



# Using Seating to Create a Safe and Normalized Environment in Behavioral Healthcare Facilities



## Introduction

A recent trend in behavioral healthcare facility construction is pushing interior designers, architects, healthcare officials and others involved in the look and feel of the facility to normalize or—in more laymen’s terms—create a residential feel inside their walls. Evidence-based research says that the normalization of these facilities can lead to better patient outcomes, reduction in stress and anxiety, and an increase in staff well being.

This research is clearing the way for facilities to soften their environments in an attempt to create harmonious spaces that are humane and create a sense of dignity for all who spend time within their walls. In doing so, this data also points to faster healing times, shorter hospital stays and less need for medications and restraints.

The most pressing of these furnishing challenges include:

### Sanitation and Bodily Fluids

Bodily fluids will inevitably come in contact with furniture products especially in BHC healthcare environments where medical procedures occur and patient bodily functions may be an issue.

### Bed Bugs

The pests have made a resurgence recently, and healthcare facilities of all kinds have had to develop methods of keeping these bugs in check.

### Constant Use and Breakdown of the Product

Inferior seating products can easily be vandalized and punctured and often show wear after a short time, forcing facilities to purchase new products at great expense.

### Ease of Movement

It's not uncommon for BHC patients to become stressed or irritated and use furniture as a weapon. Lightweight chairs that are not bolted down or ballasted can be picked up and thrown.

### Ligature Points

It's an unfortunate fact, but one that BHC facilities have to consider: Many patients try to harm themselves or even commit suicide. Oftentimes furniture is used in this act.

### Contraband

Chair cavities and the areas beneath cushions are often the preferred hiding place for patients concealing contraband and other items not allowed in their facility.



In a sense, the findings indicate that the care a patient receives and the building where they receive it should not be separated. In fact, this research suggests that coupling the two together produces better results for all of those who spend time within the facility.

To obtain these goals, color is now being used instead of monochromatic grays, views of nature pepper the walls, courtyards display attractive gardens and in some cases the exterior of the building itself looks quite like a home.

Furniture plays an extremely important and integral part in helping facilities reach these objectives, with chairs and seating—staples in all BHC facilities—as no exception. In years past, behavioral health facilities had to select institutional seating that was manufactured solely for safety and durability. This is partially because behavioral healthcare facilities face an array of challenges in regards to furniture that is often not found in general healthcare facilities.

Perhaps the most exhausting challenge that BHC facilities face today is finding furnishings and fixtures—including chairs and seating—that appear residential in nature, while continuing to provide the safety and security features that are desperately needed in BHC facilities.

Department store furniture is known to break down easily after constant use and often has seams that are susceptible to fluids. The design of the furniture also may present tie off points and house places where contraband can be hidden.

Additionally, many furniture manufacturers that actually produce products especially for BHC facilities often make their products out of steel, metal and other harsh materials. The furniture also often comes in stark colors—a direct contrast to this new trailblazing trend that aims to normalize these facilities. Luckily today, facilities have options and can have the safety and security they have always needed along with the aesthetics that research says improves the overall wellness of a facility.

What may be most important in this discussion is the fact that BHC design and furnishings should not have a one size fits all approach. BHC facility types are diverse, ranging from group autism homes to acute emergency care centers. But with this new trend in normalization, facilities now have a variety of chair and seating options that fit the unique needs of all environment categories, helping them to assist the patients who seek treatment and the staff that works within their walls.

In this white paper, we will provide in depth information on the challenges that BHC facilities face, along with research that shows just how important environment is to those who spend time in these spaces. Lastly, we will provide resources on what to look for—from material to color—when selecting chairs or seating for your facility.

## Why Normalization?

So before we discuss how you can assist in normalizing or humanizing your facility with appropriate chairs and seating, it's important to know why it should be done. As previously mentioned, behavioral health facilities have typically been thought of as institutional environments that gave patients and staff little sense of home or normalization. And although there is still much work to be done, a paradigm shift is occurring in facility design, and BHC spaces are becoming more inviting and are beginning to play a part in the actual healing process of patients. The first fact we must confront, however, is the enormous challenge we face as a society regarding mental illness and behavioral health conditions.

A National Alliance on Mental Illness report that points to leading research finds that:

**61.5 million**

In a given year, 61.5 million Americans suffer from a mental illness.

