

REHABILITATION OR PUNISHMENT: AN ANALYSIS OF  
THE GOALS, ARCHITECTURE AND EFFECTIVENESS OF  
CONTEMPORARY PRISONS

by

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The first prisons were designed merely to house inmates while their punishments were determined. Later, the imprisonment itself became the punishment. Although early prisons were primarily focused on punishment and deterrence from committing crime, some incarceration policies were developed in an effort to rehabilitate prisoners. Various programs used education, mental examinations and even electroshock therapy to rehabilitate inmates, steering them away from a life of crime. Many of these rehabilitative programs still exist and have been expanded today, but the question remains: are such efforts effective if prison populations are still rising in most countries?

This thesis will approach this outstanding question with a slightly more specific focus. If prisons not only implemented amendatory programs, but were literally built to be rehabilitative - would they be more effective?

Research and personal observation have shown that the built environment can have a significant impact on occupant behavior and psychology. Keeping this in mind, it is interesting to evaluate correctional architecture, asking oneself if these facilities are

designed to punish or to rehabilitate. Critically examining architectural design features can provide a baseline of factors known or believed to influence occupant behavior. Evaluating these features in conjunction with their existence in prisons may allow for the determination of the effects of correctional architecture on inmates' outcomes. This thesis will serve as a preliminary examination of this topic; an attempt to determine the goal of contemporary prisons as places of rehabilitation or punishment, and to provide ideas for improvement.

Correctional architecture has not been widely studied in terms of its effect on occupants; therefore, it is helpful to learn and adapt findings from evaluations of other institutional buildings, most often healthcare, educational and public works projects. Through my research, I have been able to create a generalized list of the architectural features believed to have the greatest impact on occupant well-being. Each of these features will be examined in more depth below.

## **Acknowledgements**

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## **Architectural Features & Effects on Occupants**

There are a multitude of factors which have profound impacts on occupants, each of which is related to the design and construction of correctional facilities. The following sections use a variety of written accounts, experimental and experiential data, and other sources to describe and demonstrate the most pressing architectural features and their consequent effects. By covering each of these categories in more detail, it is easier to grasp the severity of these issues and understand just how large of an impact architecture has on the effectiveness of correctional environments today.

### **Density/Crowding**

Occupancy and crowding are limitations most people experience in daily life. Public rooms are labeled with maximum occupancy signs with values determined based on building or fire codes. These limits are implemented for the safety of those occupying certain spaces. Not only does overcrowding endanger people in terms of fire or building safety, it can also impact human psychology. Oftentimes, crowded spaces such as elevators or subway stations can lead occupants to feel uncomfortable or anxious. When applied on a larger scale it is no surprise that negative effects arise for high density spaces.

Prison systems, including those in the US, are known for overcrowding. When designing correctional facilities, architects and planners denote a certain number of occupants who could adequately fit in the building. Despite this attempted precaution, prisons nationwide frequently surpass the allotted capacity. A census of state and federal correctional facilities conducted by the US Department of Justice in 2005

reported that “the number of prisoners housed in state and federal correctional facilities rose faster than facility capacity expanded. The overall occupancy rate of adult correctional facilities nationwide increased from 2% above capacity in 2000 to 11% above capacity in 2005.”<sup>1</sup> Still today, the US prison system is overcrowded and is currently operating at 103.9% of official prison capacity according to the World Prison Brief.<sup>2</sup>

In an effort to confront this continued problem, many institutions have set standards in an effort to maintain adequate living spaces, particularly for cells. However, most of these guides are merely recommendations with no legality with which to enforce them. For example, the American Correctional Association (ACA) has set a minimum cell size of 80 square feet, but as a private non-profit with no government oversight, there is little they can do to enact such standards. Some facilities choose to gain ACA accreditation, but there is no penalty for being unaccredited, so many prison facilities get by using smaller cells.

In some scenarios it may be challenging to study the effects of crowding on human populations because certain actions are often caused by outside stressors, making it difficult to pinpoint subsequent behaviors on the crowding itself. As a result, many biologists have studied the effects of crowding in animal populations and found that “death rates increase, reproductive cycles are disrupted, sexual perversions...are

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<sup>1</sup> Stephan, James J. “Census of State and Federal Correctional Facilities, 2005.” *Bureau of Justice Statistics*, NCJ 222182, Oct. 2008.

<sup>2</sup> McCarthy, Niall, and Felix Richter. “Infographic: The World's Most Overcrowded Prison Systems.” *Statista Infographics*, 30 Jan. 2018, [www.statista.com/chart/12717/the-worlds-most-overcrowded-prison-systems/#:~:text=According%20to%20the%20World%20Prison,to%20endure%20far%20tougher%20conditions.](http://www.statista.com/chart/12717/the-worlds-most-overcrowded-prison-systems/#:~:text=According%20to%20the%20World%20Prison,to%20endure%20far%20tougher%20conditions.)

common, and the customary social order breaks down.”<sup>3</sup> Although these findings cannot be generalized in their application to human populations, the possibilities are important to consider. As an example, “correctional administrators reported 24,661 allegations of sexual victimization in prisons, jails and other adult correctional facilities in 2015.”<sup>4</sup> This number is striking - is the high amount of sexual abuse in prison facilities due to overcrowding? It is impossible to say with certainty, but based on current findings, it seems plausible that extreme population density in prisons may be a factor contributing to such behavior.

A study in UK prison systems was conducted in 2004 in an effort to determine the effect of prison crowding, or perceived crowding, on male inmates. 79 male prison inmates in medium-high security facilities were evaluated to determine their personal space preferences as well as to collect responses to questions intended to monitor stress, arousal and the perception of events. The results of this study show that crowding can be linked to violence in two distinct ways. First, crowding is directly linked to stress and arousal which can lead to increases in aggressive behavior. Second, this study concluded that crowding has been associated with a negative perception of events - meaning that the inmates who felt crowded tended to interpret events to be violent; additionally, they characterized the event’s participants to be hostile or aggressive individuals. “Research to date has shown that when an individual perceives the actions

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<sup>3</sup> Sommer, Robert. "The Social Psychology of the Cell Environment." *Prison Journal*, vol. 51, no. 1, April 1971, p. 15-32. *HeinOnline*,

<sup>4</sup> Watkins, Tannyr. “Bureau of Justice Statistics - Sexual Victimization Reported by Adult Correctional Authorities, 2012-15 - Press Release.” *Bureau of Justice Statistics (BJS)*, 2018,

of others to be aggressive, the likelihood of an aggressive response increases.”<sup>5</sup> These negative perceptions and subsequent actions are a result of crowding in prison facilities, an occurrence seen far too often in the US.

Not only does occupancy impact inmate-inmate relations, it can also have a dramatic effect on staff-inmate relations. Typically, a lower inmate population allows for more individualized interaction between staff and prisoners. Depending on the staff, these relationships have the potential to be very productive in rehabilitating inmates. One staff member states, “the inmate officer ratio [in the facility I worked] was lower than it would be in a large state prison that held 2,000 or more inmates. This allowed officers to identify both strengths and weaknesses in the inmate’s behavior and their willingness to participate in programs. If the goal is to prepare an inmate for life outside of prison then a much more individualized approach would be effective.”<sup>6</sup> Each inmate is different, while the goal is the same for all - to rehabilitate and achieve successful reentry into society. As this individual pointed out, this goal is best-achieved if the rehabilitation can be tailored specifically to an individual's needs. This type of customization is only possible in low-density prisons.

While it may seem difficult to customize programs and training for each inmate, even small amounts of one-on-one or small group work can lead to positive changes in inmates, followed by positive results in behavior and upon release. After comparing an experience in a crowded facility and one with adequate space, a staff member recounts,

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<sup>5</sup> Lawrence, Claire, and Kathryn Andrews. “The Influence of Perceived Prison Crowding on Male Inmates' Perception of Aggressive Events.” *Aggressive Behavior*, vol. 30, no. 4, 2004, pp. 273–283., doi:10.1002/ab.20024.

<sup>6</sup> John, Victor J. St., et al. “Architecture and Correctional Services: A Facilities Approach to Treatment.” *The Prison Journal*, vol. 99, no. 6, 2019, pp. 748–770., doi:10.1177/0032885519877402.

“when there were less inmates in the trailer during group sessions I noticed more compliance and openness to therapeutic services that were provided. It was quieter. I could observe participants completing their exercises and soliciting assistance from each other and myself. However, when that number doubled it became more challenging of a group to keep under instructional control.”<sup>7</sup> This staff experience demonstrates the importance of adequate space for prisoners to exist and complete rehabilitative programs. With more individualized attention and rooms designated for each program, inmates would likely demonstrate better results in attitude, behavior and ultimately rehabilitation.

### **Flexibility/Personalization**

Over the years, evidence has shown that institutional design is changing. Newer hospitals, clinics and psychiatric facilities often attempt to convey a more residential atmosphere. It makes intuitive sense that in order to provide better care for occupants, they should be in a comfortable environment. Many patients seem rather uncomfortable in settings with bland colors, cold materials and a sterile atmosphere. Despite its negative effects, this dull design scheme is often used in penal architecture. One of the most distinct disadvantages of this approach is the lack of flexibility. More home-like settings are comforting because they allow for ease of movement and a variety of spaces to occupy or customize. Although correctional facilities have plenty of spaces, they are typically dedicated to one specific function. As a result, there is little flexibility for occupants to choose how to occupy each space.

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<sup>7</sup> John, “Architecture and Correctional Services: A Facilities Approach to Treatment.”

While historic prisons placed a greater emphasis on punishment, modern correctional approaches often lean towards rehabilitation instead. Despite the fact that penal facilities claim to have rehabilitation at their forefront, designs often fail to reflect that. It seems that the very designs which are meant to rehabilitate individuals are instead conveying negative perceptions of their occupants. Christine Tartaro, Professor of Criminal Justice at Stockton University explains it like this, “from their bland, nondescript exteriors that draw little attention from a public who view offenders as stigmatized ‘others’ and do not engage with notions of penal reform in any meaningful way, to the cage-like interiors and heavy, vandal-resistant furnishings that communicate to inmates that ‘you are animals’ and ‘you are potential vandals’ respectively, conventional penal aesthetics may simply reinforce criminal and criminalized identities.”<sup>8</sup> Obviously there are safety reasons why such design decisions have been made and implemented, but it is important to pause and consider the consequences of such decisions. The simple freedom to move furniture around for more efficient use is compromised in many prison facilities. It may seem like a minor detail, but as Tartaro addressed, the lack of flexibility communicates to the user that they are not trusted to take a simple action which can be degrading and lead to continued characterization of inmates as ‘animals.’ The simple addition of safe, but movable furnishings in prison settings may benefit inmates by communicating that they can be trusted. Providing individuals with modest freedoms such as this would be a great way to teach and

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<sup>8</sup> Hancock, Philip, and Yvonne Jewkes. “Architectures of Incarceration: The Spatial Pains of Imprisonment.” *Punishment & Society*, vol. 13, no. 5, 2011, pp. 611–629., doi:10.1177/1462474511422171.

practice responsibility in accordance with rehabilitation goals, eventually leading to reentry into the community.

