

**Paradigms of Punishment & Rehabilitation: The Gendered Failures of Carceral
Architecture**

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia | Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

Olivia Bernard

Spring 2025

On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

Advisor

Joshua Earle, Department of Engineering and Society

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Introduction

Walking through the cold, sterile halls of the Albemarle-Charlottesville Regional Jail, I felt an unsettling mix of discomfort, curiosity, and reflection. What began as an effort to better understand the daily experiences of individuals navigating Charlottesville's criminal justice system quickly became an eye-opening confrontation with the stark realities of incarceration. Every heavy, clanking door and fluorescent-lit corridor reinforced a growing realization: jail architecture is not just functional; it is a physical manifestation of societal values, shaping the very experience of those confined within its walls and those outside.

Carceral design is more than a matter of architecture; it reflects collective understandings of justice, punishment, and rehabilitation (Wener, 2012, p. 12). Historically, U.S. prisons and jails have prioritized rigid, punitive frameworks rooted in male-centric models, largely disregarding the specific needs of incarcerated women. The lack of trauma-informed spaces, inadequate access to reproductive healthcare, and unsafe facility layouts not only expose women to heightened risks of violence and surveillance but also contribute to long-term psychological and physical harm (Western, 2021, p. 113). Additionally, intersecting factors such as race, socioeconomic status, and health disparities further compound these issues, disproportionately impacting marginalized incarcerated women. These design failures extend beyond prison walls, destabilizing families, impeding successful reintegration, and perpetuating cycles of incarceration and economic hardship.

While my initial research focuses on jail design, this paper also explores prisons to provide a broader understanding of how carceral environments shape the experiences of incarcerated

women. Though often used interchangeably, jails and prisons serve distinct functions: jails, characterized by high turnover and overcrowding, primarily hold individuals awaiting trial or serving short sentences, often with little access to rehabilitative programs. Prisons, by contrast, house individuals serving longer sentences in more structured environments. Nevertheless, many still fail to provide gender-responsive care and humane conditions. Analyzing both jails and prisons reveal how architectural and systemic failures persist across carceral spaces while highlighting the unique challenges each facility presents for women.

This paper examines how jail and prison design has historically failed to accommodate incarcerated women, how these shortcomings persist today, and how reforming these environments can lead to better outcomes for both incarcerated individuals and society. In doing so, I seek to explore the following question: *How has the design of carceral spaces in the U.S. historically neglected the needs of incarcerated women, and how do these architectural and systemic failures continue to shape their experiences today?*

To answer this question, I will first trace the evolution of carceral design, analyzing how early jail philosophies prioritized containment and discipline over rehabilitation. I will then explore how modern jail designs *continue to* fail women—particularly in areas such as mental health, physical safety, reproductive healthcare, and familial connectivity—and how the intersection of gender with race, class, and health status exacerbates these disparities. Finally, I will discuss alternative carceral models and practical design reforms that emphasize rehabilitation, safety, and dignity.

This paper utilizes two key STS frameworks: the built environment and intersectionality. The built environment framework examines the physical, spatial, and environmental aspects of correctional facilities, including architecture, layout, lighting, acoustics, and access to nature

(Frank et al., 2019). These elements shape the daily experiences of incarcerated women and, when poorly designed, actively contribute to harm and trauma. The intersectionality framework, meanwhile, analyzes how overlapping social identities, such as race, gender identity, and class, interact with the physical environment to produce compounded disadvantages for women (Ocen, 2014).

These frameworks help contextualize the power dynamics and systemic inefficiencies that shape carceral spaces. Leveraging insights from Jane Margolis et al.'s *Stuck in the Shallow End* (2008) and Josef Barla's "Technologies of Antiracism" (2023), I will analyze how innate characteristics intersect with the physical and social architectures of carceral spaces. Margolis et al. examine barriers within educational environments, illustrating how inequities are reinforced through design and resource allocation. Barla highlights how historical biases embedded in medical technologies like the spirometer continue to "haunt" marginalized groups today. These works underscore how systems of exclusion are physically embodied and persist through seemingly objective designs.

By applying these perspectives and tools, I argue that the physical layout of jails is not merely a reflection of social inequities but an active participant in perpetuating them. To address the ongoing and historical marginalization of incarcerated women there must be rethinking of both the philosophy and functionality of these environments.

Ultimately, I argue that addressing the failures of jail design requires more than minor reforms; it demands a fundamental rethinking of how we construct carceral environments. Without intentional, gender-responsive design that acknowledges the specific needs of incarcerated women, these systemic failures will persist, further entrenching cycles of harm.

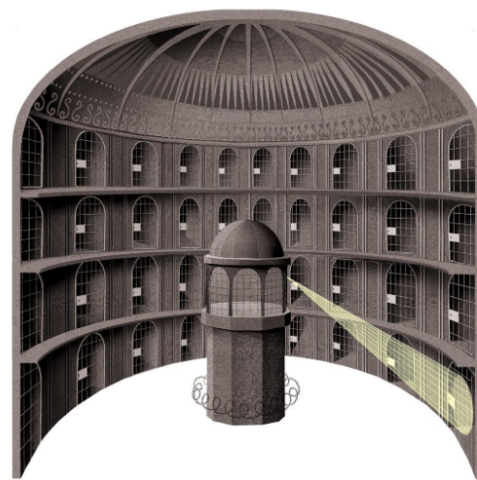
Evaluation of Jail Design and Philosophies in the United States