**13.6 million**

One in 17 of those—13.6 million—live with a serious condition such as bipolar disorder, major depression and schizophrenia.

**20%**

Approximately 20 percent of Americans ages 13 to 19 and 13 percent of youths eight to 15 have a mental health condition.



# 46%

Regarding the homeless, the report states that about 26 percent of those living in shelters suffer from a mental illness, while an estimated 46 percent also lives with a substance use disorder.

# 21%

About 21 percent of local jail prisoners have a “recent history” of a behavioral health condition, and approximately 20 percent of state prisoners do as well.

# 72%

And sadly, of the American youth that is housed in the juvenile justice system, 72 percent have at least one behavioral health condition, while 20 percent live with a severe mental illness.

And this is just the tip of the proverbial iceberg. The numbers go on and on and prove that the United States is in the midst of a healthcare crisis regarding the mentally ill. What is maybe most concerning is that many of those with a condition go undiagnosed and often find themselves in shelter environments and correctional facilities, becoming one of the overwhelming statistics mentioned above, instead of receiving the appropriate treatment they need.

So now more than ever, behavioral health facilities need to consider every option available to ensure that their environments provide all tools necessary to help treat and heal their patients. In doing so, these facilities can build upon the invaluable work and research that has already been done on this very topic.

Says who, you might ask? According to the 2012 study *Toward a Design Theory for Reducing Aggression in Psychiatric Facilities*, researchers claim:

“A key premise underlying the proposed design theory is that the stressors experienced by hospitalized psychiatric patients mediate and trigger aggression. A second major proposition is that the ward physical environment strongly influences patient stress. From these arguments it follows that aggression/violence will be worsened if psychiatric facilities have environmental features that are stressors or obstruct control or coping,” according to the researchers. “Psychiatric hospital environments will reduce aggression, however, if they are designed to minimize stressors such as crowding and noise, foster privacy, control, and other stress coping resources, and provide exposure to stress reducing features such as nature.”

The study goes on to say that in order to achieve these goals, facilities should consider private patient rooms, movable seating, noise reduction, views of nature, nature art, gardens and daylight exposure as just a few of the resources that facilities can point to in order to provide better outcomes.

When you think about it, these features are not entirely different than what we would want in our personal homes—features that make us feel comfortable, happy or normalized. It makes some wonder after all this time why this trend did not make significant traction decades before. Because wouldn't providing comfortable spaces to the mental ill—those that are susceptible to anger, outbursts, mental anguish and acts of physical violence—make them feel as comfortable as we try to feel in our own homes?

There are voices out there, however, that are fearful that softening a BHC environment also will likely provide less security, making patients and staff more prone to injury and violence. But interior designers, architects and furniture manufacturers that specialize in the BHC space have made vast improvements in facility design and furniture that combines normalization and safety.

“Thankfully, safety hasn't gone by the wayside. It's still the primary concern of caregivers for all their patients—it's just smarter. The design of the facilities has become much more mainstream with creating healing environments that are pleasant,” said Don Thomas, a principal at St. Paul, Minn.-based BWBR, in a *Healthcare Design Magazine* Q&A. “There's more natural lighting, there's more color, it's more humane. Art becomes a huge component. They've tried to reduce barriers between caregivers and patients, and create a community for the patients that allows them to explore illness and understand and accept it, and move forward.”

There is a mammoth amount of evidence and thought leadership out there that confirms these thoughts. The *Design Guide for the Built Environment of Behavioral Health Facilities* is an exhaustive, 100 page resource that is updated on a consistent basis and serves as a tool for those involved in the creation and maintenance of BHC facilities. In this document, Douglas Erickson, CEO at the Facility Guidelines Institute, poses the following questions—verbatim—as a way for



BHC facilities to safeguard their space while normalizing it as well:

- Could a patient be hurt by a particular aspect of the environment? Could it be used to harm someone?
- Can staff easily navigate the environment to get to patients in need of assistance?
- Is it possible to maintain patient privacy in this environment?
- Is the environment a respectful, therapeutic one that will contribute to recovery?

