

The attached whitepaper document, entitled “The Contributions of Color” was authored by Tara Hill, of Little Fish Think Tank. Norix commissioned Tara to research the role color plays in the safe operation of correctional facilities and behavioral health centers.

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# The Contributions Of COLOR

A study of the issues surrounding  
Corrections and Behavioral Healthcare  
and how space design and color play a role

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# Soothing with Colorful Shades

These are ground-breaking times in the design of Corrections and Behavioral Healthcare. Many strides are taking place within both industries to positively impact the “human within.” What is becoming increasingly clear is how architecture and design is influencing end user outcomes by improving well-being and safety, increasing staff effectiveness, and saving costs.

When these spaces are designed to calm and normalize, there is a direct link to more relaxed and easier to manage populations, safer surroundings, reduced staff turnover rates, and improved efficiencies – creating an atmosphere of reduced anxieties for all. Thus so, allowing staff to more readily engage with populations - protect, care for, and treat. Not to mention, when healing is the focus, emerging research shows faster patient recoveries, shorter hospital stays, and less need for medications than within spaces that are not designed with therapeutic principles. Therefore, evidence continues to reveal that “care” and the buildings in which it is administered cannot be separated in order to have optimized outcomes. Whether your role is of an architect, designer, practitioner, or facilities leader – it becomes increasingly known the impact we collectively have on the final outcome of these environments.

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# Planning & Design of Correctional Facilities

Over the last several years, the planning and design profession has gained significant knowledge of what constitutes a normalized and therapeutic environment. When considering architectural design that calms and provides wellness this may seem more applicable for healthcare needs, but professionals working in Corrections such as facility managers, healthcare workers, architects and designers (A+D) also recognize this need. As medical experts peer further into Correction populations, it is becoming clear that large percentages struggle with mental and addiction disorders. In addition, populations are increasing in quantity and in age. Since many under incarceration will return to our communities, concerns grow that the more often we elect to “warehouse” rather than humanize and rehabilitate, the greater the adverse impact this segment of the population will continue to have on public health and welfare.

Therefore, architects and consultants are working hard in this area to reinvent the fortress and meet changing needs, while preserving the non-negotiable issues of security and economics. Ensuring the public is protected from criminal behavior is without debate the foremost goal. However, the biggest question still stands: how can society balance the conflicting needs for security and the need to rehabilitate, but still protect the public and minimize criminal behavior?

At the dawn of the 21st century, Correction demographics report populations are aging, have more physical and mental disabilities, and include more women and juveniles. These statistics indicate the industry must address more complex issues than mere warehousing and overcrowding. This has inspired many planners and architects to rethink how we design and manage Correctional facilities. Questions are being raised, is there a way to modify plans to reduce population sizes and expand programs while protecting needed security? Are there methods and new technologies that assist in security, relieve Correctional officers, and allow their resources to be placed back into productive management? Is there a way to plan and design that helps to humanize the inmate, reducing their anxieties, and increasing safety for all?

According to Leonard Witke, who spent 20 years as director of facilities management and staff architect for the Wisconsin Department of Corrections, “The essence of any prison today is the housing unit.” Witke says that with the dawn of direct supervision and the expectation that inmates spend more time in controlled environments, housing and program areas need to be physically linked, making activities from dining to dayroom use more manageable. The first change with this was seen in 1983 as federal prisons switched from linear facility designs to triangles and squares. It had immediate impact. “These new shapes created a day space in the middle that gives designers more to work with, an open space that lets the staff perceive issues before they become problems,” states Stephen Carter, a consultant in justice planning with Carter Goble Associates and who helped develop the first set of building and space standards established by the American Correctional Association (ACA). With demonstrated positive results, inmates are being housed in groups of limited size, 100 – 200, in lieu of the previous 500 - 1000, in part as a way to more easily contain aggressive behavior but also to support expanded programming. Witke says the smaller, campus-like configuration offers the ideal framework for classifying and segregating inmates with special needs. “I see us being able to create safe areas for geriatric inmates, for instance, so they don’t have to confront young, active inmates.” Similarly, female inmates often have a greater need for privacy and family contact, and juveniles require more order and direction in their lives. Both benefit from the “facility-within-a-facility environment.”

Yet, the flip side to the smaller “pod” design and the shift to helping prisoners modify their behavior essentially creates more contact between them and correctional officers, and can stretch resources to the limit. According to Witke, currently an architect and justice consultant with The Durrant Group in Madison, this has provided opportunities to A+D to think the possible and bring forth vision.