Early prison and jail design in the United States was strongly influenced by the punitive philosophies of the late 18th and early 19th centuries. These designs emphasized isolation, control, and surveillance, based on the belief that architecture itself could shape behavior and instill moral correction (Engstrom et al., 2022). Facilities like Philadelphia's Walnut Street Jail and New York's Newgate Prison, which opened in 1776 and 1796, respectively, aimed to reform inmates through physical design. Walnut Street Jail, "penitentiary house", introduced solitary confinement cells, which were stark, minimally furnished, and built with thick walls to prevent interaction (Skidmore, 1948-1949, p. 169). Newgate Prison's multi-tiered design stacked cells to maximize capacity while maintaining separation among inmates (Rubin, 2014, p. 143). Both facilities also introduced separating inmates by gender, age, and crime severity to prevent the hypothesized "contagion" of criminality (Rubin, 2014, p. 144). These early designs prioritized discipline and order through rigid spatial orientation, inmate separation, and mandated silence.

Around the same time (1786), Jeremy Bentham proposed a radial design known as the Panopticon, where inmates were always visible from a central observation point (Figure 1). This design embodied constant

surveillance as a form of psychological control. Though rarely implemented in its strictest form, the Panopticon significantly influenced 19th-century carceral architecture (Jonescu et al., 2023).

Figure 1
Jeremy Bentham's Panopticon



Note. Singh, B. (2020). *The Panopticon called Leadership* [Digital Image]. Thrive Global. <https://community.thriveglobal.com/the-panopticon-called-leadership/>.

Foucault later argued that the Panopticon functions as a "machine for dissociating the see/being seen dyad," where individuals, uncertain of when they are being observed, internalize surveillance and self-regulate their behavior (Foucault, 1995, p. 202). This "automatic functioning of power" reduces the need for direct human supervision, as the architecture itself enforces control and compliance (Foucault, 1995, p. 201). Foucault emphasized that the Panoptic principle extends beyond prisons to institutions like schools, hospitals, and workplaces, where spatial arrangements shape conformity to authority (Foucault, 1995, p. 205). Within carceral spaces, narrow corridors, towering walls, and restricted sightlines further reinforce these principles, ensuring compliance through architectural control that limits agency and personal freedom (Foucault, 1995, p. 263).

This philosophy of discipline and control became physically embedded in 19th-century prison architecture, seen in New York's Auburn Prison (est. 1823) and Pennsylvania's Eastern State Penitentiary (est. 1829). While earlier institutions such as the Walnut Street Jail introduced solitary confinement without structured inmate management, Auburn and Eastern State refined spatial discipline through strict regimentation. Auburn's design forced inmates into narrow, stacked cells at night and massive, factory-like workshops under a rigid code of silence by day. This model reinforced the belief that discipline, order, and surveillance could reform behavior, aligning with Foucault's concept of institutional control (Roberts, 1985, p. 107-108). Eastern State's radial, spoke-like design, pushed the Panoptic principle to an extreme by also enforcing complete isolation, suggesting solitude and constant surveillance could reshape morality.

Architect John Haviland's neo-Gothic exterior instilled fear, while arched interior halls and skylights symbolized spiritual reflection. Under the Pennsylvania System, inmates were entirely isolated, with cells and outdoor fenced-in spaces blocking any interaction. Although intended to

encourage reflection and patience, the design led to psychological distress, causing it to fall out of favor by the late 19th century. By 1913, the solitary confinement system was officially ended (Eastern State Penitentiary - Autopsy of Architecture, 2020).

The Auburn System largely replaced the Pennsylvania System as the dominant U.S. prison model due to its economic efficiency from inmate labor, which allowed competition with private companies. This dominance continued until the early 20th century, when new penal philosophies and legal restrictions emerged, including limitations on inmate-produced goods for state use only (Thorsteinson, 2017).

The shift from early 20th-century jail and prison design to modern facilities reflects a transition from structured penal philosophies to mass incarceration. Early designs focused on strict regimentation or solitary confinement but failed to accommodate growing inmate populations and changing economic priorities. The rapid expansion of the incarcerated population, driven largely by policies from the War on Drugs in the 1980s and 1990s, disproportionality affected communities of color and fueled the demand for larger, more cost-efficient jails (Alexander, 2020). In response, linear-intermittent designs, featuring long corridors lined with cells, prioritized cost efficiency over rehabilitation through continued isolation (Tartaro, 2000, p. 48). In the late 20th century, overcrowding and increased violence prompted further design changes, introducing podular direct supervision, where inmates are housed in clusters around common areas with guards present. While cells still face direct supervision, this model is considered a progressive alternative aimed at creating a safer and less stressful environment for both inmates and staff (Morin, 2014, p. 40).

Carceral space design has historically reflected societal philosophies rather than the lived realities of those confined, evolving from the punitive isolation of the Pennsylvania System to

cost-efficient models focused on containment over rehabilitation. These designs have been shaped more by abstract penal theories than by the actual needs of incarcerated individuals, catering primarily to a stereotypical male prisoner. While some reforms have been made over time, they often exclude the perspectives and needs of women—leaving them confined in environments that fail to address their unique challenges—and continue to perpetuate cycles of harm and neglect.

Design Flaws and Their Impact on Women in Correctional Facilities

In the past few decades, the female incarcerated population has surged, rising over 585% from 1980 to 2022, reaching around 180,000 women. Kristen M. Budd roots this surge in the combination of factors which disproportionately affect women, including stricter drug sentencing laws, expanded law enforcement efforts, and increases in post-conviction barriers to reentry (Budd, 2024). Despite rising rates of female incarceration, jail environments remain largely unsuitable for women, often failing to address gender-specific needs.