The guide goes on to say that:

***“The focus on patient and staff safety has often pushed the aesthetics of these units toward the appearance of a prison environment,” the guide states. “The final design must be avoid of an ‘institutional look’ while meeting the of applicable codes and regulations as well as the therapeutic and safety for patients and staff. The challenge therefore is to strike a balance the safest possible healing environment and a non-institutional that is correct for the unique conditions that exist in each and every facility.”***

## Challenges

According to the guide, striking the balance between safety and aesthetics has to be met in patient rooms, lounge areas, nursing stations and all other areas of BHC facilities. In nearly all of these spaces you will find a common product: seating and chairs.

These products are a staple in every BHC facility and face their own unique set of challenges that can pose a risk to all staff and patients. Conversely, choosing the right chair product can actually provide a safeguard against these challenges and create a safer and more harmonious environment.

So, what are some of these challenges you might ask?

### Bodily fluids

It's not the prettiest of imagery, but it's still a fact: Behavioral healthcare facilities have a challenge on their hands when it comes to bodily fluids, partly because of the nature of healthcare environments—where samples are collected and medical procedures are common—but also because of the mental and physical state of behavioral healthcare patients.

“Outbreaks of infectious diseases in psychiatric units are very different from those in intensive care units or acute medical-surgical units,” according to a study titled *Infections in Psychiatric Facilities, With an Emphasis on Outbreaks* (Infection Control & Hospital Epidemiology). “Outbreaks in psychiatric units are most often caused by agents circulating in the community. Infection control in psychiatric units also faces unique challenges due to the characteristics of the patients and facilities.”

Citing leading research, the study goes on to state that mental health patients often forgo preventative health measures and present hygienic challenges. Additionally, many facilities do not use rubbing alcohol due to concerns that patients may ingest it. Patients also tend to have a high rate of chronic infection due to substance abuse and socioeconomic factors, including diseases such as hepatitis, HIV and tuberculosis.

Mucus, sweat, tears, urine and vomit are just some of the bodily fluids that commonly come in contact with furniture in these facilities and often times create sanitation hazards and cross contamination between patients.

### Bed Bugs

After a long hiatus in the United States, bed bugs have made a resurgence in recent years and have wreaked havoc in hospitals, shelters, hotels and all kinds of commercial facilities. According to a study by the National Pest Management Association and the University of Kentucky titled the 2013 *Bugs Without Borders Survey*, researchers found that 99.6 of pest management professionals in this country “has encountered a bed bug infestation over the past twelve months” and that “bed bugs are found to be as much, if not more of a problem today than they were a few years ago.”



Behavioral healthcare facilities are not immune to these pests. In fact, some patients in these spaces may have spent time living on the streets or in infested environments. Additionally, due to their mental state, some patients may pay less attention to hygiene and are more susceptible to bed bugs.

In these scenarios, patients can enter facilities and potentially infest beds, mattresses, sheets, covers and chairs that aren't appropriate for BHC spaces. And bed bugs are often hard to eradicate, leaving facilities no option but to replace the infested seating product which can create financial hardships.

## Constant-use, breakdown of product

In many BHC facilities, patients are living or staying in an environment on a continuous basis along with many other patients seeking treatment. That's not even mentioning staff, which in many cases works in shifts and monitor those who are staying there. Chairs, beds, couches and other furniture items are constantly being used around the clock in these cases.

"The durability and construction of furniture in behavioral healthcare facilities cannot be overly emphasized," said Jim Hunt, AIA, NCARB, co-author of *The Design Guide for the Built Environment of Behavioral Health Facilities*, and President of Behavioral Health Facility Consulting, in a phone interview with Norix furniture. "It has to be tough, it has to be able to take abuse and it has stand up to environments where the product is constantly being used."

To add to this challenge, some patients in agitated or angered states of mind may try to damage or pick apart chair products as an act of aggression or to use parts of chairs as a weapon against other patients or staff, or for self harm. Once a furniture product has been compromised in any way, it will need to replace immediately to limit any further risk.

For this reason, department store furniture or products made specifically for residential environments—while aesthetically pleasing in appearance—are particularly at risk in these cases and should not be used in patient areas.

## Ease of movement

As previously mentioned, furniture in mental health facilities can be used as a weapon, resulting in the injury of patients and staff. Research reported in a study titled *Staff Survey Results and Characteristics that Predict Assault and Injury to Personnel Working in Mental Health Facilities (Aggressive Behavior)* reported the findings of a survey sent out to 15 United States children, adolescent and adult psychiatry inpatient units. The data shows just how dangerous BHC facilities can be.