The challenge becomes that of parallel concerns: how to change the way people act, control inmate disruptions, and protect vulnerable individuals. According to the leading experts in the field, the best Correctional facilities recognize the challenge of creating spaces that do not confine the spirit or crush self-esteem, while also sending an unmistakable message of order.

However, planning and design within Correctional facilities, more than any other building type, demands a deep understanding of a layering of issues – all of which can be life-enhancing and life-threatening. Again, depending on whether the facility is of minimum, medium or maximum security plays a distinctive role in the decisions relating to planning, design, and the human element. Therefore, the following is a list of key variables to consider:

**Facility Mission and Operational Philosophy**

**Inmate and Staff Safety**

**Degree of Necessary Surveillance**

**Ability to Serve At-risk Populations**

**Level of Staff Skills and Training**

**Staff Retention**

**Type and Quality of Support Facilities**

**Proximity to Outside Services**

**Community Concerns and Involvement**

**Presence of Alternatives to Incarceration**

With these issues in mind, the question becomes how planners and designers address these needs and preserve the non-negotiable factor of security, yet create outward tools that provide a normalized environment.

The following are key “design tenants” that leading professionals are reviewing and incorporating into new Correctional facilities. These are not listed by importance, but by need of conversation:

**Humanizing Materials & Color**

**Staff-Focused Amenities & Happiness**

**Security & Safety**

**Healthcare Services**

**Therapeutic Design Tenants**

**Humanizing Materials & Color** - In all facilities that play a role in rehabilitation, designers strive to create spaces that humanize, calm, and relax. Such spaces ease anxiety, modify behavior and inspire dignity. Mainly applicable for minimum to medium-security Corrections and transitional facilities, appropriate materials and color create an environment where inmates can learn, socialize and be productive. In addition, these interiors produce a warmer environment for those who work there.

Behavioral studies advise the use of better acoustics, day-lighting, and the intentional use of color in order to produce a normalized environment that soothes the psyche and rehabilitates. Leading research shows that interiors which have an interesting use of material and color and that are not overly neutral will increase morale and mental well-being, ultimately reducing inmate and staff anxieties. For Corrections, this translates to improved safety. When inmates are calmed, their misconduct is reduced, which directly improves staff safety and resources. In addition, it is seen that when staff experience a safer environment, job satisfaction increases and life-saving rules and policies are more likely to be enforced. Color is also being used to logistically zone areas. Therefore, when using color to zone, it quickly enhances an officer’s acuity to recognize when an inmate has crossed into an off-limits area. Using color to zone spaces also assists with keeping mobile furniture in its correct area.

**Staff-Focused Amenities & Happiness** - It’s been shown that before they retire, long-serving correctional staff will do more time “inside” than most prisoners will. Also, it is becoming more difficult to recruit, train, and retain a Correctional work force. Baby boomers are retiring from the workforce at an alarming rate and causing organizations to lose vetted people in critical positions. In addition, Corrections is recognizing that officers and healthcare workers require special training and with this special training these individuals become more marketable in the private sector. According to Joyce G. Fogg, Virginia Employment Commission Chair and member of the ACA Work Force Advisory Council, “This is one of the greatest challenges corrections will

face in the future. State and local budget restraints have kept many state departments of Correction from being fully staffed, and competition is further adding to state's staffing woes as some workers realize that jobs in the private sector may come with more pay and less bureaucracy." In times of economic distress this speaks volumes.

As the need for correctional officers, social workers, health, mental health, and educational professionals increases during the next decade, vital incentives including stronger career platforms, "staff focused" amenities, and overall job satisfaction play a key role in Correction's ability to attract qualified workers and compete with the private sector.

Kelly Dial, professor at University of Mississippi in the Department of Administration of Justice, states there are four variables that are significant predictors for job satisfaction within Corrections:

- 1. Feelings of job danger**
- 2. Work stress**
- 3. Age of worker**
- 4. Caring from supervisor**

Dial says reports have indicated that the less likely an employee was to have feelings of job danger, the more likely he or she was to be satisfied at work. Work stress and age were the most significant predictors of job satisfaction. As the correctional employee's age increases, his or her job satisfaction increases. Dial also cites that the final significant predictor of job satisfaction is care from supervisors. Employees who report having less care from immediate supervisors are significantly more likely to have decreased feelings of job satisfaction.

