

What is Ethical Prison Architecture?

An Exploration of Prison Design and Wellbeing

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Prison design requires urgent attention to ensure that prison environments support the wellbeing of those who live in, work in, and visit them. A prison's design can either support or undermine the prison's overarching aims. Architecture can be an effective vehicle for minimizing pains of incarceration, improving wellbeing, and eventually realizing decarceration.¹ In fact, initial prison designs were seen as progress from more inhumane forms of punishment. This article focuses on the understudied link between individual features of prison environments and their impact on lived experiences within prison.

We introduce the term 'ethical prison architecture' to operationalize the underexplored link between the physical prison environment and the wellbeing of residents and staff. This article aims to identify the most relevant aspects of prison design that existing literature has linked to wellbeing (including mental health, physical health, social health, and safety). In a recent systematic literature review we identified the design domains that are important to the 'ethical architecture' of prison buildings.² This has informed the development of a survey that comprehensively assesses the prison environment, which can be used by researchers and professionals. In this contribution, we present the specific design features that are essential to the concept of 'ethical prison architecture' and how they relate to wellbeing, based on prior research. Our survey can be consulted for the operationalization of these domains into self-report items and scales.³

Why Prison Architecture Matters

The quality of any built environment sends implicit messages to those who interact with it. A prison's design conveys messages about how the Prison Service, and society at large, value the individuals for which it is designed: staff and residents.⁴ Societal attitudes about the correctional profession may also be interpreted through the institution's design. For example, a prison's layout can allude to how much engagement is expected of correctional officers with those incarcerated. Whether or not a facility has a staff breakroom also sends messages associated with the role. Stepping back even further, prison designs reflect how society chooses to respond to those caught for breaking socially constructed laws.

A broader question underpinning this issue is whether prisons can ever be ethical. There is an ongoing debate regarding the ethical role of the architect in prison design, whether a building itself can have inhumane values, or if ethical agency comes from the architect's practice of architecture and not the result.⁵ The American Institute of Architects (AIA) has been criticized for not taking a stronger position to determine the ethical responsibilities of the architect and thus miss the opportunity to support efforts of moral and ethical progress in the field. While scholars and practitioners should continue these debates, prison designs grounded in wellbeing can uniquely contribute to swift harm reduction efforts within existing prison walls.

Prison architecture has historically been used as a tool for achieving goals of punishment.⁶ London's

1. Jewkes, Y. (2018). Just design: Healthy prisons and the architecture of hope. *Australian & New Zealand Journal of Criminology*, 51(3), 319–338.
2. Moran, D., Jewkes, Y., & Lorne, C. (2019). Designing for imprisonment: Architectural ethics and prison design. *Architecture Philosophy*, 4(1), 67–81.
3. Engstrom, K. V. (2023). Prison Architecture Assessment Tool. Zenodo. <https://doi.org/10.5281/zenodo.7582025>
4. St. John, V. J. (2020). Placial justice: Restoring rehabilitation and correctional legitimacy through architectural design. *SAGE Open*, 10(2), 1–9.
5. See footnote 2: Moran, D., Jewkes, Y., Lorne, C. (2019).
6. Johnston, N. B. (2000). *Forms of constraint: A history of prison architecture*. Urbana, Chicago: University of Illinois Press

Newgate Prison, rebuilt in 1769, prioritized confinement with a simple design separating the building into two rectangular sections which showed little regard for the safety of those kept together inside.⁷ Jeremy Bentham famously introduced the panopticon prison design at the end of the 18th century. The design was believed to maximize security and control by vertically stacking cells so confined individuals were under constant visual surveillance from a centralized guard station. During the 19th and 20th centuries, prison designs began to reflect penal aims beyond confinement and supervision, like treatment and reintegration, so telephone pole plans and campus-style prisons were constructed, as they were said to be more effective for rehabilitation. While different types of prison design have received ongoing attention, the actual effect of the design on inhabitants has still received remarkably little academic attention.⁸

Previous research occasionally draws connections between the environment and lived experience. Research from healthcare and therapeutic settings suggests that institutional spaces can be designed not just to mitigate harm, but to support wellbeing.

When a building's design facilitates social interaction, it has been found to reduce stress and encourage wellness.⁹ Institutional spaces with views of nature have been found to reduce heart rates and create a sense of

healing.^{10,11} The physical conditions within prisons have been connected to rates of health care utilization and perceptions of safety.^{12,13}

Prison architecture has also been linked to prison climate, which encompasses the perceived quality of prison conditions.^{14,15} It includes perceptions of autonomy, safety and order, in-prison activities, relationships with other incarcerated people and staff, connection to the outside world, and facilities.¹⁶ Although studies have identified important relationships between prison architecture and prison climate, it is not comprehensively or consistently measured, and researchers have called for further academic attention to better understand this link.^{17,18,19,20}

From previous literature on prison design, prison climate, and wellbeing, it is clear that many aspects of a prison's physical environment, or 'what has usually been regarded as background noise,' might have a significant effect on behavior, wellbeing, and prison climate.²¹

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What is Ethical Prison Architecture?