According to the study, "Responses indicated a high prevalence of reported aggression, with 62.3% of staff endorsing verbal and physical aggression, property destruction, and self-injurious behavior as being prevalent at their site, whereas only 4.1% rated none of these as prevalent."

An easy item to use as a weapon in a BHC facility is a chair that is easy to move, pick up and throw. Folding metal chairs—opposed to lightweight plastic chairs that cause little damage or heavy lounge chairs that can't be moved—are often the choice of furniture for these attacks and can cause serious injuries to patients and staff. Attacks such as these are one of the reasons the United States is facing a decrease in worker retention in BHC facilities, according to a report by the American Psychiatric Nurses Association.

## Ligature points

One of the most critical challenges that behavioral healthcare facilities face is self harm and suicide attempts. Many mentally unstable patients enter these environments and, unfortunately, look for ways to end their lives as a way to stop the mental anguish they are experiencing.

In fact, according to a report by the Veterans Affairs National Center for Patient Safety, 1,500 suicides take place each year in United States inpatient mental health units. The report goes on to say that more than 70 percent of these suicides are by hanging.

There are many ways that a patient can attempt this method of suicide in a healthcare setting, and using seating and chairs is not exempt. Any seating product where a patient can find a ligature point poses a serious risk in BHC facilities.

Common tie-off points on chairs include chair arms with open sides or chair backs with openings. Chair clean out points—an opening between the seat and back—can also pose a tie-off risk. Seating products with these options should only be used in areas where self-harm risks are low or where there is maximum supervision.



Basically, any place on a chair where a rope, string or any other type of material can be tied poses a risk. Therefore, it is imperative for facilities to analyze their chairs and seating and pick appropriate products for each space in their environments.

“You have to assess everything that is placed in a BHC facility,” Jim Hunt said. “Generally, the risk of self harm decreases as the level of observation and supervision increases in a facility.”

## Contraband

Contraband is a major risk factor in behavioral health settings. And the list of what is considered contraband is rather lengthy and may come as a surprise to some. On its website, the Mendota Mental Health Institute—Goodland (operated by the Wisconsin Department of Health Services) lists the following, which are typically recognized as contraband, as prohibited items for loved ones to bring to visitations with maximum security patients:

- Weapons
- Items made of glass
- Matches
- Razor blades
- Hacksaw blades

But the list also includes items that are not often thought of as contraband, such as:

- Cleaning supplies
- Laundry soap
- Incense
- Candles

All of these items, in one way or another, can provide the opportunity for patients to harm themselves or someone else. And if they manage to get these items smuggled in, chairs and other furniture are common places to hide contraband. In regards to seating, contraband is often hidden under cushions, in open areas underneath the chair and inside the chair itself if the material or upholstery can be torn or if seams can be ripped.

## Solutions

Despite these challenges, there are seating products on the market that are specifically designed to help BHC spaces combat obstacles such as contraband, self harm and sanitation. When looking for chairs and seating for your facilities, consider the following items before you make a purchase.

### Material

It would be nice to furnish BHC facilities with plush leather or fabric chairs to ensure maximum comfort for those using the products. But as previously mentioned, bodily fluids, constant use and bed bugs make it impossible to use the same kind of furniture that you would find in a home.

That is why it is essential that facilities purchase products that are made of materials that can provide a solution to these challenges instead of becoming a part of the problem. Two such materials are polyethylene (PE) or polyvinyl chloride (PVC).

PE and PVC can be rotomolded as a one-piece product, meaning there are no moving parts, seams or places to hide contraband. When properly manufactured, these materials also are easy to clean, bed bug resistant and impervious to fluids of all kinds, including blood, vinegar, urine, feces, salt solution and chlorine solution.

And lastly, the material can be highly durable and can stand up to the constant use and wear and tear found in the BHC environments. For example, both Norix Furniture's Forté™ chairs and Hondo Nuevo® Series of Lounge Furniture have been tested to withhold a 750 lb. static load and have been product dynamic drop tested to a relative impact force of two times BIFMA 5.4 15.4.2 (500 lbs. from 18").

Additionally, Hondo Nuevo® Series of Lounge Furniture has proven to be highly puncture resistant—tested to 184 lbs. of force—after passing the ASTM International D4833-07 standard.