Mental Health & the Impact of Carceral Environments

Correctional facilities in the U.S. have become de facto mental health institutions, with an estimated 43% of people in state prisons and 44% of those in jails diagnosed with a mental health condition (Wang, 2022). Women in custody experience disproportionately high rates of trauma-related disorders, with 75% meeting criteria for at least one mental health disorder compared to 63% of men. They also face significantly higher rates of PTSD (41.6% vs. 31.2%), anxiety (14.3% vs. 8.1%), and borderline personality disorder (33.8% vs. 29.7%) (Drapalski et al., 2009, p. 195 and 200). Despite this, correctional facilities remain fundamentally incompatible with the needs of individuals experiencing mental illness. Many enter jails with preexisting

psychiatric conditions, while others develop them due to the isolating and punitive conditions of confinement.

Even as many incarcerated women face mental health difficulties and other traumas, carceral environments reinforce distress through invasive searches, overcrowding, and excessive solitary confinement (which all worsen PTSD symptoms). Male-centric carceral designs fail to provide trauma-informed care, leaving women without adequate mental health support in these spaces. Elements of the built environment, such as lighting, access to nature, and acoustics, play a crucial role in shaping mental health outcomes, but these factors are often overlooked, further exacerbating distress, behavioral issues, and recidivism.

The Role of Lighting in Mental Health

Lighting in correctional facilities directly impacts the psychological well-being of incarcerated individuals, especially those with mental illness who are highly vulnerable to environmental stressors. Harsh, artificial lighting and lack of natural daylight disrupt circadian rhythms, worsening depression, anxiety, and psychosis (Wener, 2012). Women are more affected by lighting conditions that contribute to sleep disruption and emotional instability than men (Drapalski et al., 2009). Constant bright overhead lights or total darkness can trigger heightened stress responses, insomnia, and increased risk of self-harm (Dewa et al., 2015).

Facilities that integrate dimmable fixtures, natural daylight access, and outdoor spaces help reduce agitation, stabilize mood, and lower behavioral infractions (Chism, 1988). However, many jails and prisons, especially older facilities, still rely on harsh, unchanging artificial lighting, neglecting its significant psychological impact.

The Absence of Nature and Its Psychological Toll

Access to nature and open-air environments has been widely recognized as a factor in emotional regulation and stress reduction. Studies from healthcare settings indicate that windows overlooking nature reduce stress and improve patient recovery (Ulrich, 1984) and these findings extend to prison environments, where even limited exposure to outdoor spaces correlates with fewer sick calls and better psychological well-being (Moran et al., 2019). Beyond passive exposure, active engagement with nature—gardening, walking, or interacting with outdoor environments—yields significant therapeutic effects, fostering a sense of agency and connection to life beyond incarceration (Jewkes, 2024).

However, most correctional facilities deprive inmates of these crucial restorative experiences, instead confining them to concrete, windowless, and highly sterile spaces. This is especially harmful for incarcerated women, who disproportionately experience mood disorders and PTSD, as lack of access to nature has been linked to higher rates of anxiety, depression, and emotional dysregulation among trauma survivors (Engstrom et al., 2022).

Experimental programs have shown that even indirect exposure, such as playing nature videos for inmates in solitary confinement, can lead to a 26% reduction in disciplinary incidents and decreased self-reported anxiety and aggression (Nadkarni, 2017). Nevertheless, most U.S. jails continue to deprive women of access to natural environments, which could otherwise serve as a low-cost, highly effective intervention to improve mental health outcomes and reduce violence within facilities.

The Psychological Consequences of Excessive Noise

Correctional facilities are notoriously loud, with constant noise from metal doors slamming, fans whirring, and heating/cooling systems. This sensory overload can be particularly harmful

for individuals with pre-existing mental health conditions. David Annarelli, an incarcerated individual in Virginia, describes the daily noise: "Cell doors open and close at least every half-hour, and the mechanical clatter is loud enough that we have to pause any conversation. The whirring of the hurricane fans or the frequency of the heating system drives through me from my ears to my spine" (Prison Journalism Project, 2024).

For women in jails, many of whom have PTSD and heightened sensory sensitivities due to past trauma, constant exposure to unpredictable noise can worsen anxiety, disrupt sleep, and intensify depression and hypervigilance. Studies show women in jails are significantly more likely than men to report severe somatic symptoms, stress-induced pain, and heightened emotional responses to environmental factors (Drapalski et al., 2009). Chronic exposure to noise increases depression risk by 12% and anxiety by 9%. Further, individuals with pre-existing mental illness display greater distress and impaired coping in noise-heavy environments (Hahad et al., 2024).

A major contributor to excessive noise in correctional facilities is the use of hard, durable materials like concrete, brick, and metal, which amplify sound rather than absorb it (Wener, 2012). While these materials are chosen for cost efficiency and durability, they create acoustically harsh environments that intensify psychological strain. Although budget constraints often prevent the use of softer materials, like cork, wood, and fabric, incorporating these materials can reduce noise and improve behavior, resulting in fewer disciplinary infractions (Nadel et al., 2020).