Job dissatisfaction leads to critical issues for Correctional facilities. With many agencies facing staff shortages, Dial says that first-line supervisors' care for their employees may be a practical way of retaining staff. Many solutions currently being used have risen out of business and medical setting research; mainly, the "end user" focused approach. This approach places high value on the employee, with supervisors focusing more on people and relationships than "toner and spreadsheets." These supervisors had higher levels of productivity than those managers who made decisions themselves and dictated to subordinates.

For architects and facility managers, the challenge is to create inmate and staff areas that humanize and provide normalcy. These spaces need alternative materials and a more interesting use of color to lift the psyche and boost morale. Staff spaces infused with natural lighting and that provide well-appointed areas such as staff break spaces help to ensure staff perceptions that supervisors directly "do care" about them and their relationships.

**Security & Safety** Without debate, this is a Correctional facility's main focus – to protect staff, vulnerable individuals, and the public as a whole. Few would also debate the significant role planning and design plays in the outcome of a facility's safety. As discussed, many items are being implemented to enhance all aspects of security and safety: smaller "pods" with community centers that are easier to supervise, use of technology that relieves officers and alerts conduct disruptions, increases in inmate-expanded programs and the introduction of humanizing materials and color. These strategies positively impact staff retention, place valuable staff back into circulation and provide better resources to support expanded programs and oversee special needs groups. As these walls come down, it is believed by Correction experts and administrators that color play a key role. Not only does color visually soften the otherwise harsh, lack luster environment, it can also be used as a tool to designate key areas and ensure inmates are appropriately within their assigned area.

**Healthcare Practices** - With many state mental health facilities closing and “depositing” their patients into Correctional facilities added with Correction’s aging population and an explosion of woman and juvenile inmates, the number and variety of individuals who comprise the country’s correctional population is quickly increasing. This is causing the link between the justice system and public health to be more pronounced than ever before and experts realizing that any serious dialogue concerning Corrections cannot exclude the critical component of Healthcare. In order to minimize poor inmate physical health and conduct disorders, we must provide total care. Therefore, just treating traditional physical health issues is not sufficient, and Corrections professionals are just beginning to recognize the need to address an inmate’s psychological well being.

A recent report by the Bureau of Justice Statistics indicated that at least 16% of those in Correctional facilities have histories of mental health issues. To some behavioral experts and Corrections professionals, this statistic seems low. It is also believed nearly two-thirds of those housed in Correctional institutions have, or have had, substance abuse problems and engaged in lifestyles that placed them at risk for deadly contagious diseases. Again, as Correctional facilities are being used as mental health depositories, these statistics are greatly increasing.

According to James Gondles, the ACA Executive Director, “Providing quality healthcare - both physical and mental - is a vital part of our efforts to return individuals to society better than they left and as contributing members.” This is influencing many A+D to “take a page out of medical facility design.” They are looking at how Corrections spaces can be weighted in therapeutic design and better promote mental and physical health, while not sacrificing safety and security.

**Therapeutic Design Tenants** - Many leading Correctional architects and medical consultants see direct physical and mental links in people who are incarcerated and those who are being treated in medical and mental Healthcare facilities. Science clearly shows that many inmates suffer from pronounced mental disorders and/ or serious addictions – many leading to complicated medical conditions. Adding in the issues of an aging inmate population, the influx of the “raging teenager” and an increase of female offenders, this produces a clear need for environments weighted in science which promote mental and physical well-being. In the medical world, these environments are highly valued and shown to reduce anxieties, positively change behavior and save costs. There is a wealth of research and data to support the incorporation of “therapeutic tenants,” such as day-lighting in inmate cells and program spaces, lowered acoustics, access to nature (literal and figurative), and utilization of softer materials and stimulating color. It has been demonstrated through research and medical facility’s “business models” that as fears reduce, anxieties decrease, the people within become more content – all producing a warmer, safer environment.

# Planning & Design of Behavioral Healthcare Facilities

In keeping with most districts of healthcare, the marketplace has seen a boom in the construction of Behavioral Healthcare facilities. Contributing to this increase is the paradigm shift in the way society views mental illness. Society is placing a heavier value on the need to treat people with serious addictions such as alcohol, prescription and illicit drugs. A large percentage of people suffering from behavioral disorders are afflicted with both mental and addictive behaviors, and most will re-enter communities and either become contributors or violators.

These very specialized facilities do not typically yield the attention from today's top healthcare designers and their quantity accounts for a small fraction of healthcare construction. However, Behavioral Healthcare projects are increasing in number and are being designed by some very prominent architectural firms such as Cannon Design and Architecture Plus. Many are creating state-of-the-art, award-winning contemporary facilities that defy what most of us believe Behavioral Healthcare design to be.