## Upholstery

Upholstery can assist BHC facilities looking to achieve that normalized or residential look that is so important in the healing process of patients. But upholstery is not appropriate for all areas in these spaces and not all upholstery is the same.

For example, medium grade upholstery may be sufficient for visitor rooms or other areas that may not see extreme traffic, while a higher grade material made for constant use should be suitable for day rooms and residential facilities such as autism homes.

But upholstery may not be appropriate at all for acute emergency rooms and other areas where patient instability is a constant challenge. This also includes spaces where bodily fluids may come in contact with the material or where patients are likely to tamper with the upholstery.

A lobby may see heavy use and require a certain class of fabrics, but a psychiatric dayroom not only sees constant use but also willful abuse, making it imperative that it is fitted with a highly durable option.

In some cases, particularly where there are acute patients, upholstery may not be a wise option at all, and practitioners are better off with the PE or PVC options that still provide pleasing design and comfort but with a higher level of durability.

So when choosing whether or not to include upholstery, assess the risk of the material being damaged or used as tool of self harm. If you do go with upholstery, pick the appropriate grade level based on variables such as constant use and fluids so you don't find yourself replacing the product only a short time after buying it.

Additionally, pick upholstery that is easy to replace. Even high grade upholstery will wear out after time, and if you can replace the upholstery with little effort you will be saving your facility from the financial burden of replacing the entire chair.

Also, many upholstered seating lines come with urethane arm caps, all of which are not created equal. It's common for office chairs with arm caps to be picked and peeled, exposing the inner foam even under normal use. This level is inappropriate in BHC environments where patients sit for long periods of time and are sometimes prone to a picking habit. How the arm cap is attached also is important so it can't be pried off of the arm either willfully or distracted habit.

Look for high impact urethane arm caps that are proven to be pick-proof and resilient against wear and tear. Additionally ask the manufacturer how the arms are attached. Preferably, seek out arm caps that are attached to steel plates or reinforcements, then attached by screws or welded to the chair body or frame.

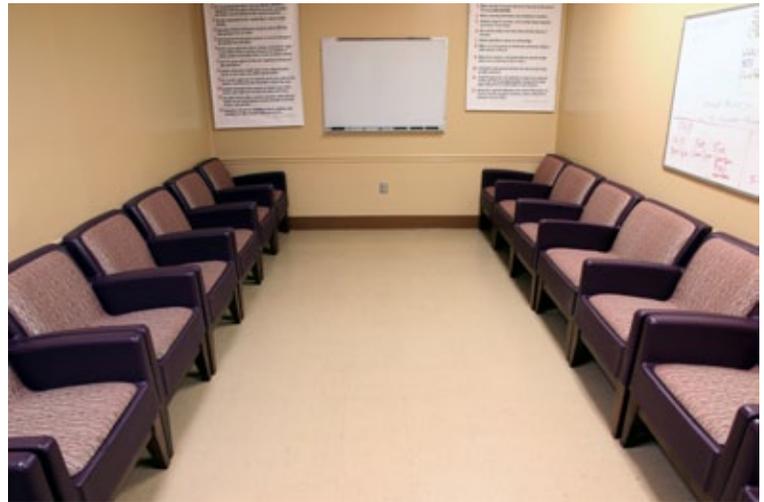
## Bases

Wood is strong and can help create a residential feel inside your facility. It also can support heavy weight, and is a very diverse choice for chair bases considering the number of different types of wood that are used and the different hues of vanishes and stains that can be applied to them.

However, if your chairs are going to be in an area where scrubbers are used to clean floors or where industrial vacuums clean rugs, do consider this: wood can chip and be scratched. For those types of environments, molded wood might be a better option. These bases are often made of durable polymer that looks like wood and comes in the same color as many types of wood. Molded wood bases are even rot-resistant, and since the polymer is the same color inside and out, scratches and nicks are much less visible.

Steel on the other hand is a versatile material and—as you might suspect—is highly durable and stands up to the continuous-use found in behavioral healthcare environments. Look for bases and legs that are made of heavy duty steel with molded-in steel threaded inserts for optional side-to-side ganging. That means the chairs can be connected—if needed—to avoid movement and ensure that the product won't be picked up.