Physical Safety and Protection from Harm

Poor prison layouts, particularly in facilities with an indirect supervision model, allow blind spots where violent acts, including sexual abuse by staff or other inmates, often go unnoticed. A

2004 study that among 539 American corrections officers and prison staff implicated in 508 substantiated cases of sexual abuse, only 36% faced prosecution (Beck et al., 2005). These cases included acts such as observing female prisoners while undressing, conducting inappropriate body searches, and committing acts of sexual assault and rape. It is likely that these cases are underreported as women who attempt to report sexual abuse often face retaliation in the form of limited recreational privileges and reduced visitation with loved ones (Beck et al., 2005). Though horrifying, these statistics emphasize the importance of physical structures and the effects of ignoring the specific needs of women.

Covington and Bloom (2000) highlight how prison models, originally designed for male inmates, fail to address the specific needs of incarcerated women, nearly 80% of whom have experienced physical or sexual abuse, which is more than three times the rate of male inmates (p. 8-9). As a result, many women in correction facilities suffer from trauma-related conditions, with approximately 22% diagnosed with post-traumatic stress disorder (PTSD) and 14% diagnosed with major depression (Veysey, 1997). The emotional toll of incarceration, compounded by separation from family and exposure to isolating and punitive environments, contributes to disproportionately high suicide rates among incarcerated women, which have surged by 65% in recent decades (Kajstura et al., 2024). Standard correctional practices—including searches, restraints, isolation, and type of supervision—often act as “triggers” for retraumatization and intensify stress. Research suggests that incorporating features such as smaller, relationship-orientated housing units, increased access to natural light, and private, secure bathrooms can foster a sense of dignity, reduce anxiety, and promote rehabilitation while protecting women from physical harm and abuse (Maiello et al., 2015).

Reproductive and Healthcare Needs

Correctional facilities fail to provide adequate reproductive and sexual health care, leaving incarcerated women disproportionately vulnerable to health risks. For example, a New York City study found that the rate of early syphilis among jailed women was over 1,000 times higher than the citywide rate (Blank et al., 1999). This heightened risk of contracting STIs is consistent across all justice-involved women often due to high-risk sexual behavior and lack of access to preventative care (Knittel et al., 2017, p. 204). Despite such alarming statistics, essential services like screenings and treatment remain inconsistent or entirely absent. To address this, experts recommend that all incarcerated women receive comprehensive STI screenings upon intake and access to ongoing testing, treatment, and education throughout their incarceration. Additionally, correctional healthcare systems should implement clear protocols to notify and treat individuals who are released before receiving test results, ensuring continuity of care and reducing public health risks (Knittel et al., 2017, p. 201).

Although the U.S. Bureau of Prisons mandates prenatal care in specialized medical facilities, compliance is uneven, particularly in male-dominated facilities, leading to severe disparities in maternal health outcomes (U.S. Government Accountability Office, 2021). Chronic stress, common in incarceration, exacerbates the risk of maternal and infant morbidity and mortality, and is strongly linked to adverse pregnancy outcomes such as premature birth and low birth weight. Yet, rather than attempt to mitigate these dangers, many prisons reinforce harm through restrictive policies. For example, many facilities continue to shackle women during labor, a practice that endangers both the physical and psychological well-being of the mother (Abasguliveva et al., 2024).

Family Separation and Bonds

Incarcerated mothers face profound challenges prompted by forced separation from their children. An estimated 126,000 children in the U.S. had a mother in prison as of 1999, a reality that fractures family structures and contributes to emotional distress (Covington et al., 2000). The absence of a mother figure during crucial developmental years has lasting consequences, increasing childhood instability and perpetuating cycles of trauma and poverty. Despite these stakes, most prison visiting areas remain sterile, unwelcoming, and stressful for both mothers and children. These harsh environments are not inevitable—facilities like Limerick Prison in Ireland have taken a trauma-informed approach, creating spaces with welcoming visiting rooms and child-friendly play areas, demonstrating how women-centric designs can maintain family bonds and facilitate reintegration (Jewkes, 2022).

The failure to design correctional spaces that support incarcerated mothers harms families and entire communities. Female incarceration has grown at twice the rate of men since 1978, with 80% of jailed women being mothers and/or primary caregivers (Kajstura et al., 2024). Research shows maintaining family connections during incarceration is essential for both the well-being of incarcerated individuals and family stability post-release. However, expensive phone calls, limited visitation hours, and distance from home often prevent meaningful contact, weakening maternal bonds and increasing family instability (La Vigne et al., 2005, p. 316). The disruption of these bonds contributes to psychological distress in children, including post-traumatic stress, anxiety, and behavioral issues, leading to educational setbacks and higher delinquency rates (Ferdoos, 2017, p. 48). Without structural reforms prioritizing family connections, the criminal justice system will continue to deepen cycles of disadvantage, inflicting generational harm.