As with all good planners and designers, A+D (along with facility experts) are reviewing the direct needs of patient and staff while reflecting on how new medicine and modern design can foster patient healing rates, reduce environmental stress, and increase safety. This is changing the face of treatment and outcome by giving the practitioner more time to treat because they require less time and resources to "manage" disruptive patient populations.

The face of Behavioral Healthcare is quickly changing. No longer are these facilities designed to warehouse patients indefinitely. And society's expectations have changed. Patients are often treated with the belief that they can return to their community and be a contributor to society. According to the National Association of Psychiatric Health Systems (NAPHS), depending on the severity of illness, the average length of stay in a Behavioral Healthcare facility is only 9.6 days.

What has changed? Jaques Laurence Black, AIA, president and principal of New York City-based daSilva Architects, states that there are two primary reasons for the shortened admission period:

- 1. Introduction of modern psychotropic drugs that greatly speed recovery**
- 2. Pressures from insurance companies to get patients out of expensive modes of care**

To meet these challenges, healthcare professionals are finding it very difficult to effectively treat patients within the walls of antiquated, rapidly deteriorating mental facilities. A great percentage of these facilities were built between 1908 to 1928 and were designed for psychiatric needs that were principled in the belief to "store" not to "rehabilitate."

Also impacting the need for Behavioral Healthcare construction is the reluctance of acute-care facilities to provide mental health level services for psychiatric or addiction patients. They recognize that patient groups suffering from behavioral disorders have unique health needs, all of which need to be handled and treated only by very experienced healthcare professionals. This patient population also requires a heightened level of security. Self-harm and injuring staff and other patients are major concerns.

The Report of the Surgeon General : "Epidemiology of Mental Illness", also reports that within a given year about 20% of Americans suffer from a diagnosable mental disorder and 5.4% suffer from a serious mental illness (SMI) - defined as bipolar, panic, obsessive-compulsive, personality, and depression disorders and schizophrenia. It is also believed 6% of Americans suffer from addiction disorders, a statistic that is separate from individuals who suffer from both mental and addiction disorders. Within a given year it is believed that over one-quarter of America's population warrants levels of mental clinical care. Even if these statistics were cut in half, it cannot be denied as a serious societal issue.

With a growing population, effectively designing in accordance with such measures is at the heart of public health.

Therefore, like Corrections, leading planners and designers specializing in Behavioral Healthcare are delving deeper to better understand the complexity of issues and to be the activist to design facilities that promote treatment and healing – and a safer community. The following is a list of key design variables that are being studied and implemented:

**Right-sizing**

**Humanizing Materials & Color**

**Staff-Focused Amenities & Happiness**

**Security & Safety**

**Therapeutic Design Tenants**

**Right-sizing** – Today’s Behavioral Healthcare facilities are often one-story single buildings within a campus size. Often debated by Clients due to costs, this design preference is driven by the demand for natural light, window views to nature for all patient areas, and outdoor open-air gardens “wrapped” within. All of this provides soothing qualities to the patient, reduces their anxieties, counteracts disruptive conduct and helps to reduce staff stress.

According to James Kent Murhead, AIA, associate principal at Cannon Design in Baltimore, “When you look at the program mix in these buildings, there’s a high demand for perimeter because there are a lot of rooms that need natural light. Offices, classrooms, dining areas, community rooms, and patient rooms all demand natural light, so you end up with a tremendous amount of exterior wall, and it forces the building to have a very large footprint.”

These design principles are also believed to improve staff work conditions. Unlike a multi-story complex, at any moment staff can walk outdoors and access nature, free from visual barriers, and within a building that more accurately reflects building types that both patients and staff would encounter in their communities.

In addition to right-sizing for the overall building footprint is right-sizing for internal patient and staff support area. Similar to the move we have seen in Corrections to de-centralize support spaces, Behavioral Healthcare is moving to decentralized nursing/ patient units called “neighborhoods.” With mental health facilities there is a large concern with distances and space adjacencies in relation to the patient room and patient support areas such as treatment and social spaces. Frank Pitts, AIA, FACHA, OAA president of Architecture Plus, Troy, NY, advocates neighborhoods that average 24-30 beds arranged in sub-clusters, called “houses”, of 8-10 beds. Thus, each neighborhood consists of three houses. Often these layouts will include a common area where patients congregate and socialize, with a separate quiet room so patients can elect to avoid active, crowded areas. In addition Pitts states, “There’s a move away from central dining facilities. So, while facilities will still have a central kitchen, it’s a whole lot easier moving food than it is patients.” However, it is important for the facility to mimic normal outside daily life routines, so patients are encouraged to frequently leave their neighborhoods to attend treatment sessions, and outdoor courtyards.