Similar to the idea of flexibility is that of personalization. Different facilities have various rules regarding personal items that inmates are allowed to have. Some are more flexible, allowing individuals to hang photographs, have a stereo, or other such accommodations, but overall, the cell environment maintains strict standards for personalization. It is a natural human tendency to personalize. Personalization is a form of expressing yourself to others through your environment. Think of bedrooms for example: most people choose a certain color they like, hang posters or artwork they enjoy and decorate with meaningful items. Nearly all of this freedom is lost in the prison setting. The cells are intentionally plain and repetitive in nature, which along with regulations on decorations makes it nearly impossible for individuals to personalize their space. A comparison can be made to an office space full of cubicles. These compartmental work spaces are bland and repetitive in nature; however, it is rare to see a cubicle devoid of decoration. Some workplaces have tried to limit the amount of personalization and have noticed lower morale and productivity. Researchers studying environmental psychology found that “creating a place of one’s own in an otherwise public workspace environment should further contribute to individuals’ positive cognitive and affective states, resulting in enhanced mental resources, enabling better coping with the potentially debilitating interferences associated with low privacy.”<sup>9</sup> Correctional facilities have countless stress-inducing factors, meaning that

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<sup>9</sup> Borzykowski, Bryan. “What's so Wrong with Dressing up Your Desk?” *BBC Worklife*, BBC, 2017, [www.bbc.com/worklife/article/20170202-whats-so-wrong-with-dressing-up-your-desk](http://www.bbc.com/worklife/article/20170202-whats-so-wrong-with-dressing-up-your-desk).

the cell is often a place of refuge for inmates trying to detach from such stimulation. Retreating to a place that isn't a reflection of you or your comforts results in less effective coping. Similar studies on workspaces concluded that the personalization of one's desk was beneficial socially as well. The addition of meaningful items to one's space allowed other workers to get to know them and learn each individual's interests.

Despite restrictions, some inmates have successfully adapted to the environment and found inventive ways to personalize their space. An interesting preliminary study was conducted on this topic by Leonard Baer in 2003. This topic arose as he was studying prisons and noticed odd patterns of inmates displaying personal hygiene items in their cells. Various displays of such items were further investigated and Baer found that individuals decorated in such a way to elicit a sense of personal identification or to create a feeling of home. According to one inmate, for those who have longer sentences, this display of available prison items is considered to be "ornament...it shows that you've got your head screwed on...you could stereotype from the way the cell looks."<sup>10</sup> Another encounter described in the publication discussed how an inmate wanted to have the cleanest cell on the block; if he did not achieve this, he feared name-calling or other harassment from fellow inmates. Examples such as this demonstrate how the makeshift decor of one's cell can convey messages about a person which can then be received and understood by others. The other primary reasoning Baer discovered for such decoration was to establish feelings of comfort of home. One prisoner had neatly arranged empty shampoo bottles, cereal boxes and magazines. Regarding this collection, he said "he has

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<sup>10</sup> Baer, Leonard. "Visual Imprints on the Prison Landscape: a Study on the Decorations in Prison Cells." *Department of Geography, Lancaster University, Lancaster LA1 4YB, United Kingdom, 2003.*

to improvise with what is available in order to make his cell feel more like home.”<sup>11</sup>

Other accounts reflect the same idea. “You settle down. Cell’s like your home... a lot of people will try to make the cell clean and tidy, like home. Helps you get by. If you’re bored, you can give the cell a bathing, change things around.”<sup>12</sup> These behaviors demonstrate the need for personalization in some capacity. Even though most inmates do not have the ability to decorate as most people would outside of correctional facilities, they have still found ways to individualize their cell and experience the benefits.

Personal freedoms such as flexibility and personalization are tightly controlled for individuals who enter correctional facilities. Historically, such restrictions have been justified for their benefits of providing a safe and organized environment, however, studies have indicated that such precautions may be causing the perpetuation of negative stigmas and false characterizations. Further research needs to be done in this area to determine if the benefits outweigh the consequences of such negative psychological reinforcements.

## **Privacy**

Privacy is lacking in the vast majority of correctional facilities. There are multiple types of privacy and prisons seem to remove them all to some extent. Perhaps the most obvious lack of privacy comes in the form of the human body. Another is the lack of personal space or privacy for thought or reflection.

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<sup>11</sup> Baer, “Visual Imprints on the Prison Landscape: a Study on the Decorations in Prison Cells.”

<sup>12</sup> Baer, “Visual Imprints on the Prison Landscape: a Study on the Decorations in Prison Cells.”

Inmates are subjected to a lack of privacy from their first moments entering the system. One individual recounts, "Everyone in,' the sergeant screamed. 'Two men to a shower... three men to a shower. Everyone in.'"<sup>13</sup> Following a strip search, prisoners are often required to shower in large groups; other inmates' experiences are likened to being herded as cattle through this process, which typically continues throughout their prison sentence. Other bodily functions such as using the restroom are highly monitored as well. The most private level is perhaps using the toilet in front of only one cellmate. Other institutions have set restroom times during which all prisoners must go, while other prisons take it further still. One prison does not allow individuals to flush their own waste, instead, the individual has to be watched and granted permission to do so by an overseer. Such pervasive oversight in this situation and others contributes largely to feelings of lost dignity and respect among inmates. An individual's sense of autonomy may be lost in other instances such as shared shackles or being assigned to a cell with an unliked or simply unknown individual. As one prisoner explained, despite the degrading nature of physical exposure, a lack of personal privacy outweighs it. He states, "each does his business in front of the other two. But perhaps the worst intimacy is not that of bodies. It is not being able to be alone with yourself. Not being able to remove your face from the prying glance of others."<sup>14</sup>

Personal privacy is important for multiple reasons, one of which being the necessity to process and contemplate in order to be prepared for reentry. Rehabilitative

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<sup>13</sup> Schwartz, Barry. "Deprivation of Privacy as a 'Functional Prerequisite': The Case of the Prison." *The Journal of Criminal Law, Criminology, and Police Science*, vol. 63, no. 2, 1972, p. 229., doi:10.2307/1142300.

<sup>14</sup> Schwartz "Deprivation of Privacy as a 'Functional Prerequisite': The Case of the Prison."

justice is centered around the idea of providing offender's with necessary treatment, including counseling, training, basic education and various other tools which are critical for success upon release. Many of these accommodations are provided through programming in correctional facilities; however, the design of the prison and the degree of privacy it provides may also have an impact on the success of this approach.

Part of the rehabilitative approach is self-reflection or time to think about one's actions, reevaluate and change behaviors in order to work towards successful reentry. What people often fail to consider, however, is that penal architecture rarely provides the proper space in which to perform this evaluation. Barb Toews, a Restorative Justice Program Manager, writes that "research on privacy in correctional facilities suggests that it serves three overarching purposes - coping with incarceration, reflection, and recovering a sense of self - each of which may facilitate the goals of restorative space."<sup>15</sup> Some are able to successfully reflect and improve while in close proximity to others, though it is certainly not ideal for all. Those who are not able to reflect in a non-private environment may either fail to rehabilitate or find alternative means to get privacy. Toews describes that some find this privacy in solitary confinement, "a goal achieved through voluntary request or an intentional infraction."<sup>16</sup> Without the presence of a safe, private space, individuals must ask or intentionally misbehave, subjecting themselves to extreme conditions in order to obtain privacy - this should be concerning to architects and others involved in corrections. Solitary confinement and its effects are

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<sup>15</sup> Toews, Barb. "This Backyard Is My Serenity Place: Learning from Incarcerated Women about the Architecture and Design of Restorative Justice." *Restorative Justice*, vol. 4, no. 2, 2016, pp. 214-236., doi:10.1080/20504721.2016.1197528.

<sup>16</sup> Toews, "This Backyard Is My Serenity Place: Learning from Incarcerated Women about the Architecture and Design of Restorative Justice."

discussed at greater length in a later section, but if this isolation is preferred to the rest of the prison, a problem is apparent. Understandably, it is difficult to provide large amounts of privacy due to the surveillance and security required in correctional facilities. Therefore the key is to create opportunities for some private moments. These small doses of privacy, whether they occur truly alone, with a cellmate, or in small groups, may be extremely beneficial in providing an opportunity to reflect and improve.

### **Layout**

The plan, layout or typology of a building refers to its overall shape. This simplified form is often what appears from an aerial view. There are a variety of layouts used in correctional facility design, but most can be broken into three groups: telephone pole, campus or mixed. Below are images demonstrating these primary layouts.



Figure 1 Telephone Pole (Correctional facility Nieuwegein)



Figure 2 Campus Style (Powder River Correctional Facility)



Figure 3 Mixed (Oregon State Correctional Institution)

The primary objective of the telephone pole layout is increased security and restricted movement. One main corridor passes through the center of the facility, this design minimizes the paths that inmates can take, making it easier for staff to monitor and control the movement of individuals. The wings that branch off from this primary corridor are typically the housing blocks. This organization is intended to break the cell blocks into a manageable size for improved observation. In reality, improved oversight is not always the case. Many prisons recount that the cell blocks get so long that it is difficult for security officers to see all individuals at once. In some cases, “the design actually amplified problems for prison administrators. An example is that telephone pole prisons may cause difficulty in controlling riots, particularly when such prisons were built to house large numbers of inmates.”<sup>17</sup> In the past, these wings were also used to racially segregate and easily identify various work teams. Although these facilities do not divide by race anymore, the telephone pole system is still used to separate. “Prisons constructed according to this design are...frequently used to house inmates according to classification levels. Different areas can be designated for those who are under special protection or for those who, as a group, have more privileges than other prisoners.”<sup>18</sup> Due to their restrictive nature the telephone pole layout is often used for maximum security facilities.

Campus style correctional facilities originated in France and were intended to house women and juveniles. These prisons usually have a multitude of smaller

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<sup>17</sup> Morris, Robert G., and John L. Worrall. “Prison Architecture and Inmate Misconduct.” *Crime & Delinquency*, vol. 60, no. 7, 2010, pp. 1083–1109., doi:10.1177/0011128710386204.