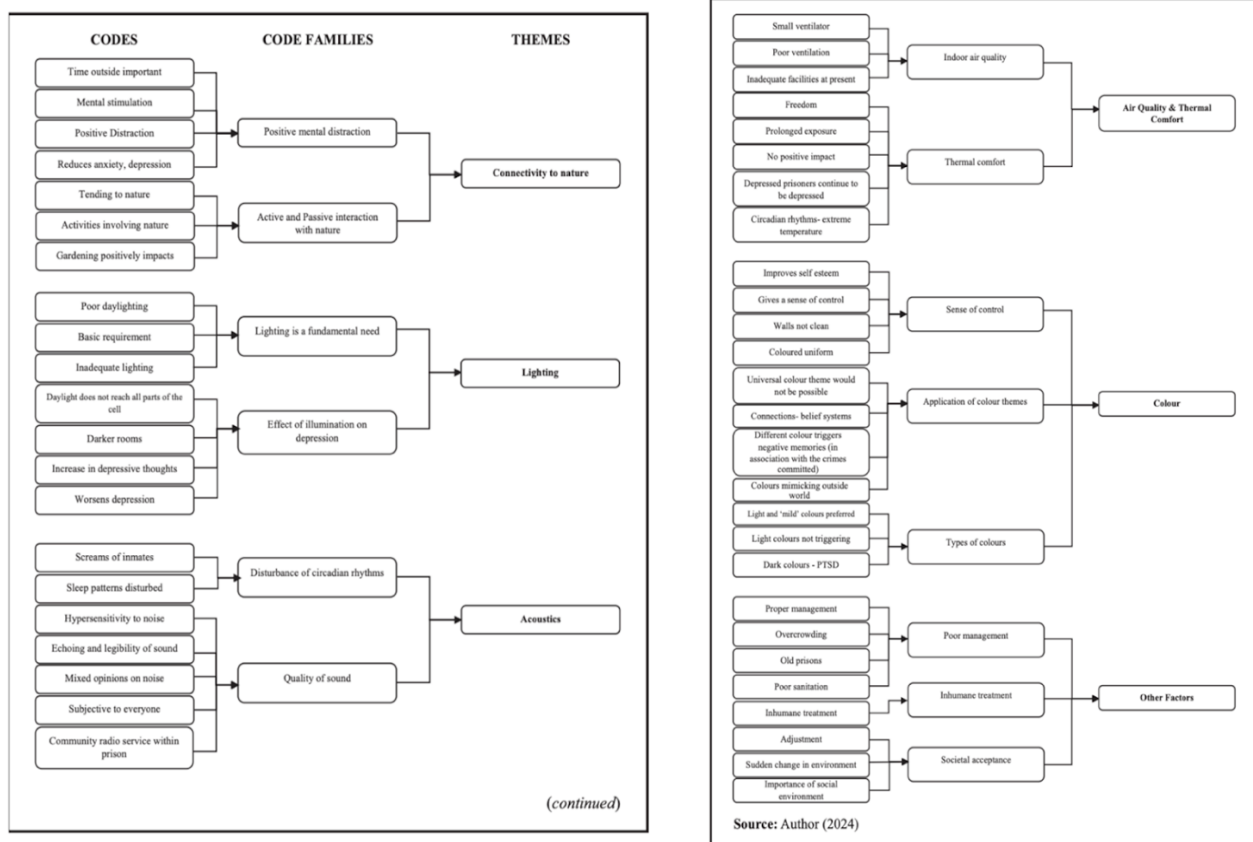
Intersectionality & Systemic Biases

The compounding effects of other intersecting factors amplify the hardships faced by marginalized women in incarceration. As discussed, facilities designed from male-centric perspectives frequently fail to meet the basic needs of incarcerated women, and these shortcomings become even more pronounced for women of color, who face harsher discipline, greater surveillance, and systemic neglect. Black women are incarcerated at rates seven times higher than white women, and are disproportionately confined to overcrowded, under-resourced facilities that exacerbate mental and physical health issues (Freudenberg, 2002, p. 1895). Systematic biases lead to Black women being labeled as aggressive or uncooperative by staff, often resulting in excessive isolation and denial of medical care (Shaylor, 1998, p. 394). This overrepresentation stems from the criminalization of survival strategies, as economic restructuring, welfare cuts, and punitive laws disproportionately push Black women into the justice system, particularly in the wake of the War on Drugs (Sudbury, 2008, p. 345-346). These conditions worsen physical and mental health concerns while isolating Black women from rehabilitation and legal advocacy, reinforcing cycles of criminalization and neglect.

Systemic biases in prison operations extend to transgender women, who face extreme risks to their mental health, physical safety, and reintegration success due to structural neglect and exclusionary design. Like Black women, transgender women are disproportionately criminalized, with incarceration rates ranging from 19% to 65% compared to less than 3% of the general U.S. population, often due to survival-related offenses like sex work, loitering, and public sleeping which significantly impact minorities like trans-individuals (White Hughto et al., 2018). Prison environments designed without the needs of transgender women in mind expose these populations to heightened violence, with 38% experiencing harassment, 9% physical assault, and

7% sexual assault by prison staff (Grant et al., 2011). Further, many transgender women are placed in male facilities, where strict gender-binary housing policies and lack of gender-affirming spaces further endanger them. Additionally, 24% of transgender women are denied hormone therapy, exacerbating gender dysphoria, mental health struggles, and suicide risk (James et al., 2016). The failure to design correctional facilities with safety and inclusivity in mind not only worsens their well-being but also reduces their ability to successfully reintegrate upon release, further perpetuating cycles of incarceration and instability (Haber et al., 2024).

Figure 2
Derivation of themes from code and code families



Note. Gopinathan, B. (2024). *Exploring the relationship between the built environment of prisons and the mental health of inmates* [Coding Diagram]. <https://www.emerald.com/insight/content/doi/10.1108/ijoph-11-2022-0071/full/pdf?title=exploring-the-relationship-between-the-built-environment-of-prisons-and-the-mental-health-of-inmates>.

Rehabilitation & Reform Models

The shortcomings of current carceral design are clear, but breaking these issues into distinct themes helps pinpoint the most impactful solutions. As Figure 2 demonstrates, factors like lighting, noise levels, access to nature, and air quality are not isolated concerns but interconnected elements that shape the experiences of incarcerated women (Gopinathan et al., 2024, p. 364). Addressing these environmental stressors systematically rather than as separate issues enables targeted interventions with cascading benefits across mental health, physical safety, and reintegration success.