**Humanizing Materials & Color** - In all facilities that play a role in rehabilitation, design strives to create spaces that humanize, calm, and relax. Behavioral Healthcare patients need to feel that they are in familiar surroundings; therefore, the architectural vocabulary should feel comfortable and normal. Since these facilities are about rehabilitation (when possible) and encouraging patients to merge back into society, the facility should feel like an extension of the community. Their spaces should reflect the nature and architecture of the surrounding region and thus so, no two facilities should look too much alike. According to Tim Rommel, AIA, ACHA, OAA, principal with Cannon Design in Buffalo, NY, “Our approach to designing these facilities is to view the facility as an extension of the community where patients will end up when they’re released. Interior finishes also depend on geography because you want to replicate the environment patients are used to. You want to destigmatize the facility as much as possible.”

Therefore, materials and colors within these spaces want to feel familiar to one's region and everyday life. To soothe the psyche and rehabilitate, they want to feel soft and comfortable, yet visually stimulating. An interior that is overly neutral or hard in appearance is not appropriate. Materials should reduce noise, and colors should lift the spirit. This can help to create an environment in which the patient can learn, socialize, and be productive while easing anxieties, delivering dignity, and modifying behavior. As stated previously, behavioral studies advise the use of softer interior materials—like carpeting, wood doors and tile. Doing so translates directly to both patient and staff well-being, particularly staff safety, and makes for a nicer place to work. In addition, staff have more resources to “treat” instead of manage heated situations. When staff experiences are eased and satisfied, morale is boosted and life-saving rules and policies are more likely to be enforced.

**Staff-Focused Amenities & Happiness** - While reducing staff stress and fatigue through a healing supportive environment seems like an obvious goal, there are relatively few studies that have dealt with this issue in any detail. More attention has been given to patient outcomes. However, many leading hospitals who have adopted therapeutic tenants into their newly built environments have seen vast improvement through their “business matrixes” and financial reporting. In one example, the Mayo Clinic, a national leader in implementing healing design in its facilities, has reported a reduction of nursing turnover from a national annual average of 20% to an annual 3%-4%. In another example, when Bronson Methodist Hospital incorporated evidence-based design into its new 343-bed hospital, they cited their 19%-20% nurse turnover rate dramatically dropped to 5%. Now, both the Mayo Clinic and Bronson have had to initiate a waiting list for nursing staff seeking positions. This converts to better trained and qualified staff, and a reduced error rate. Therefore, more health facilities are investing in staff support areas such as lounges, changing rooms, and temporary sleep rooms. Within these staff spaces and in the hospital throughout, facilities are also recognizing the need for upgrade materials, better day lighting, and an interesting use of color: One soon realizes that the need of patients and staff are interwoven, each impacting positively or negatively the other.

**Security & Safety** - Without debate, self harm and harm to staff is one of the biggest concerns mental health facilities manage. Often the biggest safety and security concern is the damage patients can do to themselves. “There are three rules I had drummed in me,” says Mark Hanchar; Director of Preconstruction Services for Gilbane Building Company, Providence, R.I. “First, there can't be any way for people to hang themselves. Second, there can be no way for them to create weapons. Third, you must eliminate things that can be thrown.” Hanchar says that the typical facility is, “a hospital with medium-security prison construction.” This means shatter proof glass, solid surface countertops (laminates can be peeled apart), stainless steel toilets and sinks (porcelain can shatter), push pull door latches and furniture that cannot be pulled apart and used as a weapon. These are just to name a few. Additionally, removing barriers between patients and nursing staff is a safety consideration. Frank Pitts, AIA, FACHA, OAA president of Architecture Plus, says what may be counter-intuitive for safety precautions, “Glass walls around nursing stations just aggravate the patients.” Removing glass or lowering it at nursing stations so patients can feel a more human connection to nurses often calms patients. There is also discussion of removing nursing stations altogether; decentralizing and placing these care needs directly into the clinical neighborhoods and community spaces. Pitt says, “The view is that [nursing staff] need to be out there treating their patients.”