<sup>18</sup> Davies, Kim. *Encyclopedia of Prisons & Correctional Facilities*. Edited by Mary Bosworth, Sage Publications, 2005.

individual buildings for housing and other structures that are organized around a central open space. The small buildings are often referred to as pods and are intended to allow direct supervision over a small group of inmates. The driving idea behind the campus layout is humane design. After visiting some campus style prisons throughout the U.S., one researcher observed the benefits of this design saying, “their building style can serve a variety of functions more cost effectively, while prisoners and staff members have the opportunity to be outside, enjoy fresh air, and experience the changing seasons.”<sup>19</sup> Some facilities even have open campuses, allowing inmates more freedom with the ability to move independently, further improving conditions. Others maintain a stricter campus often with double fencing to deter attempted escape. In either scenario, as previously mentioned, campus layouts are often more cost efficient. Comparatively, they are “much less expensive to build than facilities relying on high walls and guard towers, which are design features found in many telephone pole prison facilities.”<sup>20</sup> Overall, the campus layout is one of the newer designs and is becoming increasingly popular because of its focus on humane treatment.

There are more prison typologies, but they are becoming increasingly rare as many are being phased out, often for being deemed inhumane. One such example is the panopticon prison, an idea stemming from English philosopher Jeremy Bentham in the 18th century. The word ‘panopticon’ is derived from the Greek word meaning ‘all seeing.’ This encompasses the intentions of the design. This typology consists of a ring of cells all facing inwards with a watch tower in the center. The design focused on

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<sup>19</sup> Davies, *Encyclopedia of Prisons & Correctional Facilities*

<sup>20</sup> Morris, “Prison Architecture and Inmate Misconduct.”

efficiency with the idea being that a single guard could watch all inmates. Although it is not possible for one guard to simultaneously view all degrees of the surrounding circle, the inmates had no way of knowing where the guard was looking at a given moment, essentially taking advantage of the psychological notion that people will behave better if they think they are being watched.

One of the most notable implementations of this typology was the Stateville Correctional Center's F-House located in Illinois. The John Howard Organization, focused on criminal justice reform described the facility as follows. "Living and working conditions in this ill-conceived structure are unsanitary, inhumane and degrading for prisoners and staff alike." The organization continues to state that the Panopticon design is a model that was "deemed harsh, chaotic and ineffective." They finish by pointing out that "the Panopticon design creates a physical environment that is damaging to the physical and mental health of prisoners and operationally dangerous for correctional staff."<sup>21</sup> Closed in 2016, this was the last remaining panopticon prison in the United States, however, remnants of this design and its ideology persist in many of today's correctional facilities.

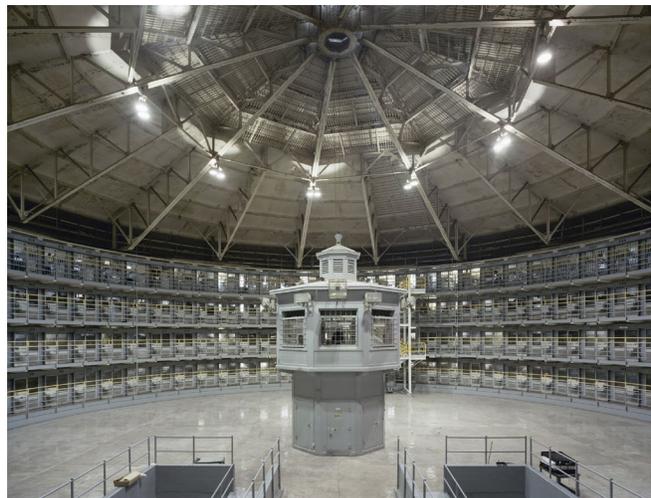


Figure 4 Stateville Correctional Center F-House

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<sup>21</sup> "The Panopticon: The Controversy Over an 18th Century Prison Concept That's Still in Use Today." *Correctional Officer Education*, 8 Oct. 2019, [www.correctionalofficeredu.org/2018/06/the-panopticon-the-controversy-over-an-18th-century-prison-concept-thats-still-in-use-today/](http://www.correctionalofficeredu.org/2018/06/the-panopticon-the-controversy-over-an-18th-century-prison-concept-thats-still-in-use-today/).

## **Location**

The location at which an offender resides is determined based on a number of factors. Location primarily includes factors of security rating associated with the individual's crime, location of release, residence, and facility availability. Though the inmate has little-to-no control over their placement, it can have a large effect on their incarceration, both intentionally and unintentionally. Some location assignment processes specifically choose locations depending on victim's requests, certain rehabilitation programs or safety measures.

One of the first publications to analyze the effects of prison location does so by comparing the effects of location to theories of criminal punishment. Author Steven Koh addresses four core considerations that make up the framework for criminal sentencing. These four considerations are deterrence, retribution, incapacitation and rehabilitation. Additionally, Koh discusses an emerging theory in criminal punishment, victim-related rationales and their effect on sentence location.

The first of the considerations, deterrence, can be evaluated with two approaches. One approach indicates that a facility should be chosen in a location that deters the convicted individual from repeating the same or similar crimes in the future. The other objective is to sentence the individual in a location that will deter the public or a specific intended audience from committing a similar crime. Oftentimes, individuals who commit a crime, are convicted, and are sentenced close to their conviction location, therefore leaving them near their residence. In this scenario, both individual and general deterrence may be achieved. Koh writes "if a convicted individual were placed in a location...where he or she resides, the continuing shame and

embarrassment of serving a sentence close to home may have a more powerful deterrent effect than serving the sentence in a prison in a remote location.”<sup>22</sup> In terms of general deterrence “the effect of having a known member of the community incarcerated for having committed a certain crime may deter others in that same community from committing that same crime or other offenses in the future.”<sup>23</sup>

Despite the demonstrated effectiveness of residing within one's community, the limited amount of research studies performed on this subject suggest that the opposite may be true. Reviewing crime rates from 1980-1995, one study conducted by Kelly Bedard and Eric Helland focused on incarcerated women and the effects of their sentencing location.<sup>24</sup> Countless studies have demonstrated that individuals incarcerated farther from their residences are less likely to receive visits or phone calls. Bedard and Helland’s study reports “that 60% of mothers in prison are incarcerated more than 100 miles from their children, making visitation financially prohibitive,” according to the National Council on Crime and Delinquency.<sup>25</sup> The authors argue that “reduced access to the outside world is the one form of punishment that varies systematically across individuals within institutions.”<sup>26</sup> Although this study focuses on incarcerated women and their children, this alienation is repeated elsewhere with any individual located far from friends or family. Another study noted that facility location had a significant impact on inmate behavior. One researcher recounted that an inmate “was placed on

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<sup>22</sup> Koh, Steven Arrigg. “Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment.” *Vanderbilt Journal of Transnational Law*, 1 Nov. 2013.

<sup>23</sup> Koh, “Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment.”

<sup>24</sup> Bedard, Kelly, and Eric Helland. “The Location of Women's Prisons and the Deterrence Effect of ‘Harder’ Time.” *International Review of Law and Economics*, vol. 24, no. 2, June 2004, pp. 147–167.

<sup>25</sup> Bedard, “The Location of Women's Prisons and the Deterrence Effect of ‘Harder’ Time.”

<sup>26</sup> Bedard, “The Location of Women's Prisons and the Deterrence Effect of ‘Harder’ Time.”

suicide watch after swallowing a bar of soap. When we spoke about the root of the behavior, it was because parental visitations kept getting rescheduled and canceled. A follow up was conducted with the parent, to find out that the location of the facility made it difficult for her to travel there.”<sup>27</sup> In such situations the reduced visitation is inherently punitive, thus providing a form of individual deterrent. A farther location results in less outside contact which subsequently encourages the individual to stop criminal activity in favor of returning to familial proximity.

The second rationale described in the framework of criminal sentencing is retribution. Retribution is similar in its effects to deterrence. In accordance with the findings on incarcerated women discussed previously, Koh notes that “prison location amplifies the retribution of a criminal sentence...it does so for the same reasons that it affects the deterrent nature of a criminal sentence: the shame of being in the local community or the difficulties of being removed from it may contribute to the punitiveness of the sentence.”<sup>28</sup> The location in which an individual is sentenced may change their access to certain resources or connections which, if restricted, can be considered punitive in nature. Additionally, the physical conditions of each facility will vary between location, thus the characteristics associated with the assigned prison may “in turn affect the retributive nature of the sentence.”<sup>29</sup> In essence, conditions, whether intentional or unintentional that impact the inmate, may fall under the guise of retribution, a punishment fit for the individual's wrongful actions.

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<sup>27</sup> John, “Architecture and Correctional Services: A Facilities Approach to Treatment.”

<sup>28</sup> Koh, “Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment.”

<sup>29</sup> Koh, “Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment.”

The third rationale discussed by Koh is incapacitation. Perhaps the most primary function of correctional facilities is to separate offenders from society. Although it may seem as though any prison would accomplish this task, the location and physical characteristics of a prison can have a large impact on incapacitation. The majority of correctional facilities in the US are broken down into three levels of security, maximum, medium and minimum. Individuals may be assigned to these levels according to their crime or the threat they pose to themselves or others. Even within these divisions, various correctional facilities may have different security systems, procedures, layouts and other factors that could influence an inmate's experience. A study observed that when comparing experiences at a rural facility versus that of an urban one “contraband was far more prevalent in urban facilities.”<sup>30</sup> While this may not apply to all urban facilities, the observation is worth considering when thinking about the effect that location may have on an individual’s sentence. As Koh concludes “the physical space where a person is incarcerated - including its security vulnerabilities - dictates the effective removal of the offender from society.”<sup>31</sup>

The final core consideration discussed in Koh’s writing is rehabilitation, which Koh states is centered on the “notion that a convict is a person of free will, capable of changing and positively contributing to society.”<sup>32</sup> One of the largest indicators of successful rehabilitation comes from the programs and people available at a facility. While rehabilitation programs are not inextricably tied to location, factors such as the

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<sup>30</sup> John, “Architecture and Correctional Services: A Facilities Approach to Treatment.”

<sup>31</sup> Koh, “Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment.”

<sup>32</sup> Koh, “Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment.”

available space to house such programs or exposure to nature can be impacted by facility location. For example, prisons located in rural settings separated from other people may present an opportunity for outside programming, while urban facilities may not have the space, finances or security available to allow this. Additionally, if an individual is located in a foreign facility, their rehabilitation and/or reentry is less likely to be successful as many programs such as vocational training may not be applicable in terms of language or skill set in the inmate's home country.

Victim-related rationales are not one of the core considerations, however, they are part of an increasingly popular theory, restorative justice. One of the important elements of this approach is a connection between the offender and victim, often conducted to communicate reasoning, damage and to evaluate how to move forward. For a victim, the sentencing location may be a very important aspect of their own recovery and sense of security. For those who wish to embrace the restorative justice approach it is important that the victim "be within a manageable distance of the place of incarceration."<sup>33</sup> This proximity allows the victim and offender to communicate in person. Victims may revert to opposite feelings as well, "preferring a farther distance from the convict."<sup>34</sup> Regardless of the victim's reasoning for wanting either increased connection or increased distance, the facility location may have an impact on the convicted inmate as well as the victim of the crime.