A plinth chair base can best be described as a platform or block that the upper part of the chair sits on. Plinth is often chosen for its extreme durability and safety. In fact, it's considered the most secure of all of the bases mentioned here. The bases are often made of one-piece, rotomolded polymer with no openings and no place to conceal contraband. Additionally, many chairs with plinth bases can be ballasted. And when properly fabricated, plinth bases are scratch, fluid and damage resistant. Lastly, your cleaning staff will thank you for choosing plinth bases since they are easier to clean around. And maybe most importantly, many plinth bases have no ligature points, an important consideration for behavioral healthcare facilities.



## Configurability, flexibility

It's good to have options. And chairs are no exceptions. Often times, behavioral healthcare facilities include multi-purpose rooms which require multi-purpose chairs. Simply put, chairs may serve a purpose in dining rooms during one part of the day and may be used for sitting and watching television later on.

That makes it imperative for facilities to purchase chairs that can be used for different applications. Look for durable chairs that can stand alone at a table, but also consider chairs that can be mixed and matched. That includes chairs that can be lined up next to each other against a wall in a straight line or that can be combined to make a couch or pair well with ottomans and tables in dayrooms.

Lastly, look for suites of chairs that come in a color palette. This is particularly important if you want to feature more than just one hue in your facility, but require that the colors work well together.

## Color

According to Tara Rae Hill—interior designer, color theorist and founder of LittleFISH Think Tank—there is a plethora of evidence-based research and design that supports the claim that when spaces are visually stimulating—with an interesting use of color, and not “overly neutral”—that the speed of healing dramatically increases, and in many cases the need for medication decreases.

“I continue to be insistent that color can have a positive influence and unless you are terribly irresponsible with your color palettes, color can only help versus hurt in a medicinal setting. For example, consider your own body. The majority of us experience our worlds – and many of our dreams as well – in full spectrum color,” she said.

***“Therefore, I’m very confident that your physiological response in a 100 percent, monochromatic grey patient room within a 100 percent grey world would be a diminished one.”***

Institutional spaces tend to be overly neutral and monochromatic but residential ones mix and balance color and patterns together to provide positive distractions and visual interest. Furniture, appliances and other items in one's residence come in a variety of colors, so it only makes sense (and research has proven) that providing color in BHC settings is capable of creating a residential feel and therapeutic qualities for patients and staff.

But that is not to say that poppy, bright colors are appropriate for all environments. Nor should a facility limit itself to just one or two bold colors for the sole purpose of providing visual interest and positive distractions. In fact, color can create a negative response in some patients who may experience a sensory reaction to colors they find unappealing.

For this reason, be sure to consult with a healthcare interior designer or manufacturer who knows which hues are appropriate for which settings in your behavioral healthcare facility.

## Ballasting, Ganging, Bolt down, Ballasting

Security and safety are paramount in BHC facilities, and chairs can either prevent or cause harm among patients and staff, depending on which products are purchased and installed. There are three common methods that help ensure chairs aren't picked up and thrown or torn apart and its pieces used as a weapon. To prevent any of these incidents from happening, look for chairs that can be ballasted, ganged or bolted down.

Ballasting is the act of filling your chair with some kind of material to add weight to the product and limit movement. Most often this material is dry sand, and in many cases—depending upon the size of the cavity of the chair—significant weight can be added, therefore limiting movement and ensuring that the chair cannot be thrown or used as a weapon. And while the chairs become significantly heavier, a small team of staff members working together can move the furniture when a new configuration is needed or if the areas around or underneath the chair needs to be cleaned.

Ganging, on the other hand, is the process of connecting chairs together using—most often—metal plates or other hardware on the backside or underneath the furniture. This method of securing chairs to one another ensures that the product will not be picked up and used as a weapon, and allows facilities to remove and re-insert the hardware if they wish to reconfigure the chairs in the future. Also, if there isn't too many chairs ganged together, staff members can move the chairs for cleaning and maintenance.

Lastly, bolting down chairs is considered the most effective measure in securing your furniture in intensive-use environments. This method—which is performed exactly how it sounds—uses highly durable bolts to fasten a chair to the floor for maximum security. Bolting down chairs ensures that the product is not going anywhere and will not be used as a barricade or a blocking mechanism against doors in your facility.

While this method provides maximum security, it does create limited configurability options since the chairs cannot be moved. And for this reason, it does reduce the normalization affect in patient population areas that require a higher level of security. But again, when it comes to security, bolting down chairs is superior to all other methods.