We take ethical prison architecture to be the prison design features that are linked to the wellbeing of the building

users. Our systematic literature review identified 16 domains of ethical architecture (discussed below), which were linked to three latent theoretical constructs: humane treatment, autonomy, and stimuli.²² 'Humane

7. Wener, R. E. (2012). *The environmental psychology of prisons and jails: creating humane spaces in secure settings*. Cambridge University Press.
8. Nadel, M., & Mears, D. (2018). Building with no end in sight: The theory and effects of prison architecture. *Corrections*, 5(3), 188-205.
9. Ulrich, R. S. (1991). Effects of interior design on wellness: Theory and recent scientific research. *Journal of Health Care Interior Design*, 3, 97-109.
10. Long, C. G., Anagnostakis, K., Fox, E., Silaule, P., Somers, J., West, R., & Webster, A. (2011). Social climate along the pathway of care in women's secure mental health service. *Criminal Behaviour and Mental Health*, 21(3), 202-214.
11. Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, 224: 420- 421.
12. Moore, E.O. (1981). A prison environment's effect on health care service demands. *Journal of Environmental Systems*, 11, 17-34.
13. Ross, M. W., Liebling, A., & Tait, S. (2011). The relationships of prison climate to health service in correctional environments: Inmate health care measurement, satisfaction and access in prisons. *The Howard Journal of Criminal Justice*, 50, 262-274.
14. Beijersbergen, K. A., Dirkzwager, A. J. E., van der Laan, P. H., & Nieuwbeerta, P. (2016). A social building? Prison architecture and staff-prisoner relationships. *Crime & Delinquency*, 62(7), 843-874.
15. Van Ginneken, E. F. J. C., & Nieuwbeerta, P. (2020). Climate consensus: A multilevel study testing assumptions about prison climate. *Journal of Criminal Justice*, 69.
16. Van Ginneken, E. F. J. C., Palmén, H., Bosma, A. Q., Nieuwbeerta, P., & Berghuis, M. (2018). The life in custody study: The quality of prison life in Dutch prison regimes. *Journal of Criminological Research, Policy and Practice*, 4(4), 253-268.
17. Canter, D. (1987). Implications for "new generation" prisons of existing psychological research into prison design and use. In Bottoms A. et Light R. (dir.), *Problems of Long-Term Imprisonment*, Aldershot: Gower.
18. Moran, D., & Jewkes, Y. (2015). Linking the carceral and the punitive state: A review of research on prison architecture, design, technology and the lived experience of carceral space. *Annales de Géographie*, 702-703(2), 163-184.
19. Davison, R. L. (1931). Prison architecture. *The ANNALS of the American Academy of Political and Social Science*, 157(1), 33-39.
20. Houston, J. G., Gibbons, D. C., & Jones, J. F. (1988). Physical environment and jail social climate. *Crime & Delinquency*, 34(4): 449-466.
21. Ross, M. W., Diamond, P. M., Liebling, A. & Saylor, W. G. (2008). Measurement of prison social climate: A comparison of an inmate measure in England and the USA. *Punishment & Society*, 10(4), 447-474; see p. 453.
22. 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.

treatment' is most central to the ethical architecture concept, as it involves designs related to a healthy and habitable environment, to sufficient space and privacy, and to human dignity. All 16 domains within the ethical architecture concept were found to be indicators of humane treatment. 'Autonomy' refers to the ability to make some choices to customize personal space or to change environmental conditions. Roughly half of the ethical architecture domains were found to influence autonomy. Indeed, spatial autonomy has been identified as an important theoretical notion linking prison building features with wellbeing and even rehabilitation.²³ The construct 'stimuli' includes negative and uncontrollable prison conditions, like unwanted noise or constant light, as well as meaningful and positive stimuli like views of nature or access to sunlight. Two thirds of the design domains were found to influence stimuli. Below, we review design features that are necessary to 'ethical architecture' in prison environments, meaning the elements of the built environment that either support or undermine the mental, physical, and social health of those within them. Sixteen environmental domains were identified from existing literature as the most relevant design features in prison buildings that may influence wellbeing. They are grouped into two categories, Personal Living Space, and General Prison Space, depending on which setting within the prison they are most relevant to in the literature.