International models offer concrete examples of how gender-responsive design can improve outcomes. Finland's Hämeenlinna Prison provides private rooms, natural light, and communal spaces, recognizing the role of privacy and social connection in rehabilitation—elements particularly important for women, many of whom have histories of trauma and abuse (Telama, 2021, p. 13). Similarly, Australia's Boronia Pre-release Center emphasizes normalized environments, with home-style housing, shared kitchens, and gardens to foster independence and life skills. The facility also integrates child-friendly visitation areas, acknowledging that maintaining family bonds is crucial for both incarcerated mothers and their children (Telama, 2021, p. 38; Collica-Cox, 2018, p. 107).

While large-scale redesigns of U.S. correctional facilities may be unrealistic in the short term, strategic interventions can reduce harm by reshaping existing spaces. Rather than mere aesthetic improvements, these practical, research-backed modifications represent a shift toward gender-responsive design that is both humane and economically and socially responsible.

Beyond the Cell

Ultimately, the U.S. prison system fails in its fundamental task: rehabilitation. Instead, it perpetuates cycles of incarceration, disproportionately harming women, particularly those with mental illness and histories of trauma and those with primary caregiving responsibilities. As this paper has demonstrated, carceral spaces exacerbate mental health crises, restrict access to healthcare, and sever family bonds, reinforcing systemic inequities rather than addressing them.

These failures do not stay within prison walls. The incarceration of women fractures families, deepens economic instability, and heightens recidivism. Over half of incarcerated women are rearrested within three years, a direct consequence of correctional environments that fail to provide safety, stability, or resources for successful reintegration (Holtfreter et al., 2004, p. 186). Cloyes et al. (2010) found that 72% of women with serious mental illness return to prison within three years, a stark indicator of the justice system's inability to support rehabilitation. The broader financial burden is staggering, with over \$60 billion spent annually on incarceration. Yet, little of this funding is dedicated to rehabilitative efforts that could break cycles of reoffending (Zoukis, 2014). Taxpayers continue to sustain a system that prioritizes containment over reintegration, failing both incarcerated women and society at large.

While a complete overhaul of carceral spaces may not be immediately feasible, targeted reforms—such as noise reduction, increased natural light, trauma-informed care, and improved mental health resources—offer immediate, achievable steps toward a more humane system. Crucially, integrating the built environment and intersectionality frameworks reveals how systemic neglect is not only a product of architectural design but also the result of social hierarchies embedded within that design. Without these changes, prisons and jails will remain not only sites of confinement but of generational harm, failing both the individuals within them

and the communities beyond. Jail and prison design is not just an architectural issue; it is a question of justice, equity, and public responsibility.

Bibliography

- Abasguliyeve, K., Misenheimer, A., Ram, S., Tromboo, H., & Wan Tsoi, K. (2024). Prison in Pink: The Struggles of Female Incarceration. *OxJournal*. <https://www.oxjournal.org/prison-in-pink-the-struggles-of-female-incarceration/>
- Alexander, M. (2020). *The New Jim Crow: Mass Incarceration in the Age of Colorblindness* (10th Anniversary ed.). The New Press.
- Annarelli, D. (2024, November 21). *Prison Journalism Project*. Prison Journalism Project. <https://prisonjournalismproject.org/author/david-annarelli/>
- Barla, J. (2023). Technologies of antiblackness: Black matter, racial bias, and the haunting past of the spirometer. *Technology in Society*, 73, 102256. <https://doi.org/10.1016/j.techsoc.2023.102256>
- Beck, A. J., & Hughes, T. A. (2005). *Sexual Violence Reported by Correctional Authorities, 2004* (Special Report No. NCJ 210333; Bureau of Justice Statistics, pp. 1–39). U.S. Department of Justice Office of Justice Programs. <https://bjs.ojp.gov/content/pub/pdf/svrca04.pdf>
- Blank, S., Sternberg, M., Neylans, L. L., Rubin, S. R., Weisfuse, I. B., & St Louis, M. E. (1999). Incident syphilis among women with multiple admissions to jail in New York City. *The Journal of Infectious Diseases*, 180(4), 1159–1163. <https://doi.org/10.1086/315038>
- Budd, K. (2024). *Incarcerated Women and Girls*. The Sentencing Project. <https://www.sentencingproject.org/app/uploads/2024/07/Incarcerated-Women-and-Girls-1.pdf>
- Chism, R. W. (1988). Good Lighting Brightens Morale. *Office of Justice Programs*, 50(4), 36, 38, 40. <https://www.ojp.gov/ncjrs/virtual-library/abstracts/good-lighting-brightens-morale>
- Cloyes, K. G., Wong, B., Latimer, S., & Abarca, J. (2010). Women, serious mental illness and recidivism: A gender-based analysis of recidivism risk for women with SMI released from

prison. *Journal of Forensic Nursing*, 6(1), 3–14. <https://doi.org/10.1111/j.1939-3938.2009.01060.x>

COLLICA-COX, K., & FURST, G. (2018). Implementing Successful Jail-Based Programming for Women: A Case Study of Planning Parenting, Prison & Pups – Waiting to ‘Let the Dogs In.’ *Journal of Prison Education and Reentry*, 2(5). <https://files.eric.ed.gov/fulltext/EJ1206440.pdf>

Covington, S., & Bloom, B. (2000, November). *Gendered Justice: Programming for Women in Correctional Settings*. American Society of Criminology, San Francisco, California. <https://centerforgenderandjustice.org/site/assets/files/1542/11.pdf>

Davis, A. Y. (Angela Y. (2003). *Are Prisons Obsolete?* Seven Stories Press.