**Therapeutic Design Tenants** – As medicine is increasingly moving towards “evidence-based” medicine, where clinical choices are informed by research, healthcare design is increasingly guided by research linking the physical environment directly to patient and staff outcomes. Research teams from Texas A&M and Georgia Tech sifted through thousands of scientific articles and identified more than 600 – most from top peer-reviewed journals – to quantify how hospital design can play a direct role in clinical outcomes. The research teams uncovered a large body of evidence that demonstrates design features such as increased day-lighting, access to nature, reduced noise and increased patient control helped reduce stress, improve sleep, and increase staff effectiveness – all of which promote healing rates and save facilities cost. Therefore, improving physical settings can be a critical tool in making hospitals more safe, more healing, and better places to work. Today's therapeutic spaces have been defined to excel in 3 categories :

- 1. Provide clinical excellence in the treatment of the body**
- 2. Meet the psycho-social needs of patients, families, and staff**
- 3. Produce measurable positive patient outcomes and staff effectiveness**

Considering the cost of treating mental illness, which is exceedingly high, and wanting facilities to have effective outcomes, a further practice of incorporating therapeutic design is increasing. The National Institute of Mental Health (NIMH) approximated in 2008 that serious mental illnesses (SMI), costs the nation \$193 billion annually in lost wages. The indirect costs are impossible to estimate. The estimated direct cost to clinically treat is approximately \$70 billion annually and another \$12 billion spent towards substance abuse disorders. In addition to the increased need of care and the boom in Behavioral Healthcare construction, it becomes an obligation to make certain that we as facility managers, architects, designers and manufacturers therapeutically plan and design these facilities.

Notably, in 2004, "The Role of the Physical Environment in the Hospital for the 21st Century: A Once-in-a-Lifetime Opportunity," published by Roger Ulrich P.H.D., of Texas A&M University, was released. In a culmination of evidence-based research, research teams found five design principles that contributed significantly to achieving therapeutic design goals. The report indicates five key factors that are essential for the psychological well-being of patients, families and staff, including:

- 1. Access to Nature**
- 2. Provide positive distractions**
- 3. Provide social support spaces**
- 4. Give a sense of control**
- 5. Reduce or eliminate environmental stress**

**Access to Nature** - Studies indicate that nature might have the most powerful impact to help patient outcomes and staff effectiveness. Nature can be literal or figurative – natural light, water walls, views to nature, large prints of botanicals and geography, materials that indicate nature and most importantly, stimulating color that evokes nature. Several studies strongly support that access to nature such as day-lighting and appropriate colorations can improve health outcomes such as depression, agitation, sleep, circadian rest-activity rhythms, as well as length of stay in demented patients and persons with seasonal affective disorders (SAD).

Studies such as these continue to affirm the powerful impact of natural elements on patient recovery and stress reduction. Thus, it is clear that interior designs which integrate natural elements can create a more relaxing, therapeutic environment that benefits both patients and staff.

**Positive Distractions** - These are a small set of environmental features that provide the patient and family a positive diversion from "the difficult" and in doing so, also negate an institutional feel. These can be views to nature, water walls, artwork, super imposed graphics, sculpture, music – and ideally all of these want to be focused on nature and, when applicable, an interesting use of color. Therapeutic environments that provide such patient-centered features can empower patients and families, but also increase their confidence in the facility and staff. This helps with open lines of communication between patient and caregiver.

**Social Support Spaces** - These are spaces designed partially for the patient but mainly for the comfort and socialization of family members and friends of the patient; therefore, family lounges, resource libraries, chapels, sleep rooms and consult rooms all play a role. When family and friends play a key role in a patient's healing, these spaces encourage families to play an active role in the rehabilitation process.

**Sense of Control** - In times when patients and family feel out of control, it is very healing for the facility design and staff to provide it back when appropriate. Although, this cannot always be done suitably in mental healthcare facilities. However, when applicable, these design features include optional lighting choices, architectural way-finding, resource libraries, enhanced food menus, private patient rooms and optional areas to reside in. A few well-appointed studies in psychiatric wards and nursing homes have found that optional choices of moveable seating in dining areas enhanced social interaction and improved eating disorders. When patients feel partially in control of their healing program and that the building features are focused to them, an increased confidence of the quality of care enters and tensions lower. As with all therapeutic design, this allows the caregiver to use their resources healing in lieu of "managing" patient populations.