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## Design

Historically speaking, BHC facilities have had to settle on purchasing furniture that provides safety and security but not necessarily the aesthetics found in residential furnishings. However, as mentioned before, this trend is slowly changing and facilities are looking for products that are more normalized. That means the facility managers, interior designers and others involved in BHC environments are seeking out chairs with modern and elegant designs.

“It’s important that you pick furniture that has character that is somewhat timeless,” said Jim Hunt. “In particular, it’s imperative that the character is not institutional in nature or similar to furniture that has been associated with prisons.”

Aside from pleasing aesthetics, look for chairs with generous seat widths and appropriate seat and arm heights for proper ergonomics and easy egress. This is particularly important for geriatric populations that may have difficulties standing up due to the conditions brought about by age and the poor design of a chair that was not manufactured to meet their needs.

The same is true for patients that may be heavily medicated and need seating features that are designed especially for them. In this scenario, a patient who tries to stand—whether by themselves or assisted—needs a chair designed with arms, backs and seats that support and help them stand, opposed to ill-fitted products that make the standing process more difficult. In the end, a chair designed with properly ergonomics, easy egress and arm height can make sitting and standing easier, creating a safer environment and a less injury-prone facility.

Lastly, look for fabricated drip edges that allow moisture to run off the chair and/or clean out spaces (usually a space between the seat and back) where debris and fluids can be washed off the chair. As mentioned earlier in this document, cross contamination between patients is often a challenge in BHC facilities. Chairs that are breeding grounds for disease and germs can cause great distress and financial hardships on facilities, not to mention the health risks to patients. Conversely, chairs that are easily cleaned provide a solution to these challenges.

## Highly durable

Many companies claim that their chairs and seating are highly durable, but don’t have the data or certifications to prove it. For this reason it is important that facilities ask about what testing and standards the furniture has met. There are many companies and organizations that offer industry standard testing certifications that can help consumers make choices on what products are best for them.

A few of the most important of these tests and certifications are:

### Durability standards

Puncture Resistance according to ASTM International D4833-07 ASTM D4833 - 07 Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products

American National Standard For Office Furnishings/ Business and Institutional/Furniture Manufacturers Association 5.4 15.4.2 Product Safety and Performance Standards and Guidelines for Lounge and Public Seating

### Fire Retardant Standards

State of California, Technical Bulletin No. 133, Flammability Test Procedure for Seating Furniture for Use in Public Occupancies.

UL1056 Fire Test of Upholstered Furniture

ASTM E1537 Test Method for Fire Testing of Real Scale Upholstered Furniture Items

NFPA 261 Cigarette Ignition Resistance of Upholstered Furniture

UL94 HB Test for Flammability of Plastic Materials

British Standard BS 7176: 2007, High Hazard Occupancy (BS EN 1012-1: 2006, BS EN 1012-2: 2006, BS 5852: 2006)



Additionally, ask the manufacturer what kind of internal testing and research it has conducted. Examples of this include real-world durability testing with sledgehammer, picks, heavy weight and other items that show how a product performs under great distress. In particular, ask for durability videos or photos of these tests being conducted.

Lastly, ask what kind of scientific testing a manufacturer has conducted. This can include their own static and dynamic load testing, and puncture resistance measurements.

## Eco-friendly

To ensure that you are creating healthy environments in the BHC spaces, look for products that are GREENGUARD and GREENGUARD Gold Certified by UL Environment, the governing body for this stringent test for low emitting products. Known throughout the world, this certification recognizes products with low chemical emissions, which can contribute to healthier indoor environments.

In particular, GREENGUARD Certification can help manufacturers create products with low chemical emissions while also giving consumers the knowledge they need when looking for products that meet stringent emissions standards. Representative samples of products that have achieved certifications through this program have been tested and certified to meet some of the world's most rigorous, third-party chemical emissions standards—helping reduce indoor air pollution and the risk of chemical exposure while aiding in the creation of healthier indoor environments.

Certified products are compliant with stringent emission levels for over 360 VOCs, plus a limit on the total of all chemical emissions combined (TVOC). Products that have achieved GREENGUARD Gold Certification can qualify for Indoor Environmental Quality credits within the LEED Rating System. Office furniture products that are GREENGUARD Certified are also compliant with the BIFMA X7.1 standard and BIFMA e3 credit 7.6.1.