Dewa, L. H., Kyle, S. D., Hassan, L., Shaw, J., & Senior, J. (2015). Prevalence, associated factors and management of insomnia in prison populations: An integrative review. *Sleep Medicine Reviews*, 24, 13–27. <https://doi.org/10.1016/j.smr.2014.12.002>

Drapalski, A. L., Youman, K., Stuewig, J., & Tangney, J. (2009). Gender differences in jail inmates’ symptoms of mental illness, treatment history and treatment seeking. *Criminal Behaviour and Mental Health*, 19(3), 193–206. <https://doi.org/10.1002/cbm.733>

Eastern State Penitentiary—Autopsy of Architecture. (2020, June 6). Autopsy of Architecture. <https://autopsyofarchitecture.com/eastern-state-penitentiary/>

Engstrom, K. V., & van Ginneken, E. F. J. C. (2022). Ethical Prison Architecture: A Systematic Literature Review of Prison Design Features Related to Wellbeing. *Space and Culture*, 25(3), 479–503. <https://doi.org/10.1177/12063312221104211>

Ferdoos, A., & Hafeez, N. (2017). Imprisoned mothers and Effects of Jail Environment on Socialization of Young Children. *Pakistan Journal of Criminology*, 9(1), 45–60.

<https://www.pjcriminology.com/wp-content/uploads/2017/12/PJCVol9No12017Final.pdf#page=55>

- Foucault, M. (1995). *Discipline & Punish The Birth of the Prison* (Second). Vintage Books A Division of Random House, INC.
- Frank, L. D., Iroz-Elardo, N., MacLeod, K. E., & Hong, A. (2019). Pathways from built environment to health: A conceptual framework linking behavior and exposure-based impacts. *Journal of Transport & Health*, 12, 319–335. <https://doi.org/10.1016/j.jth.2018.11.008>
- Freudenberg, N. (2002). Adverse Effects of US Jail and Prison Policies on the Health and Well-Being of Women of Color. *American Journal of Public Health*, 92(12), 1895–1899. <https://doi.org/10.2105/AJPH.92.12.1895>
- Gopinathan, B., Vijayshankar, V., & Roy, S. (2024). Exploring the relationship between the built environment of prisons and the mental health of inmates. *International Journal of Prison Health*, 20(3), 360–374. <https://doi.org/10.1108/IJOPH-11-2022-0071>
- Grant, J. M., Mottet, L. A., & Tanis, L. (2011). *Injustice at Every Turn: A Report of the National Transgender Discrimination Survey*. National Center for Transgender Equality. <https://www.thetaskforce.org/resources/injustice-every-turn-report-national-transgender-discrimination-survey/>
- Hahad, O., Kuntic, M., Al-Kindi, S., Kuntic, I., Gilan, D., Petrowski, K., Daiber, A., & Münzel, T. (2024). Noise and mental health: Evidence, mechanisms, and consequences. *Journal of Exposure Science & Environmental Epidemiology*. <https://doi.org/10.1038/s41370-024-00642-5>
- Holtfreter, K., Reisig, M. D., & Morash, M. (2004). Poverty, State Capital, and Recidivism Among Women Offenders. *Criminology & Public Policy*, 3(2), 185–208. <https://doi.org/10.1111/j.1745-9133.2004.tb00035.x>

- Hughto, J. M. W., Clark, K. A., Altice, F. L., Reisner, S. L., Kershaw, T. S., & Pachankis, J. E. (2018). Creating, reinforcing, and resisting the gender binary: A qualitative study of transgender women's healthcare experiences in sex-segregated jails and prisons. *International Journal of Prisoner Health*, 14(2), 69–88. <https://doi.org/10.1108/IJPH-02-2017-0011>
- James, S. E., Herman, J. L., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *The Report of the 2015 U.S. Transgender Survey*. National Center for Transgender Equality. <https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf>
- Jewkes, Y. (2024). *An Architecture of Hope: Reimagining the prison, restoring a house, rebuilding myself*. Scribe.
- Jonescu, E., & Olatunji, O. (2023). *A Review of Contemporary Discourse on Crime, Punishment and Carceral Architecture* (SSRN Scholarly Paper No. 4422512). Social Science Research Network. <https://doi.org/10.2139/ssrn.4422512>
- Kajstura, A., & Sawyer, W. (2024, March 5). *Women's Mass Incarceration: The Whole Pie 2024*. Prison Policy Initiative. <https://www.prisonpolicy.org/reports/pie2024women.html>
- Knittel, A., Ti, A., Schear, S., & Comfort, M. (2017). Evidence-based recommendations to improve reproductive healthcare for incarcerated women. *International Journal of Prisoner Health*, 13(3/4), 200–206. <https://doi.org/10.1108/IJPH-07-2016-0031>
- La Vigne, N. G., Naser, R. L., Brooks, L. E., & Castro, J. L. (2005). Examining the Effect of Incarceration and In-Prison Family Contact on Prisoners' Family Relationships. *Journal of Contemporary Criminal Justice*, 21(4), 314–335. <https://doi.org/10.1177/1043986205281727>
- Maiello, L., & Carter, S. (2015, December 9). “Minus the urinals and painted pink”? What should a women's prison look like? Penal Reform International. <https://www.penalreform.org/blog/10020/>