# How Nature and Color Play a Significant Role

Interior elements in rehabilitation settings, particularly those in healthcare, are becoming more expressive. For those with higher needs of security and confinement, we are seeing the introduction of color in surface paint, flooring products, and furniture to help negate the otherwise white volumes. In these harsh institutional spaces of concrete and steel, any additions of color are seen as plusses to help humanize subjects and in staff areas, provide visual interest and a sense of care. Tensions are lowered, morale boosted, and environments made safer. We are also seeing color play a role in managing way-finding needs and “migrateable” furnishing allocations. In simpler terms, color is being used to visually script key areas of designation – such as a floor, wing, or pod – and in doing so, giving a sense of direction plus highlighting when portable furniture has been faultily relocated. Also, studies report that staffs need to feel a more direct sense of care from supervisors, and mounting levels of research studies indicate that one’s surroundings play a key role in these feelings. For years, the corporate sector - and now also healthcare – has recognized the role the environment plays in employee recruitment and retention. This translates to the use of softer materials and a more interesting use of color. It boosts moral and soothes the psyche, making staff feel cared for and safer.

Bottom line, color still plays a light role within Corrections compared to other market sectors. Keeping in mind that a minimum of 16% suffer from a mental illness and/or substance addiction – and will most likely reenter our communities – greater effort should be given to normalize these environments, reduce frustrations, and attempt to change behavior. Color can help to do this with ease. This would allow correctional professionals to focus more on positive human needs and expanded programming. The answer is believed to incorporate design elements that destigmatize, help to socialize and treat with dignity. This cannot be accomplished without the intentional usage of color.

The subject of color currently has more positive hold within facilities whose primary goal is to “treat and release.” Strong uses of color, combined with nature, are being used to dramatically assist healing rates. Such examples are figurative uses of nature in wall graphics and materials, special features on walls and ceilings, bold floor patterns and sculpture - all of which are supported by inspirational uses of color that diminish fears, lift the spirit, and reduce anxieties. As healing interiors come online and outcomes are measured, evidence-based findings are revealing a strong correlation between patient healing and stimulating interiors. In these settings color’s primary job is to normalize and make one feel more comfortable and human - in doing so, reduce stress, counteract aggression, and change behavior. Color wants to familiarize and dispel institutional nuances, and it easily can. It can also help to provide patients with hope, self-empowerment and the certainty that they are in caring hands.

As we contemplate mental institutional design origins, we recall on “white, high gloss ceramic wall tile” and “white concrete masonry wall units”– we built the primitive space. Yet, at the time when medicine was still learning about infection and hygiene, it was of vital importance to characterize spaces as sterile, clean and safe. Today, as quality of care and positive patient outcomes increase and patients’ fears of cleanliness decrease, the human race has recognized that healing environments should be more personable, patient focused and visually interesting. Flash forward. Colors previously considered too intense for healthcare settings, such as gold curries, kiwi greens, crimsons and Caribbean blues are now considered to be therapeutic tools that stimulate and therefore can directly promote healing.

Roger Ulrich, Ph.D., of Texas A&M University is a frontier researcher in the subject of healthcare environments of all types. He describes a beneficial healing interior to be, “stimulating, not overly neutral, with an interesting use of color and positive distractions that focus on nature and color.” Ulrich’s investigations found that patients surrounded by “vibrant” surroundings recovered up to three-quarters of a day faster, were less confrontational and needed fewer painkillers than those who did not. This new knowledge is freeing designers to use color more purposefully to complement architectural design elements and bring nature indoors. Science may not yet explain the extent to which specific colors impact individuals or achieve healing results; however, researchers studying the subject agree that color directs an individual’s attention outwardly and provides a diversion that relieves tension and stress.

# Why These Colors?

Use of color in healthcare surely will continue to evolve. Cutting-edge designers know that in order for color to achieve its full potential, the spectrum must be used intentionally and not overly refrained; but at times, also be soothing and serene. The industry is exploring color in varying contrasts (value levels), color combinations, adjacencies and proportions. The reference to a stimulating environment does not mean a space without visual order, balance, and unity, or a space lacking contrast or neutrality. The solution is, actually, quite the contrary. It is the notion of a space that has visual interest through positive distractions, introductions of nature and intentional usages of color expression.

It is important to note that when using color as a purposeful design tool in mental healthcare facilities, one size does not fit all. The term “Behavioral Healthcare” is very broad and umbrellas 2 primary districts :

- 1. Mild to severe mental disorders**
- 2. Mild to severe substance abuse addictions**

The district of mental disorders includes: Bipolar, obsessive compulsive, depression, and personality disorders. It also includes serious mental illnesses such as schizophrenia, autism, and Alzheimer’s – all which are very different patient types. Substance abuse patients include those with addictions related to alcohol, marijuana, prescription and illicit drugs. And like mental illnesses, these patients can be of any age and living within any region within the US. Therefore, when color is used as a design tool to familiarize, create normalcy and sooth the senses – it must cater to all of these layered variables.