## Polyethylene (PE) vs. Polyvinyl Chloride (PVC)

These two materials, when properly manufactured, are both suitable for the constant use and willful abuse that is found within BHC facilities. Both materials are different, but also share some of the same features that make them ideal for these spaces.

When rotomolded—the process of creating one-piece products by using a hollow mold that is filled with polyethylene then heated and rotated—PE and PVC chairs and seating can be manufactured seamlessly and with smooth surfaces, meaning they are produced with no cracks and crevices where debris and fluids can gather. This allows those in BHC facilities to easily clean chairs and extend the life of the product.

Both materials also are resistant to fluids and chemicals, which is important when keeping the product clean and managing infection control. Lastly, both materials are highly durable and can be manufactured with additives that make them fire retardant.

The biggest difference in the two, however, is the rigidity of the material. PE is nearly inflexible, making this tough material a perfect choice for BHC environments. PVC, on the other hand, is softer and can be foam filled and is more comfortable to sit on for longer periods of time. However, in lounge areas and living room settings, upholstery can be added to PE, making these chairs more comfortable and residential in nature.

## Conclusion

As the trend of normalization continues to spread through BHC environments, it's nearly inevitable that your facility—if it hasn't already—will need to make important choices regarding the aesthetics and security of your chairs and seating. Fortunately today, facilities have options and do not have to rely solely on products that are institutional in nature and unappealing to those who use it.

As already mentioned in this document, progressive furniture manufacturers are now producing chairs and seating that create a residential feel within facilities while providing the safeguards that have always been needed in BHC spaces.

The intended results are an increase in healing and a decrease in mental discord among patients, while maintaining safety and security. Additionally, staff will feel more comfortable and less stressed in these more normalized environments, leading to a more positive well being and a decrease in worker turnover.





A few questions to remember as you seek out appropriate products are:

- Will this product cause a risk in my facility? Or will it provide a safeguard?
- How do I know if the product is actually durable? What testing has the manufacturer conducted?
- Which colors are appropriate for which spaces in my environment?
- Can I add extra safety and security such as ballasting, ganging and bolting down?
- Is the product contributing to a healthy environment?
- Are the products flexible, and can I use them for multiple purposes where appropriate?
- Is the material durable and easy to clean and sanitize?
- Do the chairs give me the options of different base types?
- Can I select from a variety of upholstery styles and grade levels depending on the area where the chair will be placed?

Selecting the right chair and seating product for your environment may seem like a difficult and taxing task. But by identifying the risk factors in all of the spaces in your environment and by working with interior designers and progressive BHC furniture manufacturers, you will be able to provide your patients with chairs and seating that is safe, secure and aesthetically pleasing.

## Resources

National Alliance on Mental Illness – Mental Illness Facts and Numbers

Toward a design Theory for Reducing Aggression in Psychiatric Facilities

Healthcare Design Magazine: Rethinking Behavioral Health Center Design

The Design Guide for the Built Environment of Behavioral Health Facilities

Infection Control and Hospital Epidemiology: Infections in Psychiatric Facilities, With an Emphasis on Outbreaks

Pest World: 2013 Bugs Without Borders Survey Executive Summary

Aggressive Behavior: Staff Survey Results and Characteristics that Predict Assault and Injury to Personnel Working in Mental Health Facilities

American Psychiatric Nurses Association: Workplace Violence Workgroup Report

V.A. National Center for Patient Safety: Mental Health Environment of Care Checklist

Mendota Mental Health Institute (Goodland) - Wisconsin Department of Health Services



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Norix designs innovative, robust furniture that meets the real-world need for humanizing challenging environments. For more than 30 years, the company has served the behavioral healthcare, corrections, fire/rescue, military, shelter, public safety and variety of commercial industries by providing uniquely reliable furnishings for every application. All furniture is designed for safety, security and extreme durability. Norix furniture is extraordinary by design, surpassing industry standards for strength, safety and long-term performance. Aside from its durability, Norix products also come in aesthetically pleasing designs and colors and are made especially for facilities that require furniture that can humanize their environments.

The privately held company is headquartered in West Chicago, IL with consultative sales representatives and dealers throughout the U.S. In 2012, Norix launched Safe Environments, a news and information blog serving architects, designers, administrators and facility managers involved in the design, construction, and operation of challenging environments. For more information, call 800-234-4900 or visit www.norix.com.