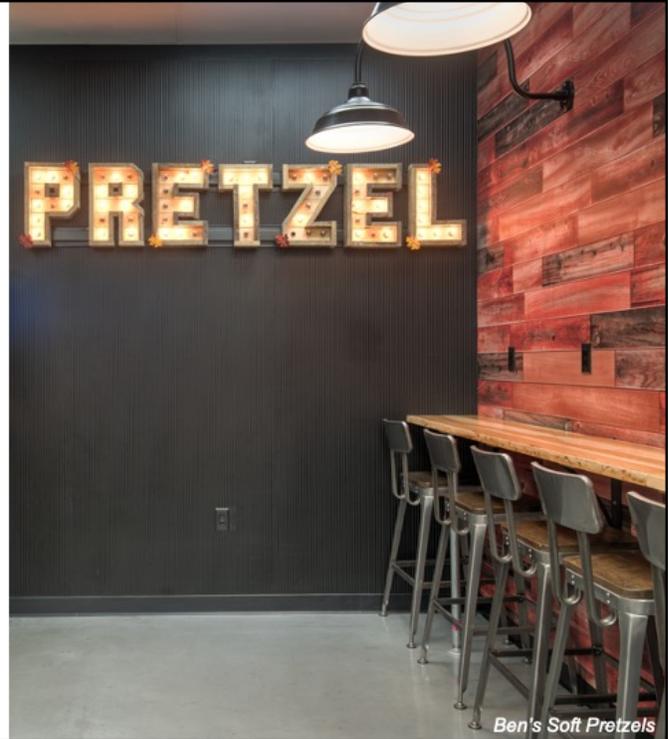


It's been proven that properly used imagery can have a positive impact on learning, healing, productivity, and overall outlook.

Integrating these design features with high-performance materials enhances the environment without the concern of damage.

Many facilities find it challenging to maintain high-quality artwork, whether framed or full wall. As the appearance of these visuals degrade, perception of the building can decline, and occupant performance and comfort dwindle.

Incorporating colors, patterns, unique designs, and branding into wall protection systems, impact-resistant doors, and entrance floor system can establish ambience and influence human behavior – while also decreasing maintenance demands and repair costs.



You don't need to sacrifice aesthetics when specifying performance systems. Speak to your manufacturer about design flexibility. Some design elements that can be used across walls, doors, and entrance systems can include:

- Logos
- Artwork
- Nonlinear shapes
- Branding
- Wayfinding and more



- Custom photography and illustrations
- Wayfinding and branding elements
- Text/words
- Solid colors
- Patterns
- Textures
- Natural element replication such as woodgrain, stone, or brick

Speak to your manufacturer about system matched door and wall components with custom design options. These integrated solutions allow cohesive design flow across both walls and doors without interruptions. The result creates a fully immersive design experience.



Inspiration

Thoughtfully designed interiors work together to increase building resiliency, increase occupant safety, and elevate the visual design of a building. The following projects integrate wall, door, and flooring systems to create a cohesive and purposeful experience.



Planet Fitness

Nationwide

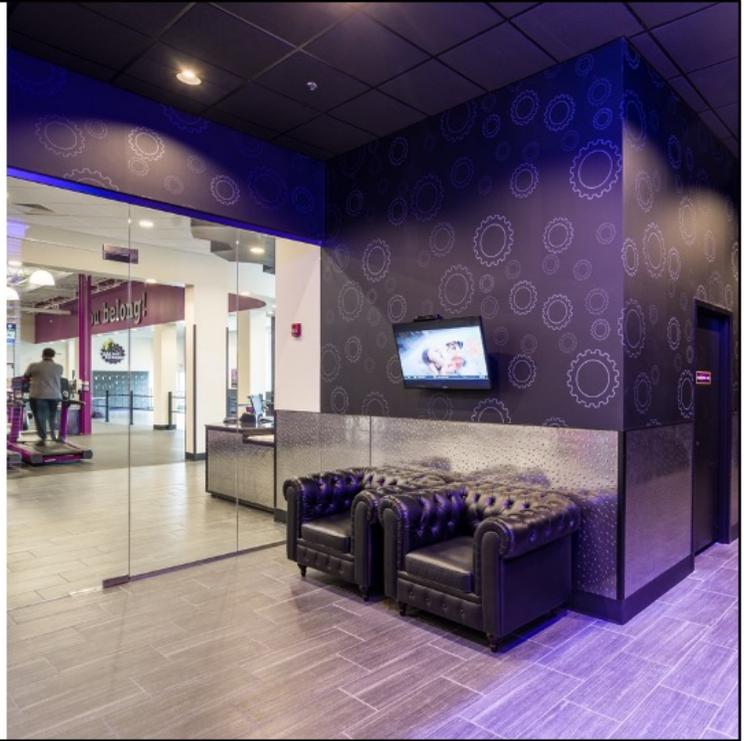
Planet Fitness is a leading fitness club franchisor and operator, known for clean and familiar interior spaces. It had to meet the unique performance requirements of its clubs, but also adhere to the brand's specification to provide members with a consistent experience across locations.

Source: <https://www.c-sgroup.com/inspiration/case-stories/planet-fitness>

Challenge:

Establish and maintain a consistent, clean, and durable space.

Planet Fitness sought to incorporate branding and customization of finishes in wall protection designs while its facilities required an ultra-durable material that was not prone to damage like vinyl wallpaper. Its doors and wall corners also experienced frequent impacts from gear and heavy equipment.



When it comes to retail/fitness design, projecting the image of cleanliness is essential.

