Designed for possibilities.
Made for people.

Floor and wall solutions for behavioral and mental health facilities

Promote healing, prevent harm and foster safety with Altro

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Research from the National Institute of Mental Health shows that mental illness is an increasingly common issue nationwide, affecting tens of millions of people each year. Given the societal stigma surrounding this condition, estimates suggest that only half of these individuals receive proper treatment. This correlates with rising substance abuse figures, suggesting that illicit drugs, particularly opioids, are becoming a means of alleviating symptoms of an existing mental condition.

One in four Americans experience a mental illness or substance abuse disorder each year. One in five Canadians.

One in eight Emergency Department (ED) visits in the USA are for treatments of mental health or substance abuse disorders. One in ten in Canada.

Suicide is the 10th leading cause of death in the United States. Ranked 9th in Canada.
$201 billion spent on mental health in the USA each year

$50 billion in Canada
Fundamentals in behavioral and mental health (BMH) design

Creating a secure environment for patients and staff alike remains the primary objective in designing for behavioral and mental health (BMH). However, new research suggests that balancing safety with familiar aesthetics is equally important.

The environment in which a patient receives treatment should mirror the community they come from and may return to as closely as possible. It is important to design spaces to be homelike and warm, while simultaneously adhering to safety guidelines.

When designing these spaces, incorporating three key fundamentals can help facilitate the rehabilitation process for everyone involved – promoting healing, preventing harm and fostering safety and security.

Promote healing

Gone are the days of sterile-looking psychiatric wards. Modern BMH design emphasizes creating a calm, welcoming environment to aid patients with social reintegration post-treatment.

Brighter, more optimistic color palettes provide a warm and therapeutic feeling compared to standard neutral options. The use of realistic artwork has proven to reduce patient anxiety and agitation as well as medication costs.

Research suggests bringing outdoor elements indoors with wood and other natural finishes can serve as a positive healing distraction that benefits individuals of all ages.

- Increased light / outdoor views
- Open floor plans
- Calming colors
- Scenes and imagery from nature
- Natural finishes - wood, stone, etc.
- Inspirational design in common areas to promote interaction outside of bedrooms
Prevent harm

Protecting the physical well-being of patients as well as guests and staff remains the most critical design element for treatment facilities. Individual details, furnishings and finishes used throughout the facility should be carefully specified as to prevent self-harm or aggressive behavior. The components of each room vary depending on the level of patient supervision, with specific emphasis on the reduction of ligature points and potential for self-harm. Ligature points refer to fixtures and hardware that could be used to attach a cord, rope or other material for the purpose of hanging or strangulation.

Foster safety and security

It is extremely important to consider the needs of mentally impaired individuals when designing psychiatric units. The ideal environment should provide patients with the safety and security they need to complete treatment efficiently.

By avoiding distracting patterns, color combinations and large chips you can help prevent visual misperceptions by patients, particularly those suffering from schizophrenia and dementia.

- Utilize varying light reflectance values (LRV) as a means of identifying differences in height between areas.
- Be sure your flooring has adequate slip resistance to protect patients from slip and fall accidents.
- Choose soft, forgiving surfaces to reduce potential injuries in the event of a fall.
- Ensure transitions between surfaces are seamless and color-matched. This prevents certain patients from becoming fixated on the material and picking at it.
Duty of care and FGI Guidelines

BMH facilities present a unique set of challenges found nowhere else in the healthcare industry. As a specifier, there is a great deal of responsibility placed on you to ensure the facilities you design are safe for patients, staff and visitors as well. Facilities should appear as comfortable, attractive and residential as possible while also preventing patients from potentially harming themselves or their caregivers.

The Facility Guidelines Institute (FGI) has established recommendations for designing mental healthcare facilities.

Per the FGI, flooring and wall cladding used in these facilities must be the following:

**Ligature-resistant**
- Room fixtures and hardware should be specifically designed to prevent the attachment of ligatures in order to protect patients from inflicting self-harm.

**No flooring cap**
- For safety reasons, plastic or metal flooring caps shall not be used, even in wet areas.

**Pick-proof**
- Patients must not be able to pick or remove transition strips between different finishes where floors and walls meet.

**Impact-resistant**
- Walls should be capable of enduring heavy impact without cracking or splintering to create potential health hazards.

**Water-resistant / cleanable**
- Flooring shall be unaffected by wet cleaning, germicides and other types of cleaning solutions.