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<sup>33</sup> Koh, "Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment."

<sup>34</sup> Koh, "Geography and Justice: Why Prison Location Matters in U.S. and International Theories of Criminal Punishment."

## Connection to Nature

One of the features that has the greatest impact on occupants is connection to nature. Architecturally, this may be expressed through the use of curved forms, windows, or outdoor spaces. Even if the architecture does not exhibit any relation to nature, simply looking at images of natural scenery can have positive psychological and behavioral effects. Many of today's prison designs fail to consider this element. Straight edges are used with harshly controlled access to outdoor areas and little time is spent in locations with nature views. This lack of a nature-influenced environment is one of the biggest architectural problems facing correctional facilities today.

Not only does nature impact occupants psychologically, but it can also have effects on physical health. Recently, researchers began examining the possible benefits of biophilic design. Biophilic design is characterized by an effort to increase occupant's connectivity to nature, thus improving health and safety of the building's occupants. The authors suggest that "environments that are devoid of any representation of nature can not only make us psychologically unwell and regressive in our behavior but also make us display physical symptoms and responses."<sup>35</sup> Further, they add that a study examining human responses to design stimuli "concluded that the primal fight or flight response is increased when individuals are exposed to hard-edged architecture rather than curving contours."<sup>36</sup> Correctional facilities are almost always focused on functionality and efficiency in their design. Although such focuses make sense given the program, some alterations could be made to improve occupant well-being without

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<sup>35</sup> Söderlund, Jana, and Peter Newman. "Improving Mental Health in Prisons Through Biophilic Design." *The Prison Journal*, vol. 97, no. 6, 2017, pp. 750–772., doi:10.1177/0032885517734516.

<sup>36</sup> Söderlund, "Improving Mental Health in Prisons Through Biophilic Design."

affecting security or other prison necessities. While an entirely curved and natural building is highly unlikely, the simple addition of natural details, images of nature or curved furniture could influence behavior in a positive way. With biophilic design “there is an opportunity and potential to improve mental health and well-being for prison residents, which can lead to a reduction in recidivism.”<sup>37</sup> Since the goal of prisons is ultimately to protect and benefit society first by removing a potential threat and later by successfully introducing individuals, it is important to consider small changes which can increase the likelihood of this. By integrating biophilic design, a sense of humanity stemming from correctional architecture can be instilled in occupants, granting them psychological and physical improvements which will benefit society in the future as well.

Ample research has demonstrated that simply viewing nature, either in reality or through images or videos, can have a profound impact on an individual’s psyche. This phenomenon is true across a variety of architectural forms and building types. A study conducted among students in college dormitories sought to evaluate and analyze this idea. In the study, some dorms had views of natural scenery while others only had views of the built environment. Researchers found that “undergraduates with more nature in their dormitory view scored significantly higher on the Necker Cube Pattern Control measure and the Symbol Digit Modalities Test.”<sup>38</sup> The tests performed in this study are simple cognitive tests used to evaluate mental capacity and the ability to focus attention on a certain task. In addition to higher scores, results showed that “those with

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<sup>37</sup> Söderlund, “Improving Mental Health in Prisons Through Biophilic Design.”

<sup>38</sup> Kaplan, Stephan. “The Restorative Benefits of Nature: Toward an Integrative Framework.” *Journal of Environmental Psychology*, vol. 15, 1995, pp. 169–182.

more natural views also tended to rate themselves as functioning more effectively in daily life activities requiring directed attention than those with more built views.”<sup>39</sup> This finding demonstrates that nature can impact cognitive behavior as well as the individual’s functioning and attitude.

For situations in which direct connection to nature is not possible, it is much better to substitute indirect connection with nature rather than none at all. In the prison system, those with the least natural contact are usually those in solitary confinement. For any individual, especially those with limited stimulation, a connection to nature can be an important feature. Frederick Law Olmsted, known to be the father of American landscape architecture, noted the importance of natural scenery in restoration saying “it employs the mind without fatigue and yet exercises it; tranquilizes it and yet enlivens it; and thus, through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration to the whole system.”<sup>40</sup> This form of simple engagement could critically affect individuals and restore a positive mindset in less than ideal conditions.

Others have continued to ponder this concept and study it, including Dr Nalini Nadkarni, who wondered if connection to the natural world would impact mental health and reduce violence for prisoners in isolation units. She conducted a study at Snake River Correctional Institution located in Oregon. Prisoners in solitary confinement in this facility spend 23 hours per day in cells that have no views of the outdoors. Even the hour spent outside the cell is in a concrete exercise room. Nadkarni allowed half of the subject group to watch nature videos of their choosing projected on the walls of the

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<sup>39</sup> Kaplan, Stephan. “The Restorative Benefits of Nature: Toward an Integrative Framework.”

<sup>40</sup> Kaplan, “The Restorative Benefits of Nature: Toward an Integrative Framework.”

exercise room during their scheduled time there. “The videos projected in what inmates called the ‘blue room’ included imagery of forests, beaches, and earth viewed from space.”<sup>41</sup> The remainder of the prisoners studied continued on with their typical exercise room visits, with no exposure to nature videos. The findings of the study reported that “43 percent of the inmates who were allowed to watch the nature videos said the videos soothed them,” one prisoner expressing “when I first went into the blue room, I was like ‘wow, how beautiful this world is.’”<sup>42</sup> In addition to the prisoner’s self-evaluations, “prison staffers said the inmates appeared calmer after watching the videos. Two said they thought the videos had reduced self-inflicted injuries among the inmates. And 26 percent fewer acts of violence were recorded among the inmates who had watched the videos compared with the other inmates.”<sup>43</sup> As demonstrated through this simple study, mere exposure to natural imagery had a dramatic effect on inmate’s psychological well-being as well as their cooperative behavior. Such findings indicate that a connection with nature in whatever form is possible should be included in correctional environments as this simple change can largely impact the success of the facility and its occupants.

## **Daylight**

There have been many that evaluate the effect of daylight on human perceptions and health. The majority of these studies have focused on specific health conditions, either physiological or psychological, rather than on overall health or the quality of

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<sup>41</sup> Hutson, Matthew. “Can ‘Blue Rooms’ Make Prisons Safer and More Humane?” *NBCNews.com*, NBCUniversal News Group, 7 Sept. 2017,

<sup>42</sup> Hutson, “Can ‘Blue Rooms’ Make Prisons Safer and More Humane?”

<sup>43</sup> Hutson, “Can ‘Blue Rooms’ Make Prisons Safer and More Humane?”

indoor spaces.<sup>44</sup> Despite this lack of research regarding the general effects of daylight on occupants, particularly inmates, the effects can be inferred and concluded based on medical research, limited correctional facility research, as well as personal experience.

Multiple explorations in this area have focused on the psychological impact of daylight on humans. According to the American Psychological Association, “at least half of prisoners have some mental health concerns, about 10 percent to 25 percent of U.S. prisoners suffer from serious mental illnesses.”<sup>45</sup> When compared to the 5 percent average rate for serious mental illness in the general US population, these statistics are astounding – a lack of daylighting in correctional facilities may be contributing factor in this abnormal rate. One study, conducted in a psychiatric ward located in Alberta, recorded admission data for those with depression over the course of two years, tracking entry, length of stay, room assignment etc. Although every room in the facility had a window for natural lighting, there was a division between bright and dim rooms based on direction, sun path and season. When examining the data collected, researchers found that “patients in brightly lit rooms stayed an average of 16.9 days, whereas those in dimly lit rooms stayed 19.5 days...a difference of 2.6 days.”<sup>46</sup> Although 2.6 days may seem insignificant, these findings indicate that exposure to adequate daylight can have large impacts on psychological health, improving mood and decreasing recovery time.

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<sup>44</sup> Aries, Mbc, et al. “Daylight and Health: A Review of the Evidence and Consequences for the Built Environment.” *Lighting Research & Technology*, vol. 47, no. 1, 2013, pp. 6–27., doi:10.1177/1477153513509258.

<sup>45</sup> 2014, October. “Incarceration Nation.” *Monitor on Psychology*, American Psychological Association, Oct. 2014,

<sup>46</sup> Beauchemin, Kathleen M, and Peter Hays. “Sunny Hospital Rooms Expedite Recovery from Severe and Refractory Depressions.” *Journal of Affective Disorders*, vol. 40, no. 1-2, 1996, pp. 49–51., doi:10.1016/0165-0327(96)00040-7.

A similar study was conducted using bright and dim room assignments, but this research focused on pain medications for individuals electing to undergo cervical or lumbar spinal surgery. The brightly lit rooms were recorded as having 46% higher intensity sunlight versus those on the dim side. Researchers concluded that those residing on the bright side with more exposure to high intensity daylight “experienced less perceived stress, marginally less pain, took 22% less analgesic medication per hour and had 21% less pain medication costs.”<sup>47</sup> These studies demonstrate the extent to which daylight can impact human health in terms of perception and physical conditions. Both of these are important considerations when applied to prison populations. An improved perception of health could have overwhelmingly positive effects on the psychological state of inmates with existing conditions as well as overall improved mood and behavior of the general prison population. Additionally, due to the constant exposure to other people in prisons, inmates are often more perceptible to contracting illness and as these studies indicate, exposure to daylight may decrease recovery time and medication costs, which would be beneficial for individuals as well as the health and finances of the prison system overall.

The sun is human’s primary source of vitamin D, which contains important nutrients needed for general health as well as that of bones, teeth and muscles. With this knowledge, a group of 8 researchers decided to explore vitamin D levels among US prison inmates. The study was conducted on 526 Massachusetts prison inmates at minimum, medium and maximum-security facilities. Researchers analyzed data from

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<sup>47</sup> Walch, Jeffrey M et al. “The effect of sunlight on postoperative analgesic medication use: a prospective study of patients undergoing spinal surgery.” *Psychosomatic medicine* vol. 67,1 (2005): 156-63. doi:10.1097/01.psy.0000149258.42508.70

individual health records which included 25-hydroxy vitamin D blood tests (the most accurate way to measure levels of vitamin D in the body). Data concluded that “only 31% of prison inmates in [the] cohort were vitamin D sufficient, while the rest were either vitamin D deficient [mild decrease] (33%), or vitamin D insufficient [greater decrease] (34%).”<sup>48</sup> There are many negative outcomes which can occur due to vitamin D deficiency or insufficiency. For inmates “prolonged vitamin D deficiency could lead to poor health, as strong associations between vitamin D deficiency and increased risk for several diseases such as type 1 and type 2 diabetes, cardiovascular diseases, rheumatoid arthritis, infectious diseases, depression, and cancers of the breast, prostate, color and pancreas, have been reported.”<sup>49</sup> Clearly, there are significant repercussions linked to insufficient daylight and vitamin D. The addition of well-lit spaces or an increased focus on daylight-focused design of correctional facilities could decrease these risks and promote a healthy environment for the building’s occupants.