- Margolis, J., Estrella, R., Goode, J., Holme, J. J., & Nao, K. (2008). *Stuck in the Shallow End: Education, Race and Computing* (Vol. 25). <https://www.jstor.org/stable/j.ctt1mtz830>
- Moran, D., & Turner, J. (2019). Turning over a new leaf: The health-enabling capacities of nature contact in prison. *Social Science & Medicine* (1982), 231, 62–69. <https://doi.org/10.1016/j.socscimed.2018.05.032>
- Morin, K. M. (2016). The late-modern American jail: Epistemologies of space and violence. *The Geographical Journal*, 182(1), 38–48. <https://doi.org/10.1111/geoj.12121>
- Nadel, M. R., & Mears, D. P. (2020). Building with no end in sight: The theory and effects of prison architecture. *Corrections*, 5(3), 188–205. <https://doi.org/10.1080/23774657.2018.1461036>
- Nadkarni, N. M., Hasbach, P. H., Thys, T., Crockett, E. G., & Schnacker, L. (2017). Impacts of nature imagery on people in severely nature-deprived environments. *Frontiers in Ecology and the Environment*, 15(7), 395–403. <https://doi.org/10.1002/fee.1518>
- Ocen, P. A. (2014). UNSHACKLING INTERSECTIONALITY. *Du Bois Review: Social Science Research on Race*, 10(2), 471–483. <https://doi.org/10.1017/S1742058X13000295>
- Pettus, C. (2024, May 16). *Achieving Racial Equity and Improving Culture in Jails Using a Community-Engaged Quality Improvement Process*. Safety and Justice Challenge. <https://safetyandjusticechallenge.org/blog/achieving-racial-equity-and-improving-culture-in-jails-using-a-community-engaged-quality-improvement-process/>
- Pregnant Women in DOJ Custody: U.S. Marshals Service and Bureau of Prisons Should Better Align Policies with National Guidelines* | U.S. GAO. (2021, February 24). U. S. Government Accountability Office. <https://www.gao.gov/products/gao-21-147>

- Roberts, L. H. (1985). The Historic Roots of American Prison Reform: A Story of Progress and Failure. *Journal of Correctional Education*, 36(3), 106–109.
<https://www.jstor.org/stable/41970789>
- Rubin, A. T. (2014). Three Waves of American Prison Development, 1790–1920. In M. Deflem (Ed.), *Sociology of Crime, Law and Deviance* (Vol. 19, pp. 139–158). Emerald Group Publishing Limited. <https://doi.org/10.1108/S1521-613620140000019006>
- Shaylor, C. (1998). It's Like Living in a Black Hole: Women of Color and Solitary Confinement in the Prison Industrial Complex Symposium: Women in Prison. *New England Journal on Criminal and Civil Confinement*, 24(2), 385–416.
<https://heinonline.org/HOL/P?h=hein.journals/nejccc24&i=391>
- Singh, B. (2020, August 30). *The Panopticon called Leadership*. Thrive Global.
<https://community.thriveglobal.com/the-panopticon-called-leadership/>
- Skidmore, R. A. (1948). Penological Pioneering in the Walnut Street Jail, 1789-1799. *Journal of Criminal Law and Criminology*, 39(2), 167–180.
<https://heinonline.org/HOL/P?h=hein.journals/jclc39&i=179>
- Sudbury, J. (2008). Rethinking Global Justice: Black Women Resist the Transnational Prison-Industrial Complex. *Souls*, 10(4), 344–360. <https://doi.org/10.1080/10999940802523885>
- Tartaro, C. (2000). *The impact of facility design and supervision strategies on jail violence* [Ph.D., Rutgers The State University of New Jersey, Graduate School - Newark].
<https://www.proquest.com/docview/304649777/abstract/E46BDFB140C841CBPQ/1>
- Telama, A. (2021). *Designing for hope and dignity: Female specific approach to prison design* [Diplomityö, University of Oulu]. <https://oulurepo.oulu.fi/handle/10024/18754>

- Thorsteinson, K. (2017). *19th Century Prison Reform Collection* | Cornell University Library Digital Collections. <https://digital.library.cornell.edu/collections/prison-reform>
- Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science (New York, N.Y.)*, 224(4647), 420–421. <https://doi.org/10.1126/science.6143402>
- Veysey, B. M. (1998). Specific needs of women diagnosed with mental illnesses in U.S. jails. In *Women's mental health services: A public health perspective* (pp. 368–389). Sage Publications, Inc. <https://psycnet.apa.org/record/1998-07525-017>
- Wang, L. (2022, June). *Chronic Punishment: The unmet health needs of people in state prisons*. Prison Policy Initiative. <https://www.prisonpolicy.org/reports/chronicpunishment.html>
- Wener, R. E. (Ed.). (2012). Overview: History of Correctional Design, Development, and Implementation of Direct Supervision as an Innovation. In *The Environmental Psychology of Prisons and Jails: Creating Humane Spaces in Secure Settings* (pp. 1–112). Cambridge University Press. <https://www.cambridge.org/core/books/environmental-psychology-of-prisons-and-jails/overview/0AC822D0ADF30010403372B60FFEC06F>
- Western, B. (2021). Inside the Box: Safety, Health, and Isolation in Prison. *Journal of Economic Perspectives*, 35(4), 97–122. <https://doi.org/10.1257/jep.35.4.97>
- Zoukis, C. (2024, February 10). *Recidivism's Cost: Victims, Economy & American Prisons*. Criminal Center. <https://federalcriminaldefenseattorney.com/cost-recidivism-victims-economy-american-prisons/>