Planet Fitness began to search for a better way to protect its surfaces while still achieving the look of the original design that had become a part of its brand standards.



Solution:

A standard interior solutions package to protect and enhance their members' experience.

Entrance flooring –

Protecting interiors at the first step.

Unlike ineffective throw-down mats, a high-quality entrance flooring system can be surface or recess-mounted to trap dirt and debris underneath its rails, extending the life cycle of interior floors.

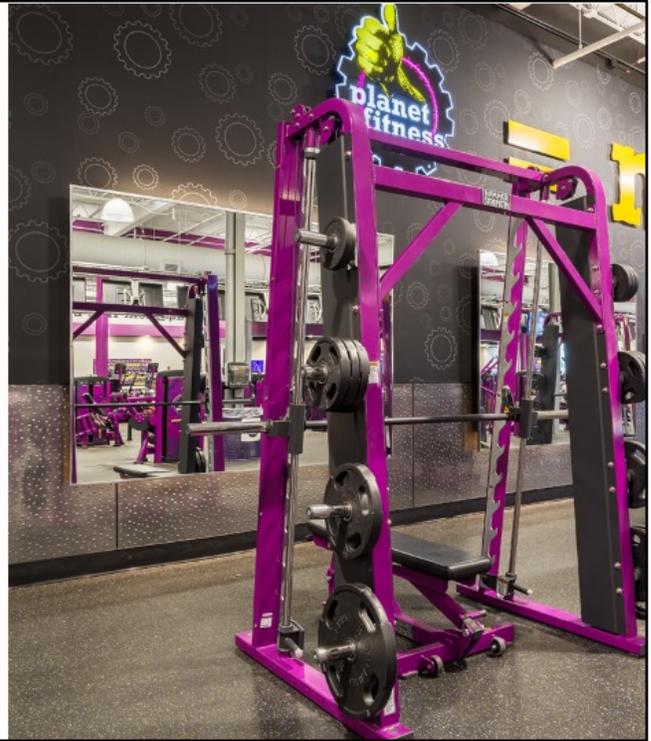
Solution:

A standard interior solutions package to protect and enhance their member's experience.

Wall Protection –

Protecting both brand and space

Planet Fitness chose a branded and coordinated system of rigid sheet and corner guards to match and enhance their brand while maintaining a long-lasting first impression.





Solution:

A standard interior solutions package to protect and enhance their members' experience.

Impact-Resistant Doors – Wayfinding and Protection

To prevent damage to door faces, the franchiser chose to cover their doors with a durable wall protection that doubles as wayfinding in its hallways.



FutureCare

Maryland
Currotto Design

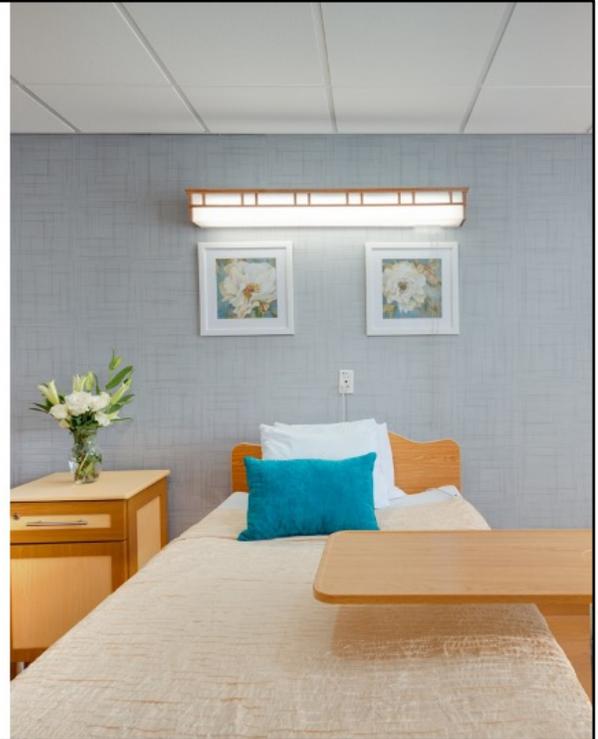
FutureCare is a rehabilitation and skilled nursing company seeking to elevate their facilities from institutional to a higher-end home-like feel for a better experience for its visitors and occupants.

Challenge:

Elevate the spaces to be durable,
but more attractive and welcoming.

“The design team and administration were driven to create a space that felt more home-like instead of institutional. To do so, they selected products that were not only durable, but also had a hotel-type, higher-end feel for our residents.”

- *Executive Assistant, Robin Stevenson.*





Solution:

A coordinated system of solutions for increased aesthetics and long-lasting protection:

- Patterned rigid sheet wall protection for patient rooms (eliminating the need for bumpers)
- Impact-resistant moldings and trims for common areas
- Coordinated handrails
- Impact-resistant doors



In conclusion, high-performance interior spaces must embody resilient design principles to protect structural integrity and maintain occupant safety.

Walls, doors, and floors are areas of high visibility and high occupant engagement:

Specify materials that are both durable and beautiful to create an environment that inspires a positive human experience while reducing facility maintenance costs and demands.

Work with your manufacturer early to create an integrated system for unmatched durability and design flexibility.



Acrovyn® Wall Protection + Doors | Acrovyn® Wall Covering + Panels
Architectural Louvers | Architectural Grilles + Vision Barriers | Cubicle Curtains + Tracks | Entrance Mats + Grids
Expansion Joint Covers | Explosion + Pressure Relief Vents | Fire + Smoke Vents | Sun Controls

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