### **Solitary Confinement/Supermax**

Solitary confinement and supermax are practices of extreme isolation intended as punishment, or to better secure potentially dangerous individuals. Some believe that solitary confinement is a successful tactic because it enables an individual ample time and personal space for self-reflection and improvement, but in reality, the conditions experienced in restrictive housing often worsen the individual’s conditions.

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<sup>48</sup> Nwosu, Benjamin Udoka, et al. “The Vitamin D Status of Prison Inmates.” *PloS One*, Public Library of Science, 5 Mar. 2014, [www.ncbi.nlm.nih.gov/pmc/articles/PMC3944727/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3944727/).

<sup>49</sup> Nwosu, “The Vitamin D Status of Prison Inmates.”

In recent years, knowledge and evidence regarding the harmful effects of solitary confinement and supermax has emerged thanks to many studies. Supermax is arguably the worst of the two practices. It differs from solitary confinement primarily due to the “totality of the isolation, the intended duration of the confinement, the reasons for which it is imposed, and the technological sophistication with which it is achieved.”<sup>50</sup> Most accounts of supermax describe 23 hours a day in a small single person cell, with one hour outside of the cell for exercise in an exercise pen which is often a concrete box or screened enclosure. This disciplinary action can endure for years on end and in some cases it has been reported that the individual had no negative behavior to incite this punishment, rather they were deemed ‘dangerous’ by staff or a community.

Researchers examining these extended stays in supermax found that among different housing types in prison facilities “self-mutilation and suicide are more prevalent in isolated housing, as are deteriorating mental and physical health (beyond self-injury), and other-directed violence, such as stabbings, attacks on staff, property destruction and collective violence.”<sup>51</sup> This startling list of consequences demonstrates the gravity of the situation. Individuals are not meant to be isolated for extended periods of time, and the effects of doing so are clearly damaging for the individual and others around them. In addition to these more apparent challenges, a study of inmates at Pelican Bay reported that individuals in supermax were afflicted with “heightened anxiety (91%), hyper-responsivity to external stimuli (86%), difficulty with

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<sup>50</sup> Haney, Craig. “Mental Health Issues in Long-Term Solitary and ‘Supermax’ Confinement.” *Crime & Delinquency*, 2003, journals-sagepub-com.libproxy.uoregon.edu/doi/abs/10.1177/0011128702239239

<sup>51</sup> Haney, “Mental Health Issues in Long-Term Solitary and ‘Supermax’ Confinement.”

concentration and memory (84%), confused thought processes (84%), wide mood and emotional swings (71%), aggressive fantasies (61%), perceptual distortions (44%), and hallucinations (41%). Moreover, fully 34% of the sample experienced all eight of these symptoms, and more than half (56%) experienced at least five of them.”<sup>52</sup> Furthermore, due to the extensive mental deterioration or adaption to these conditions, there are likely more effects that go unnoticed or unreported due to the individual's inability to report it. The prevalence of these issues is significantly higher than those in the general population, indicating that the experience of solitary confinement plays a major role in the appearance of these conditions. Although there are countless negative features of solitary confinement and supermax, some that are believed to have the greatest impact are the lack of communication and interaction with others, limited or non-existent exposure to daylight/outdoors and the duration of these elements.

Another study, based in North Carolina prisons, sought to examine the effects of restrictive housing after release. Despite all the adverse effects stated for individuals currently in solitary confinement, the associated issues often persist upon release. Research found that “people who had spent any time in restrictive housing during incarceration in the state prison in North Carolina were significantly more likely to die of all causes in the first year after release than those who did not.”<sup>53</sup> The population of formerly incarcerated individuals already experiences a higher mortality rate than the general population, but this study further notes that those who had any exposure to solitary confinement are at an even greater risk of death upon release. It was also noted

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<sup>52</sup> Haney, “Mental Health Issues in Long-Term Solitary and ‘Supermax’ Confinement.”

<sup>53</sup> Lauren Brinkley-Rubinstein, PhD. “Restrictive Housing During Incarceration and Mortality After Release.” *JAMA Network Open*, JAMA Network, 4 Oct. 2019,

that the risk of reincarceration was greater among those who had experienced restrictive housing.

As this research suggests, the harmful effects of solitary confinement are vast and persistent for many individuals. As this topic has gained more attention in the recent past, there has been some progress made to minimize the effects of solitary confinement. Reports indicate that “between 1998 and 2007, 14 of Oregon’s 25 prison suicides took place in the DSU [disciplinary segregation unit] or IMU [Intensive Management Unit]. The strict conditions of the isolation units create hostile environments that aggravate problems.”<sup>54</sup> In an attempt to subdue the rising levels of mental illness in prisons, particularly for those in restrictive housing, the IMU at Oregon State Penitentiary has been turned into a mental health unit. While this is a positive change, it has been met with some criticism. The conversion of the IMU to a psychiatric facility did not begin until 2010, many years after this evidence and more suggested the debilitating and deadly conditions leading to inmate suicides. Upon completion of the project many have noted that “the unit remains structurally the same as when it served as the supermax unit.”<sup>55</sup> While the mental health programming has become more beneficial for inmates, the conversion fails to address the architectural issues present in the space. The new space serves as a reminder of the former IMU unit, perpetuating the lack of outdoor exposure, harsh materials, small enclosed spaces and limited interaction.

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<sup>54</sup> Rodriguez, Sal. ““Total Isolation”: Solitary Confinement in Oregon.” *Solitary Watch*, 11 Sept. 2012, [solitarywatch.org/2012/09/11/total-isolation-solitary-confinement-in-oregon/](http://solitarywatch.org/2012/09/11/total-isolation-solitary-confinement-in-oregon/).

<sup>55</sup> Rodriguez, ““Total Isolation”: Solitary Confinement in Oregon.”

More recently, a number of organizations have begun to take a stand and denounce the existence or frequent use of restrictive housing. Among them are the American Bar Association, Department of Justice and the American Correctional Association. Of particular importance is the recent 2020 revision of the American Institute of Architects (AIA) code of ethics which now states that the AIA “adopted two new rules: Rule 1.403 against the design of spaces intended for execution, and Rule 1.404 against the design of ‘spaces intended for torture, including indefinite or prolonged solitary confinement.’”<sup>56</sup> This revision is significant because it prevents any firm or individual who is a member of the AIA from designing such spaces. While there is much that has to be done to counteract the negative effects of solitary confinement, these organizations’ stand against this tactic demonstrates an awareness of this issue.

### **Sensory Deprivation**

Closely related to solitary confinement and supermax is the issue of sensory deprivation. Sensory deprivation is defined as a deliberate reduction or removal of stimuli from one or more senses. Due to research and human rights restrictions, there are a limited number of studies examining sensory deprivation, but some things can still be deduced from the available information.

The most notable research on this topic was conducted at McGill University in the 1950s. Because research approval was not as strict at this time, the study was able to be conducted. In this study, male graduate students were paid to stay in small isolation

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<sup>56</sup> Malin, Nadav. “AIA Takes a Stand Against Executions, Solitary Confinement.” *BuildingGreen*, BuildingGreen, 11 Jan. 2021, [www.buildinggreen.com/newsbrief/aia-takes-stand-against-executions-solitary-confinement](http://www.buildinggreen.com/newsbrief/aia-takes-stand-against-executions-solitary-confinement).

chambers where their senses were blocked with a variety of techniques including fogged goggles, headphones, white noise and cardboard cuffs and gloves to limit the sense of touch through the subject's arms. Additionally, their contact with others was minimized, only implemented in necessary situations to deliver food or escort individuals to the bathroom. Ironically, the study was intended to be conducted over the course of six weeks, however most participants only lasted a few days and none exceeded a week. Being students, many of the participants planned on using their time in isolation to brainstorm, complete assignments in their head or work, however, "nearly all of them reported that the most striking thing about the experience was that they were unable to think clearly about anything for any length of time and that their thought processes seemed to be affected in other ways."<sup>57</sup> Not only were the students unable to think, but their cognitive abilities were also impaired. This was concluded by a series of tests which were conducted involving arithmetic, word associations and patterns.

Other academic work discussing the same experiment dives further to reveal additional negative effects. A scholarly review written by psychiatric specialist Stuart Grassian discusses a multitude of symptoms including "perceptual distortions and illusions in multiple spheres (most strikingly visual, but also including auditory, proprioceptive, olfactory, and so on), vivid fantasies often accompanied by strikingly vivid hallucinations in multiple spheres (through again, especially visual), derealization experiences, and hyper-reactivity to external stimuli."<sup>58</sup> These potential symptoms were

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<sup>57</sup> Mechanic, Michael. "What Extreme Isolation Does to Your Mind." *Mother Jones*, 18 Oct. 2012.

<sup>58</sup> Grassian, Stuart, and Nancy Friedman. "Effects of Sensory Deprivation in Psychiatric Seclusion and Solitary Confinement." *International Journal of Law and Psychiatry*, vol. 8, 1986, pp. 49–65.

startling for all individuals, but particularly so for those who had preexisting psychiatric conditions. It seems that nearly all individuals were affected by at least some of these symptoms. A small portion were able to handle the situation and may have even enjoyed the enhanced hallucinations, but most were overwhelmed by negative effects and for some, the effects persisted even after the experience. Reports from numerous studies show that some subjects continued to experience delusions for a short period following the experiment, along with anxiety and depression lasting several weeks.<sup>59</sup>

Robert King was first arrested for a robbery he did not commit at the age of 18, while in prison, he was falsely accused of a murder on his prison block which greatly extended his sentence. King was imprisoned in Louisiana and spent 29 of his 32 years there in solitary confinement. His conviction was overturned in 2001 and since his release he has been traveling around the country educating others about the horrors of solitary confinement and sensory deprivation. King describes how his sight is impaired, as well as his ability to gauge distances as a result from being held in a small box with little stimulation. He states “I talk about my 29 years in solitary as if it was the past, but the truth is it never leaves you. In some ways I am still there.”<sup>60</sup> This first hand experience, in conjunction with the studies presented, reveals that there are both immediate and lasting effects of sensory deprivation.

In some instances, the effects transcend the individual and have the potential to harm others. In a prison setting where there may be little protection between

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<sup>59</sup> Grassian, “Effects of Sensory Deprivation in Psychiatric Seclusion and Solitary Confinement.”