**Comfort underfoot**
- Floors should provide support underfoot to create a comfortable standing surface for long durations.

**Stain-resistant**
- Floors should resist staining from common contaminants and medical-grade cleaning products.

**Slip-resistant**
- Floors should have adequate slip resistance to prevent slip and fall accidents among patients and staff.
Designing based on patient level of care

BMH encompasses many conditions and a multitude of centers for treatment. The level of concern for the safety of patients and staff due to the design of the built environment is not the same in all parts of a behavioral health facility.

When designing a facility, best practice is to use a patient safety risk assessment (PSRA) matrix. This tool relates an opportunity for a patient to be alone to a level of risk of self-harm.

A combination of these factors help to determine the level of risk involved with each room in the facility.
Low-risk zones

Treatment facilities consider Level I and Level II areas to be low-risk zones. Essentially, these are either restricted to patients or place them under constant supervision.

When designing low-risk zones, residential looks are appropriate and encouraged in communal spaces. Areas that fall into these categories include corridors, activity rooms, counseling rooms, interview rooms and staff or service areas.

Key considerations

- Selection of more residential-looking finishes and furniture is preferred
- Use murals and printed artwork to calm and inspire; must be securely fastened to avoid tampering
- With flooring avoid patterns and color combinations that could contribute to visual misperception
High-risk zones

In high-risk Level III and IV zones, safety is the highest priority. These zones are where patients spend time alone with either minimal or no supervision.

Strict design guidelines must be followed in these areas to prevent self-harm by eliminating any potential hazards, particularly fixtures that could serve as ligature points. High-risk areas include patient rooms (semi-private or private), seclusion rooms, patient toilet rooms and showers.

Key considerations

• Continuous sheet vinyl with heat-welded seams
• Pick-proof floor to wall transitions
• Monolithic floor sloped to drains
• Soap dishes - recessed into wall to hold toiletry items and eliminate potential ligature points
Developed for lasting performance in wet and dry environments, Altro Aquarius provides ample slip resistance in patient bathroom and shower areas. Whether barefoot or shoe-soled, patients and staff can confidently walk across its surface with their safety ensured. The heat-welded seams and polyurethane adhesive ensure a floor that is ligature-resistant.

Key benefits

- Accommodates both shoe and barefoot pedestrian traffic
- Easily coved for showers and other wet areas
- Excellent slip resistance values whether wet or dry
With a wide variety of solid, non-distracting colors available, Altro Walkway 20 is capable of seamlessly coordinating from wet rooms to general areas with our Altro Aquarius line. This 2mm safety flooring is ideal for creating slip-resistant spaces while designed to be compliant with dementia-friendly design standards.

**Key benefits**

- Easy to clean with Altro Easyclean
- Traditional and modern looks in one range
- Four colors have an exact match in Altro Aquarius
Available in an impressive range of designs with different plank sizes and shades, Altro Wood offers an attractive and functional flooring solution for recreational areas and common rooms. Its realistic visuals create warm, calming environments that facilitate treatment with a residential feel.

Available in three thicknesses, this product range offers varying levels of comfort and acoustics.

**Key benefits**

- Authentic wood visual creates warm and inviting setting
- Indentation resistant up to 2500 psi
- Extremely flexible
- Available in three thicknesses
Altro Orchestra™ / Altro Serenade™
Smooth flooring with sound reduction and high underfoot comfort

Altro Orchestra and its thicker counterpart, Altro Serenade, provide comfort underfoot in low-risk areas where patients and staff spend the majority of their time. The two products each have an impressive variety of calming, neutral tones designed to complement each other between rooms.

At 3.9mm thick with 19dB impact sound insulation and an IIC rating of 54, Altro Serenade reduces noise and provides a high level of comfort and padding underfoot. This makes it especially useful for seclusion rooms.

Key benefits

- Smooth surface is easy to clean and maintain
- Provides ample comfort underfoot
- Reduces sound transmission and provides in-room sound reduction/transmission
Durable, impact resistant, hygienic and easy to clean, Altro Whiterock wall panels can overlap Altro flooring to create a fully integrated and simultaneously pick-proof solution for BMH facilities.

The product can be thermoformed on site and bent around corners. This eliminates the need for accessories and sharp edges that could cause harm.