LittleFISH, when focusing on Behavioral Healthcare but not overlooking Corrections, feels there are 3 primary “human” elements that color should address :

- 1. Type of Treatment of Patient Population**
- 2. Space Location within Facility**
- 3. Age of Patient**

**Type of Treatment of Patient Population** – This should always influence palettes chosen for rehabilitation. It is important to understand universal responses when making good color choices. It is believed Crimsons can invigorate and empower, Topaz can soothe and promote honesty, and Sages can simultaneously rejuvenate and promote serenity. It is believed that a patient who is in daily group counsel could benefit from the tranquility of blue, encouraging them to feel safe and be forthcoming with thoughts. While a person who needs to socialize and engage with others may do better in greens that softly revive and promote balance. Likewise, a clinic working with autistic children may choose less intense, potentially distracting colors, while a substance abuse clinic may choose brighter colors to lift and inspire. Therefore, whether it is the actual hue or the “saturation of hue” (highs and lows), a patient’s type of illness and treatment should influence the expression of palette.

**Space Location within Facility** - Also essential to reflect upon is the length of stay in a particular space/ zone. Because there are shorter term stays, waiting rooms, and social support spaces can have more color freedom and visual activity. Walls, floors, ceilings, and upholsteries can all be richly saturated and balanced with neutrals and natural materials. With patients and families spending more extended periods of time in treatment areas, the walls, cabinetry, and ceiling are most suitable in softer tints and tones, while the floor, upholsteries, and an accent wall may receive pops of color. Yet, it is important that these areas do not feel clinical or drab, but instead be inviting of visual interest. In patient rooms and long holding areas, great sensitivity should be given to not over stimulate with color, and utilize soothing tones in these areas and have low contrasts.

**Age of Patient** - As we mature, our eye and psyche respond more positively to very sophisticated color combinations, palettes with a variety of contrast, with high brights eliminated. Our eyes search for varying shifts in value and seek refinement, which can be achieved by added tints, tones, and colors that are tempered with white and grey undertones. However, children with their more energized psyche can easily find comfort in and often search for color with vivid saturation. When applied properly, this can be very helpful when these tiny patients feel out of control and are placed in clinical settings that are administered by adults. However, for children with behavioral issues, these spaces should never be jarring or overly stimulating. The use of vivid color should be used conservatively, or not at all, and always partnered with lighter colors.

Though the healing/human component is case critical when selecting color for a collection that serves the interest of healthcare and corrections, there are more requirements that this color collection must deliver. The following is a list :

- 1. Color Inspired by Nature**
- 2. Timeless Classic Color**
- 3. Color that is Current + Resonates w/ A+D**

**Color Inspired by Nature** - The colors must resonate nature, be found in nature, and universally be located from region to region.

**Timeless Classic Color** - For reasons of manageability, reduced costs, and to diminish product obsolescence – which provide many challenges for the manufacturer, facility, and designer – this collection should have timeless classic color. However, healing collections should resonate nature and nature is always classic and enduring.

**Color that is Current + Resonates w/ A+D** - Even with timeless classic color there are color trends. They may not be as likely to shift from year to year, but they are still present. Today's color trends in healing spaces are shifting and Behavioral Healthcare is right there in the mix. The more we understand that color is a therapeutic tool, the more we are realizing we have had it in only "1st gear" and not given it its full potential. Therefore, the pastel shades of peach, rose, seafoam green, sky blue and lilac are being pushed aside. And it is not just the lightest of these colors, but also that they feel a bit more "cool," exemplifying the cold sterility of institutional environments. Now color is being kicked into a higher gear. Again, patient population plays a big role in the appropriateness of tint, tone, and saturation; but, we are seeing colors be more expressive, weighted in nature and fall "warmer". So, the fleshy beige has turned more travertine. The slate blue more sapphire. The teal green more moss/ sage.

# Conclusion

It is believed that only higher vertebrates see full spectrum color, making it intrinsic to our everyday lives. We have the ability to perceive color's presence in our environments and may respond accordingly, either emotionally or physically. When applied with understanding and with purpose, color can promote people's confidence, serve as a positive distraction, invigorate the psyche, and sooth the spirit. Research studies continue to indicate environments with visual interest and an interesting use of color significantly reduce anxieties and make for more effective spaces. Whether the environment is a correctional facility or treatment center clearly the surrounding architectural landscape plays a key role in end user outcomes.

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