<sup>60</sup> King, Robert. “Experience: I Spent 29 Years in Solitary Confinement | Robert King.” *The Guardian*, Guardian News and Media, 27 Aug. 2010, [www.theguardian.com/lifeandstyle/2010/aug/28/29-years-solitary-confinement-robert-king](http://www.theguardian.com/lifeandstyle/2010/aug/28/29-years-solitary-confinement-robert-king).

individuals, these consequences are important to consider. Grassian's research recounts that in a study conducted on psychiatric patients, multiple individuals "developed frightening aggressive fantasies, paranoia and difficulty in reality testing; one of them prematurely terminated the experiment. Two others...forced the premature termination of the experiment by disruptive behavior."<sup>61</sup> A formerly incarcerated individual who experienced solitary confinement for the better part of 7 years echoed this sentiment by sharing that "however mentally tough you may be, years of sensory deprivation, total isolation, lack of mental/physical stimuli, and otherwise enduring the struggle that is a part of it all, takes a tremendous toll. Nearly without fail it instills a bitterness and hatred in you. After a number of years it often becomes difficult to do any other type of time; being around people in typical or normal environments becomes uncomfortable and even unbearable."<sup>62</sup> These comments allude to the challenge that those in solitary confinement face and the lasting effects isolation has on an individual's assimilation back into society. Many individuals adapt to sensory deprivation and consequently have difficulty either transitioning back into the general prison population or into the community upon release. The previous section discussed the increased risk of negative repercussions or death for those who have experienced solitary confinement. This amplification of violent tendencies or hallucinations after spending time in solitary confinement, may be a significant contributor. For the health of the incarcerated individual and the safety of others around them, careful consideration must occur before

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<sup>61</sup> Grassian, "Effects of Sensory Deprivation in Psychiatric Seclusion and Solitary Confinement."

<sup>62</sup> Rodriguez, "'Total Isolation': Solitary Confinement in Oregon."

assigning someone to solitary confinement or depriving them of sensory stimulus as it can have dramatic and persistent effects.

### **Color/Material**

Colors and materials are factors that often go unnoticed by non-designers, but while occupants may not explicitly observe these features, research suggests that they feel the effects of them. As a basic example, wood is often associated with warmth based on the properties of the material as well as its physical appearance. While an occupant may not notice the use of wood in a certain building, it is likely that when comparing their time in a wood-clad environment versus one made of concrete or stone, the occupant would prefer the wooden environment because of the warmth and comfortability it offers. These simple architectural features are felt unconsciously, yet they can have profound effects.

When picturing a prison, most people probably think of concrete floors and walls, small windows covered with bars, cold metal features and orange jumpsuit clad inmates. Although some prisons have adapted and use different colors and materials, this stereotypical visualization is fairly accurate for many correctional facilities today. These “conventional penal aesthetics may simply reinforce criminal and criminalized identities” whether intentional or not, “the fabric of the buildings determines certain types of identity and behavior.”<sup>63</sup> This statement demonstrates the apex of the problem regarding color and material. Along with other interior features of prisons, such as vandal-resistant furniture or small windows, color and material are some of the biggest

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<sup>63</sup> Hancock, “Architectures of Incarceration: The Spatial Pains of Imprisonment.”

influencers of the facility's interior aesthetics, which if poor in appearance, can often lead to negative inmate behaviors. As previously discussed, correctional facilities are often intentionally designed to heavily regulate and disengage the senses. In their writing on correctional architecture, one group of authors considers the incarcerable environment to be an assault on the senses.<sup>64</sup> Simply occupying such a space for any duration of time seems unpleasant. Drab colors and heavy, cold materials all contribute to the sensory deprivation of those living in the space.

There are many studies that have been conducted on color because it is hypothesized that there are innate psychological reactions to different colors; but it is still unclear in many respects why these reactions occur. Typically, people can recall learning at some point that cool colors such as blue tend to relax people while brighter colors such as red can be angering or exciting; however, there are many other colors that have now been explored, revealing various effects. Seeking to discover the relation between color and emotions, one research team investigated using a variety of stimuli in conjunction with emotional response tests. Interestingly, the team found negative emotional responses to a few key colors including black and orange. By examining black versus nonblack uniforms in professional hockey and football teams, they found that “black uniforms...not only were associated with greater degrees of perceived aggression but also led to higher levels of player aggressiveness.<sup>65</sup> In regards to orange, the researchers reported that it “was associated with ‘disturbing/distressed/upset,’

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<sup>64</sup> Hancock, “Architectures of Incarceration: The Spatial Pains of Imprisonment.”

<sup>65</sup> Valdez, Patricia, and Albert Mehrabian. “Effect of Color on Emotions.” *Journal of Experimental Psychology*, 1994, pp. 394–409., doi:10.1037/0096-3445.123.4.394.

implying displeasure and high arousal.”<sup>66</sup> Dark colors such as black or gray are common in prisons as the most popular materials are steel and concrete. This material choice, with the typical lack of lighting, often produces dark spaces which are not only potential threats to prison security, but as this finding suggests may, in some instances, be the cause of inmate aggression. Additionally, many inmate uniforms use colors such as dark navy or orange, both of which have been linked to negative emotional effects. Cladding inmates in certain colors is a known tactic for security reasons, mainly prevention of escape and separation/identification of groups during transport. While these are important considerations to make given the population, it would be interesting to further investigate if uniforms in calming colors may have any positive results in the correctional environment.

Another color which has been at the center of many debates and consequent studies is pink. For many, pink would be the last color associated with correctional architecture because of its classic association with femininity, timidity and sensitivity. In reality, these characteristics are one of the main reasons that the color is being heavily studied in this context. For a long time, researchers have thought that perhaps a color as soft and sweet as pink would have the ability to suppress anger and reduce violence among incarcerated men. While some studies report that the color proved relatively ineffective in terms of these behavioral improvements, further studies and the development of new shades of pink have shown increased success. Swiss psychologist Daniela Spath developed the color named “Cool Down Pink” and conducted a four year study to evaluate its effectiveness in 10 prisons across Switzerland. In these four years,

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<sup>66</sup> Valdez, “Effect of Color on Emotions.”

“prison guards reported less aggressive behavior in prisoners who were placed in pink cells. Spath also found that the inmates seemed to be able to relax more quickly in the pink cells.”<sup>67</sup> Furthermore, Cool Down Pink was found to lower blood pressure, because it has the ability to calm quickly and combat aggression in a low-threshold way, meaning the calmative intervention is unconscious and non-disruptive to the individuals. Conversely, some have argued that the color may have negative effects, namely addressing that the color may be perceived as a humiliation tactic because of its association as a ‘little girl color’. Despite this backlash, the evidence from Spath’s study and others demonstrates that pink may have the ability to improve behavior and inmate rehabilitation.

Prisons have long relied on the same simple material palette because of its strength, durability, hygienics and affordability. Materials such as concrete and steel are quite effective in retaining prisoners while also being sanitary and easy to clean. Although they may look nicer, softer materials such as wood or gypsum board finishes are rare because they are not considered suitable for the intense usage, potential destructive behavior or tight budget of correctional facilities. Very little research has been conducted, specifically examining the effect of material choices on prison occupants. For this reason, some generalizable conclusions can be drawn by evaluating the effects of materials in other institutional settings. Recently, there has been an emphasis in healthcare design on creating more home-like environments intended to better serve and heal patients. The revelations in this industrial architecture may provide

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<sup>67</sup> Irish, Julie. “Can Pink Really Pacify?” *The Conversation*, 22 Oct. 2020, [theconversation.com/can-pink-really-pacify-102696](https://theconversation.com/can-pink-really-pacify-102696).

insights into possible improvements that could be replicated in correctional architecture. Studies conducted comparing materials of a traditional/sterile versus a homey/comfortable hospital setting indicated that “generally, if people perceived the space to be nicer, they will rate the quality of care to be higher as well.”<sup>68</sup> This finding reveals that with equivalent care standards, the materials themselves have the ability to change a patient’s perception and response to the environment. In prison settings, if the materials reflect value and comfort to inmates, their perception of the facility and consequently their behavior, may be more positive. Further investigations of recent healthcare design noted that “there are numerous products on the market that are less institutional and more familiar in appearance, such as flooring products that mimic wood and furnishings that project comfort while remaining easy to clean. Likewise, woven fabrics that might have been problematic in the past due to their propensity to harbor bacteria and dirt are now returning to patient environments thanks to new textile technologies that inhibit bacterial growth.”<sup>69</sup> While correctional facilities will always require restrictions in material choices due to their heightened security needs, these technological developments of materials offer a sense of hope for more comforting prison environments in the future. Even today, some new generation prison designs have begun pushing the boundaries of conventional correctional architecture by resisting the “hyper-rationalism of established prison interiors and [exploring] the value of more open, flexible and indeed even playful, spatial planning and design.”<sup>70</sup>

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<sup>68</sup> Wroblaski, Kylie. “Home Sweet Hospital.” *i+s*, 1 Feb. 2012, [lands.design/articles/39290/home-sweet-hospital](http://www.interiorsandspace.com/design/articles/39290/home-sweet-hospital).

<sup>69</sup> Wroblaski, “Home Sweet Hospital.”

<sup>70</sup> Hancock, “Architectures of Incarceration: The Spatial Pains of Imprisonment.”

Particularly in Europe, there has been an increase in new generation prison designs which are produced with softer fixtures and furnishings, psychologically effective color schemes, ample natural light and other design features intended to avoid monotony throughout the building.<sup>71</sup> Such advancements in correctional architecture will continue to be examined in the coming years but have yielded positive results so far and are expected to become more widespread with the rising awareness of negative correctional environments.

### **Noise/Odor/Temperature**

Although noise, odor and temperature may not immediately register as architectural features, the layout, materials and composition of buildings can have profound impacts on these factors. The adverse effects of excessive noise, unpleasant smells and uncomfortable temperatures are far from ideal in any setting, but in correctional facilities, the consequences of these annoyances are often intensified due to the fact that occupants cannot leave the building or take actions to divert their impacts.

The most well-studied of these environmental properties is noise. The hard materials, large open spaces, lack of solid doors or walls and the high density of occupants all contribute to the presence of unwanted sounds in prisons. There are numerous consequences of unwanted noise ranging in severity from annoyance, to sleep disturbance, to concerns such as vertigo or even heart disease with excessive exposure. Some of these health concerns can escalate in a domino fashion, causing further issues to the individual. One study notes that elevated adrenaline levels can produce an

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<sup>71</sup> Hancock, "Architectures of Incarceration: The Spatial Pains of Imprisonment."

increase in aggressive behavior and sleep disturbances leading to fatigue and consequently “[reduced] compliance with rules and tolerance of behavior and noise.”<sup>72</sup> Aside from behavioral and medical impacts, noise can also have an impact on an inmate’s experience in the prison. Ethnographers observing various aspects of correctional environments observed “it can be eerily quiet or really loud depending on where you are and what you are doing in the [facility].’ Upon reflection, it therefore appears that sensory conditions influenced the experience of a facility to make it either more or less compatible with rehabilitative treatment.”<sup>73</sup> For all facilities, this effect is worth noting. If the goal of prisons is to correct and eventually reintroduce individuals into society, factors such as excessive noise may impede this process by limiting an individual's ability to focus or fully rehabilitate. The implementation of noise-reducing materials is often ignored because of budget constraints. But upon further consideration, researchers noted that the benefits of such materials vastly outweigh their cost. “Reducing the amount of noise in correctional facilities will not only contribute to healthier inmates and an increased ability to deal with re-entry to society, but it will also relieve the stress of correctional staff in maintaining a safe and controlled environment.”<sup>74</sup> In conclusion, in addition to health improvements and long term successes for inmates, taking actions to curb noise disturbances can have positive impacts on staff and the overall correctional system.