Key benefits

- Class A fire rated
- Extremely impact-resistant
- Heat-formable on site
- Easy to care for and low maintenance costs
- Watertight
The Altro Whiterock recessed shelf meets multiple requirements associated with bathroom fixtures specified for BMH facilities. Unlike traditional recessed units which are metal and fixed with screws, this product is installed flush to PVC wall panels via a hygienic heat weld. This secures the panel directly into the Altro Whiterock PVC wall panel creating an impervious seal that prevents moisture and bacteria from accumulating beneath the surface.

The welded seal makes it tamper-resistant and incapable of being weaponized for aggressive behavior. The tamper-resistant seal also prevents the creation of potential ligature points that patients can utilize for self-harm. This fixture also possesses durability similar to that of Altro Whiterock, allowing it to endure heavy impact without cracking or splintering.

**Key benefits**

- Ligature-resistant
- Tamper-resistant
- Heat welded seams
- Impact-resistant
- Durable
Altro Whiterock™ wall designs combine the durability, hygiene and resilience of Altro Whiterock wall panels with patterns that simulate elements of nature indoors.

These realistic wood, linen and concrete visuals can help alleviate anxiety in patients and create a calming environment for facilitating treatment.

Key benefits
- Class A fire rated
- Capable of heat welding seams
- Thermoformable on site
- Fully bonded to substrate
- Impervious to water ingress
- Impact-resistant
- Non-porous, hydrophobic
Use of imagery

Evidence-based design studies support that the use of realistic and natural art can be beneficial in BMH facilities. Access to nature and natural images can provide a positive distraction which can have a therapeutic healing effect as well as reduce patient anxiety and agitation.

The correct and careful use of imagery cannot be understated. What may seem pleasant and peaceful to one individual could be alarming to another. Experience has shown that close-up imagery of natural images is better in these environments than scenic landscapes.

For example, a forest might appear calming to most, but to some it may invoke a sense of uncertainty and fear. Instead consider using images such as leaves, trees, flowers, etc. These offer the same natural benefits and provide less room for interpretation.

Key considerations

• Natural imagery preferred over abstract art
• Close-up pictures of plants and animals preferred to landscapes
• Consider the effect of color carefully when selecting imagery
• Avoid color combinations that could contribute to visual misperception

Learn more about the completely custom Altro Whiterock Digiclad process in the brochure or ask your local sales rep.
With the ability to print over multiple panels with Altro Whiterock Digiclaid, Springfield University Hospital was able to create a fantastic soft-focus leaf image with warm autumnal colors, helping to create a sense of calm for the residents.
ligature-resistant detailing

Altro Whiterock wall cladding installed with two-part adhesive
For high-risk areas such as showers and seclusion rooms, specifications must be considered carefully. Ligature-resistant design in these areas is extremely important. Fixtures like these have been specifically designed to protect patients from injury and self-harm.

1. Recessed shower head
2. Recessed water control
3. Altro Whiterock recessed shelf
4. Ligature-resistant grab bars
5. Tamper proof floor drain
6. Recessed toilet, no seat cover
7. Tamper-resistant security sealant
8. Recessed toilet paper holder
9. Wall panel installed flush to floor
10. Panel to panel heat weld
11. Sink with recessed plumbing
12. Thermoformed corners
13. Subfloor sloped to drain
14. Sheet flooring heat weld

Altro Aquarius safety flooring installed with 2-part adhesive
An extremely important facet of BMH are the secure transitions between materials in high risk areas. The risk of weaponization and self-harm that comes with standard transitions prevents the use of many trim pieces.

Altro has developed various joining methods between different surfaces which allow for hygienic construction without the need for potentially hazardous transition pieces.

For example, regulations forbid the use of standard flooring cap strip in mental health installations, for fear of tampering and weaponization.

In lieu of a cap strip, Altro flooring can be terminated into the Altro Whiterock wall system via a variety of methods that do not require the use of traditional flooring cap strips.
Floor to wall rebate transition

The rebate method is an extremely secure way to transition the floors and walls in high risk areas. It is ideal for use in seclusion rooms.

In this transition a rebate is saw cut into the wall. The flooring and Altro Whiterock are then tucked into it and glued in place. The void between the two products is filled with a tamper-resistant security sealant to prevent tampering.

Benefits

- Completely sealed system
- Tamper-resistant
- Two-part polyurethane adhesive securely bonds floors and walls to the substrate
- Damaged flooring can be replaced without affecting the wall cladding
Overlap floor to wall transition

Our floor and wall system can be joined via the overlap method. In this process, the coved sheet flooring tucks beneath corresponding wall panels. The edges of the panel are chamfered and a layer of tamper-resistant security sealant is applied to ensure that patients cannot access the excess flooring or remove pieces of the wall.