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<sup>72</sup> “Noise and Its Impact on Inmates in a Correctional Facility.” *Encartele*, 11 Dec. 2020, [www.encartele.net/2017/07/noise-impact-correctional-facility/](http://www.encartele.net/2017/07/noise-impact-correctional-facility/).

<sup>73</sup> John, “Architecture and Correctional Services: A Facilities Approach to Treatment.”

<sup>74</sup> “Noise and Its Impact on Inmates in a Correctional Facility.”

Ethnographers studying prison environments have relied heavily on self-reflection as a source of experiential data, which was then analyzed further to draw conclusions. In their reflections, researchers noticed that temperature was another consistent sensory theme in correctional facilities. One researcher reported that “if it was hot outside, it is hotter in the jails. If it’s cold outside it’s colder inside...when it is raining on the outside, it’s raining on the inside and it leaks a lot when it’s raining.”<sup>75</sup> This exacerbation of such conditions is a concern in terms of health and behavior for prisoners. Further investigation demonstrated that when experiencing uncomfortable temperatures, individuals lacked both “attentiveness and productivity.”<sup>76</sup> Most correctional facilities provide programs designed for inmate interaction and improvement, but these efforts are unsuccessful if inmates fail to participate. Not only does this lack of participation/involvement decrease the speed and likelihood of successful rehabilitation, but it also puts more strain on the staff facilitating such programs. Improved architectural design and mechanical systems are simple features implemented in most other building designs, but seemingly absent in many correctional facilities. A dedication to include better air handling systems in new and existing prisons could produce more effective facilities.

The last sensory feature commonly mentioned in correctional facilities is odor. There are a variety of odors typically present in prisons, many of which are perceived as unpleasant. Little research has been conducted on this factor in particular, but experiential accounts take note of it. In most cases, odors are not described as being a

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<sup>75</sup> John, “Architecture and Correctional Services: A Facilities Approach to Treatment.”

<sup>76</sup> John, “Architecture and Correctional Services: A Facilities Approach to Treatment.”

major bother, yet if many individuals observed this common phenomenon, it is possible that unwanted consequences are occurring subconsciously. One account describes the smells as a “subtle mix of body odor, feet and cafeteria food.”<sup>77</sup> This combination sounds fairly unpleasant and could easily have more impact on some individuals than others. Similar to thermal conditions, the presence of undesirable odors in facilities is likely due to inadequate air circulation systems. Outdated mechanics or an inability to open windows can quickly create an environment populated with stale air and poorly ventilated spaces. Although not yet proven to be a major concern in correctional facilities, odor, in conjunction with other sensory factors such as noise and temperature is certainly worth evaluating to ensure that such elements are not hindering the health, safety or progress of the individuals occupying these facilities.

## **Conclusion**

Research and anecdotal evidence show that many attributes in the built environment impact human occupants. In correctional environments, these effects are often magnified due to the typically harsh conditions and length of stay for those incarcerated. The primary architectural features contributing to correctional environments as places intended for punishment or rehabilitation were discussed to demonstrate the importance of this issue and the significant impact it could have if conditions were improved. If the goal in the corrections system is to rehabilitate and release individuals into society, the architecture of this system should support this goal. The current architectural system of corrections, in many ways, is failing to support this

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<sup>77</sup> John, “Architecture and Correctional Services: A Facilities Approach to Treatment.”

mission. Some architectural changes would clearly take more time and funding to implement, but simple actions such as introducing new colors or furniture that support positive psychological associations are actions that can be introduced immediately. On a small scale, some of these issues are beginning to be examined, but my hope is that this topic will be researched more thoroughly in the future. An expanded understanding of the psychological and physical efforts of design on rehabilitation should be seriously addressed within the correctional system and among the architects who design correctional facilities. The following section demonstrates the efforts to combat harmful architecture and use the built environment in conjunction with staff and organizations to improve the way we rehabilitate inmates.

## **Moving Forward**

In an attempt to counteract the plethora of issues presented above, some organizations and individuals have taken steps to improve correctional architecture. An increased focus on rehabilitation has begun to compete with the longstanding punishment approach implemented across many correctional facilities. Additionally, a wave of New Generation Designs has emerged over the past few decades and gradually more facilities of this nature are being built, demonstrating the progression of these efforts. New generation jails are defined as those which are based on common-sense principles. These facilities seek “to manage human behavior positively, consistently and fairly.”<sup>78</sup> They differ from traditional facilities in their architecture, interior design and their philosophy to establish a more humane environment. Oftentimes, such design philosophy leads to ‘podular’ layouts or designs which create smaller groups of prisoners and are often linked to direct supervision approaches, which increase the interaction between staff and inmates.<sup>79</sup> This emphasis on relationships and just treatment of inmates coincides with rehabilitation approaches aimed to improve prisoner behavior and mindset eventually leading to successful rehabilitation.

### **Architecture for Treatment and Rehabilitation**

Despite its publication dating back to 1966, Norman Johnston’s “Supportive Architecture for Treatment and Research” published by the *Prison Journal*, discusses

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<sup>78</sup> “Philosophy of New Generation Direct Supervision Jails.” *New Generation Jail*, Corrections Center of Northwest Ohio, 9 Nov. 2017, [www.ccnoregionaljail.org/newgenerationjail.htm#:~:text=The%20New%20Generation%20approach%2C%20based,it%20will%20evoke%20that%20behavior.](http://www.ccnoregionaljail.org/newgenerationjail.htm#:~:text=The%20New%20Generation%20approach%2C%20based,it%20will%20evoke%20that%20behavior.)

<sup>79</sup> NIC Jails Division. “Podular, Direct Supervision Jails Information Packet.” *U.S. Department of Justice National Institute of Corrections Jails Division*, Jan. 1993.

nearly all of the implementations recommended to produce effective correctional architecture. Johnston begins by stating that if the purpose of the facility is simply to hold inmates and separate them from the public, any secure building will do, but if the purpose is to successfully treat and rehabilitate inmates, the architecture must act in a way that supports the function and intentions of the mission. Throughout his article he addresses factors such as facility size, institutional aesthetics, inmate protection and living unit arrangements and briefly explains how each of these could contribute to a more successful system.

Perhaps the most important takeaway from this article is the deep-rooted connection between the architecture and the occupants who live within it. Architecture can assist in a variety of prison functions such as directing the flow of people through spaces, limiting or encouraging contact between certain groups, controlling the size of living sections and creating a secure or relaxed atmosphere. Despite these influences, Johnston notes that “the best plans cannot *insure* that prisoners will not escape, that a relaxed atmosphere *will* in fact develop, that inmates *will* visit the therapist or *won't* fall victim to inmate aggressions.”<sup>80</sup> Architecture can, however play a supportive role for those programs which are well run by staff and proper administration. He continues to explain that “‘good’ and ‘bad’ architecture must be seen as relating to how well the physical structure meets the needs of the people inside it, staff and prisoners alike.”<sup>81</sup>

This observation is crucial to the understanding of this topic. Changes to the plethora of

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<sup>80</sup> Johnston, Norman. “Supportive Architecture for Treatment and Research.” *Prison Journal*, vol. 46, Oct. 1966, doi:10.1037/e452852008-078.

<sup>81</sup> Johnston, “Supportive Architecture for Treatment and Research.”

architectural features discussed throughout this thesis will not effectively change correctional facilities unless the intentions of the system change too.

In regard to correctional facility size, the US has not adhered to acceptable practices in many cases. Architects design prisons which are intended to house a specific number of occupants, perhaps with some room to grow. Despite this planned limit, reports have shown that as many as 17 states have surpassed their prison occupant capacity.<sup>82</sup> This is clearly problematic as it strains the system primarily by decreasing the effectiveness of inmate rehabilitation and risking public safety since it is often more difficult to manage large numbers of occupants. Johnston's solution suggests that by implementing "a judicious overall layout, an institution can be designed so that it can never exceed a given size determined at the time of construction."<sup>83</sup> The architecture is a limiting factor which could generally alleviate the overcrowding issue by stringently restricting the number of individuals housed in a facility. Although there is still a risk that officials would pack inmates into a prison regardless of its recommended limit, the designed limitation of occupants, with system compliance, would improve conditions for all parties involved.

There is a fine balance which must be struck when it comes to the institutional aesthetics of correctional facilities. Some people feel prisons should be designed to encourage rehabilitation - this often means avoiding the traditional harsh, severe looking materials such as metal and concrete that are typically used in construction. In

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<sup>82</sup> Wilson, Reid. "Prisons in These 17 States Are over Capacity." *The Washington Post*, WP Company, 23 Apr. 2019, [www.washingtonpost.com/blogs/govbeat/wp/2014/09/20/prisons-in-these-17-states-are-filled-over-capacity/](http://www.washingtonpost.com/blogs/govbeat/wp/2014/09/20/prisons-in-these-17-states-are-filled-over-capacity/).

<sup>83</sup> Johnston, "Supportive Architecture for Treatment and Research."

contrast, many have expressed concern that new prisons are too luxurious. Instead, they would prefer to see inmates held securely in a place less desirable than conditions outside a prison. Although more comfortable facilities may be beneficial for inmate rehabilitation, considerations must be given to public opinion and the cost models used in the penal system. While some people strongly encourage the implementation of costly progressive prisons, others oppose such efforts. The financially conservative nature of the prison system can also hinder the production of nicer facilities, as leaders are not willing to spend money on non-necessities. Obtaining cost benefit analysis data of moderately increased prison cost and lower recidivism vs less expensive structures and more re-incarceration is critical. Until this is done, it is important to strike a middle ground - a facility which fosters inmate improvement without being so comfortable that it encourages people to want to stay in the facility or purposefully commit crimes to benefit from the amenities provided. Most 20th century prisons, and many of today's facilities were created as places of punishment, their design and aesthetics reflect that purpose. As penal philosophy has changed to a more rehabilitative focused approach, the production of such intimidating facilities has declined. To describe the ideal aesthetic, Johnston explains that facilities "shouldn't look like a college campus unless a college is the place for its inmates. Neither should it look like a concentration camp unless we decide such repressive regiment is efficient in changing criminal habits. The general nondescript appearance of most new prisons may be the only compromise."<sup>84</sup> Although these nondescript buildings are not attractive from a design perspective, Johnston is correct in his logic that they are one of the few compromises resting

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<sup>84</sup> Johnston, "Supportive Architecture for Treatment and Research."

between cruel environments and those with too much comfort. Nondescript does not necessarily mean bland either, by varying prison layout, materials and style, it is possible to improve the look of correctional facilities without swaying from the purpose of the building. More important than their overall aesthetic is the idea that the facility and its interior design should match and encourage the function intended for that space. It is Johnston's hope that the prison's design "would emphasize and dramatize the actual differences in their programs. The psychiatric section, the reception center, the minimum-security housing should be quite different in style and materials." He continues by explaining that "the overall character of the facility should be non-penal as befits the experimental, medical and diagnostic and training activities which will be carried out there."<sup>85</sup> Even if a majority of prisons maintain a more secure aesthetic, it would be beneficial to vary this style to differentiate functional areas as suggested here. Particularly in terms of rehabilitation programs, they will be more successful if the environment encourages change. A cold sterile room will likely be unsuccessful as a psychiatric or therapy room because the environment does not foster openness, communication or healing. Similarly, if the architecture of a vocational training center is not similar to its equivalent in the outside world, it will not effectively prepare inmates for reentry, because upon release the individual will have to undergo additional adjustment in order to fit into society.

The next topic discussed in Norman Johnston's writing is protection. It is obvious that the prison needs to be designed and function in such a way that it protects the community from potentially dangerous individuals, but the prison system is also

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<sup>85</sup> Johnston, "Supportive Architecture for Treatment and Research."

responsible for keeping inmates safe within the facility. Fellow inmates are one of the most debilitating factors within correctional environments. In many facilities there are hierarchies and social systems established among prisoners, these structures often perpetuate criminal behavior and danger. “Increasingly, it becomes obvious that as long as such an inmate sub-culture continues to thrive and exert an unwholesome influence on inmates and staff, rehabilitation is unlikely to occur.”<sup>86</sup> This negative influence, in combination with acts of physical aggression among inmates, can be detrimental to occupant safety and rehabilitation. As it is the system’s responsibility to encourage rehabilitation and provide a safe environment, it is critical that this inmate subculture be minimized. Johnston describes how architecture can be of assistance “by providing a physical plan which minimizes opportunities for aggressive acts to be carried out undetected or the presence of exploitative combinations of inmates who can victimize other inmates.”<sup>87</sup> This preventative action, taken during the design phase, takes strain off of staff by regulating communication and supporting safe, supervised interactions. The ability to control occupant movement and relationships on a larger scale is unique to architecture and an integral condition which, if implemented, can be of great assistance to staff in keeping order and safety within a correctional environment.

Regulating the size of supervised living units within correctional facilities has many benefits, including the provision of safety discussed previously. Additionally, establishing smaller groups of inmates can be beneficial in terms of providing a sense of community which allows more freedom of interaction within a supervised environment.

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<sup>86</sup> Johnston, “Supportive Architecture for Treatment and Research.”

<sup>87</sup> Johnston, “Supportive Architecture for Treatment and Research.”

Not only can inmates create connections with each other in this way, but inmate-staff relationships are also improved in a smaller group. Based on Johnston's observations and studies, he found that "in the smaller units, the aims of staff tended to be more important as compared with the undercover inmate influences."<sup>88</sup> The increased oversight from staff allows them to more closely monitor and support the goals and focuses of inmates. With consistent interaction, staff members can become leaders, guiding inmates to rehabilitation, instead of inmates seeking guidance from other inmates. Additionally, "the use of a 20- or 30-man living unit as a nucleus for group therapy seems, at least tentatively, like an effective way to counteract the corrosiveness of much of prison life."<sup>89</sup> The establishment of this smaller family group really encourages interaction as it provides a safer, more understanding environment for rehabilitation, particularly through approaches such as therapy. People are often more comfortable participating in activities with a limited group of people they know, so these small living units are not only beneficial for safety and supervision, but also important for effective rehabilitation.

While some of Johnston's ideas have been implemented in correctional architecture in the 55 years since this article's publication, the concepts are still applicable and need to be integrated at a higher rate if there is to be significant change in the corrections system. Although architecture alone cannot solve the issues of today's correctional facilities, it can have a major impact on the successful functioning of these institutions. It can be used as a tool to foster healthy inmate interactions, assist staff

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<sup>88</sup> Johnston, "Supportive Architecture for Treatment and Research."

<sup>89</sup> Johnston, "Supportive Architecture for Treatment and Research."

with controlling populations and promoting safety, and finally it can ensure that incarcerated individuals are successfully rehabilitated. Working to improve correctional facility architecture, in conjunction with penal philosophy and staff efforts, deserves more exploration and implementation in today's world.

### **New Generation Designs**

Due to their relatively recent appearance and implementation, there have only been preliminary studies conducted on new generation design, however, this research demonstrates promise. The majority of these studies focus on the operations and conditions of the new generation facilities and their internal effects. One group of researchers considered the importance of “not only how new generation designs affect the internal operations of jails, but also what influences they may have on the post-release criminal behavior of jail inmates.”<sup>90</sup> With this societal focus in their research, the study collected and analyzed data pointing to possible reductions in recidivism, correctional cost savings and more effective treatment approaches with new generation design.

Due to the long nature of some inmates' sentences, it can be difficult to conclude with certainty how recidivism has been affected with new architectural designs. Based on their research, this study reports that the new generation housing at a minimum did not increase recidivism. Additionally, “all of the regression coefficients for the number of days that the inmates were housed in a direct supervision unit were in a direction consistent with beneficial effects of the new generation design (i.e., lower probability of

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<sup>90</sup> Applegate, Brandon, et al. “Detention and Desistance from Crime: Evaluating the Influence of a New Generation Jail on Recidivism.” *Journal of Criminal Justice*, vol. 27, no. 6, 1999, pp. 539–548.

rearrest, fewer rearrests, and longer delays until rearrest).”<sup>91</sup> Although these findings are not definitive, it is promising that the findings coincide with these positive statistics. Recidivism is one of the most significant issues in corrections, so any methods or approaches which have the potential to foster successful integration and reduced recidivism should be prioritized and explored further. Lowered probability of rearrest, decreased frequency of reincarceration and more time spent outside of correctional facilities all demonstrate behavioral improvements of inmates. Since this study focused on the effects of new generation design it can be assumed that these architectural changes to facilities were one of the primary factors leading to such behavioral changes.

Another benefit discovered with new generation design has been cost reduction. That is, the combined cost of building and operating the facility has been lowered without jeopardizing public safety. Initial cost estimates often dissuade correction organizations from implementing these new designs. By evaluating a new facility in Florida, for example, the research team noted that “it was estimated that a podular/direct supervision unit would cost \$37 million dollars to construct, while a linear facility [such as the telephone pole typology] for the same number of inmates (600) would cost \$25 million.”<sup>92</sup> These financial estimations can be daunting, and as a traditionally conservative financial group, many people involved in corrections design would prefer to pay less for facilities without taking the time to fully consider long term cost savings or future outcomes. The study continues, saying “despite the initially greater expense of

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<sup>91</sup> Applegate, “Detention and Desistance from Crime Evaluating the Influence of a New Generation Jail on Recidivism.”

<sup>92</sup> Applegate, “Detention and Desistance from Crime Evaluating the Influence of a New Generation Jail on Recidivism.”

the new generation facility, it was estimated that savings in operational costs would allow the new generation facility to recoup the construction cost differential within five and a half years...Others have argued that the construction costs of direct supervision units actually may be less than those of traditional housing due to the use of commercial-grade fixtures instead of vandal-proof furnishings.”<sup>93</sup> The projected savings on operational costs make new generation designs more appealing than most traditional facilities, yet the higher construction costs often obscure these benefits from clients. It is also interesting to consider the savings incurred as a result of the direct supervision/podular approach. As mentioned here, with a higher degree of supervision and interaction between inmates and staff, it is possible to use typical materials and furnishings as opposed to vandal-resistant ones. Traditionally in correctional facilities, all fixtures and materials have to be dense and durable, often steel and concrete. However, with these new designs, materials such as wood, cloth and other such elements are possible since inmates will not be unsupervised in the presence of such fixtures. Not only would this change benefit user experience and a sense of comfort for occupants, but it could reduce the cost of interior design as these common materials and fixtures are widely available in the market.

The final significant conclusion drawn from this study relates to improvements in treatment and approaches. Research has shown that punishment does not tend to reduce offending, therefore, the new generation design’s focus on more rehabilitative approaches may have the desired opposite effect. The researchers state that punishment-

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<sup>93</sup> Applegate, “Detention and Desistance from Crime: Evaluating the Influence of a New Generation Jail on Recidivism.”

driven facilities often fail in their approaches because they do not properly address inmate issues or reshape behavioral characteristics. These behaviors “such as antisocial values, association with criminals, impulsivity, and irrational thinking” in combination with traditional facilities' tendency to “overlook offenders’ criminogenic needs” will persist and hinder inmates’ successful rehabilitation.<sup>94</sup> Architecture clearly has some effect on inmate behavior and psychology and if the architecture of a correctional facility is serving to perpetuate these negative behaviors, it will be extremely difficult, if not impossible to fully rehabilitate individuals for societal reintroduction. To address this, “direct supervision facilities, which provide greater inmate and staff safety and emphasize respect and personal responsibility, appear to have the capacity to integrate effective treatment for inmates...one characteristic of successful interventions is that they place offenders in ‘situations (people and places) where prosocial activities predominate.’”<sup>95</sup> The podular architectural approach has been said to be more effective because of its communal nature and higher similarity to the outside world. In many podular facility designs, inmates have the ability to interact more with each other and staff, sometimes they even have communal living rooms or kitchens which further increase the sense of normalcy and provide practice for future reintegration into society.

The potential to reduce recidivism, save money through decreased operational costs and the relationship-centered approach all point to the significant benefits which result from implementing new generation design. Short-sightedness or a tendency to

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<sup>94</sup> Applegate, “Detention and Desistance from Crime Evaluating the Influence of a New Generation Jail on Recidivism.”

<sup>95</sup> Applegate, “Detention and Desistance from Crime Evaluating the Influence of a New Generation Jail on Recidivism.”

stick with tradition, often halts the building of correctional facilities with these newer architectural designs. Despite this setback, studies such as this one, serve to demonstrate what the future of correctional design may look like and how it may improve the lives of inmates, staff and the community.

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