Floor to wall heat weld transition

Altro Whiterock can be heat welded directly to Altro sheet flooring. This advanced installation technique creates a virtually seamless transition that is ideal for extremely hygienic environments.

Altro Whiterock run flush to floor with pencil cove installation

The pencil cove installation method is an extremely secure way of detailing showers and wet areas. In this installation depicted above, the flooring has been self-coved without using a cove former/ covestick and is protected by the overlapping wall cladding. The wall is flush against the flooring to ensure there is no opportunity to pick at the finishes. The bottom edge of the wall panel is chamfered and caulked with pick-proof caulk. This installation method ensures the room is both watertight and tamper resistant.
flooring considerations

Monolithic flooring
Altro sheet vinyl flooring is heat-welded together to create a virtually seamless, water-tight, monolithic surface. This allows for the entire bathroom to be one floor and eliminates potential ligature points.

Integral flash cove
Guidelines prohibit the use of conventional vinyl and rubber wall base as these can be removed and weaponized. Altro flooring utilizes an integral cove base behind the flooring so it cannot be accessed or tampered with.

Above photo shows a cutaway image of a cove stick reducing and terminating at a door architrave to create a seamless, unobtrusive finish.
Flooring heat welds

A heat weld is the required method of seaming sheets together to create a hygienic, impermeable seal in mental health facilities. This bond is extremely difficult to remove via gradual picking and is incapable of repurposing for acts of aggression or self-harm once damaged.

Two-part polyurethane adhesive

Altro flooring and wall cladding can be installed with two-part polyurethane adhesive. When cured, these hard set adhesives are water-resistant and rock solid, making removal of the floor or wall panel nearly impossible.

Tamper-proof clamping drains

Tamper-proof clamping drains are an essential fixture in BMH bathrooms and shower areas. Secured with tamper-proof screws that can only be loosened via the corresponding specialty tool or removing the screw heads completely, these drains prevent misuse in low-supervision environments. The drain cover is designed with an internal gusset system to prevent ligature points.
Panel to panel heat-weld

Altro Whiterock wall panels can be heat-welded together. This bond is extremely difficult to remove via gradual picking and is incapable of repurposing for acts of aggression or self-harm once damaged.

No pick, one-part connectors

An alternative to heat welding, one-part joint strips securely bond Altro wall panels together. Installed beneath the panels, this accessory cannot be forcibly removed.
Recessed shower fixtures

To reduce potential ligature points it is important that shower fixtures such as shower heads and valves are properly recessed into the wall to prevent tampering or risk of self harm. Great care must be taken when selecting appropriate fixtures for this environment as conventional options are not suitable.

Altro Whiterock Recessed Shelf

These shower units offer the same hygienic benefits as Altro Whiterock wall panels. They are installed flush into the wall panel and heat-welded to ensure there are no ledges or lips to pick at. This makes the system tamper-resistant and free of potential ligature points.
Rockville Hospital Behavioral Health Unit  
*Vernon-Rockville, Connecticut, USA*

Rockville Hospital, part of the Eastern Connecticut Healthcare Network, boasts a strong behavioral health unit that provides support and specialized, sophisticated services for many areas of mental health, including additions, anxiety, depression and other counseling.

Moser Pilon Nelson Architects worked with the hospital, selecting Altro Aquarius and Altro Whiterock for use throughout the unit.

For the bathrooms and other wet areas throughout the unit, the award-winning Altro Aquarius was specified for the floors, accompanied by Altro Whiterock hygienic wall panels on the walls. The ideal flooring for wet environments, Altro Aquarius is fit for both bare feet and shoes, providing excellent slip resistance in an area where slipping and falling is a major concern.

Altro Whiterock’s hygienic nature prevents water and moisture ingress, and its durable impact-resistance ensures a sledgehammer strike won’t even crack its panels. Other walls can break upon heavy impact, resulting in punctures and holes that can house unwanted bacterial tenants.

Rockville also utilized the Altro Whiterock Recessed Shelf. This product’s welded seal makes it tamper-resistant and incapable of being weaponized for aggressive behavior or self-harm. This fixture also possesses durability similar to that of Altro Whiterock, allowing it to endure heavy impact without cracking or splintering.

With the increasing efforts to combat healthcare acquired infections in hospitals around the country, impact-resistant and hygienic wall products are essential.