Category I: Personal Living Space

The first category includes design elements that pertain to incarcerated individuals' personal living spaces (i.e., cells or dormitories).

The construct 'stimuli' includes negative and uncontrollable prison conditions, like unwanted noise or constant light.

Lighting. In a prison environment, lighting is linked to three latent theoretical constructs: humane treatment, autonomy, and stimuli. Levels of natural and artificial lighting, especially one's exposure to daylight, are important environmental features that impact psychological wellbeing.²⁴ In living quarters in particular, researchers have identified the positive impact sunlight can have on wellbeing.^{25,26,27} Frontczak and Wargocki stress the importance of having some degree of control over light sources in one's environment.²⁸ This offers the resident some autonomy over their immediate environment and can contribute to their visual comfort.

Use of Materials. Material choice can substantially influence the experienced quality and stimuli of a living space.²⁹ Prisons typically utilize hard materials resistant to human impact such as concrete, brick and metal. These materials can influence temperature, as brick and metal collect and radiate heat.³⁰ Soft materials like carpet, wood, and cork absorb noise, offset heat, and contribute to more habitable environments. Unfortunately, these materials are used less often, as they are less durable and more expensive.

Aesthetic. The aesthetic qualities of prison environments, like the use of color, materials, and shapes are gaining attention within prison design literature.³¹ A built environment that feels antiseptic and unstimulating can be harmful to individuals with trauma histories. Instead, environments that integrate curved shapes compared to angular edges foster calmer atmospheres and invoke positive feelings of wellbeing.³² Some prison systems in northwestern Europe, like Greenland and Norway, already devote more attention to the aesthetic qualities of prison space to encourage individuality and normalization.^{33,34} Residents may also appreciate chances to personalize their living space, as it can contribute to

23. Bird, J. (2017). Spatial Autonomy and Desistance in Penal Settings. Case Study: The Barlinnie Special Unit (1973–1994). In: Hart E., van Ginneken E.F.J.C. (eds) *New Perspectives on Desistance* (pp. 111-137). London: Palgrave Macmillan.
24. Evans, G.W. (2003). The built environment and mental health. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 80 (4), 536–555.
25. Jewkes, Y. (2010). Penal aesthetics and the architecture of incarceration. *Prison Service Journal*, 187, 23-28.
26. Jewkes, Y., & Moran, D. (2014). Should prison architecture be brutal, bland or beautiful? *Scottish Justice Matters*, 2(1): 8-11.
27. Spens, I. (1994). A simple idea in architecture. In Spens, I. *Architecture of Incarceration*. London: London Academy Editions.
28. Frontczak, M., & Wargocki, P. (2011). Literature survey on how different factors influence human comfort in indoor environments. *Building and Environment*, 46(4), 922-937.
29. See footnote 7: Wener, R. E. (2012).
30. Atlas, R. (1984). Violence in prison. *Environment and Behavior*, 16(3), 275-306.
31. See footnote 1: Jewkes, Y. (2018)
32. Papanek, V. J. (1995). *The green imperative: Natural design for the real world*. New York: Thames and Hudson.
33. Jewkes, Y., & Moran, D. (2017). Prison architecture and design perspectives from criminology and carceral geography. In *Oxford Handbook of Criminology* (pp. 541-561). Oxford University Press.
34. Høidal, A. (2018). Normality behind the walls: Examples from Halden prison. *Federal Sentencing Reporter*, 31: 58-66.

a normal sense of individuality.³⁵ It is clear from the literature that attention (or inattention) to the aesthetic quality of space is linked to stimuli, humane treatment, and autonomy.

Noise. Noise is commonly defined as unwanted sound and the negative stimulus of unwanted sound is critical to the safety and wellbeing of incarcerated individuals and staff in correctional buildings.³⁶ High exposure to noise within prison environments may negatively affect relationships between staff and incarcerated individuals.³⁷ Environmental psychology researchers have observed that 'unpredictable, intermittent and uncontrollable noise... causes significant stress, with powerful and enduring negative impacts on wellbeing.'³⁸ Constant noise can also be experienced as an invasion of personal privacy, as interruptions to daily activities like sleeping or conversations can lead to stress responses and illness.³⁹ Importantly, having some control over the noise exposure can mitigate its negative effects.⁴⁰

Views. A decent view is an appreciated design in most built environments. Views can elicit a sense of openness and connection and previous prison-based research confirms how important it is to have a view of something other than prison buildings or other incarcerated people.⁴¹ Although some prisons have living spaces with windows, often any views or natural light are blocked with metal bars, painted or translucent windowpanes, or the windows are placed too high up the wall to see out.⁴² These are disappointing designs, because views, and especially views of nature, have been linked to improved health among residents as measured by increased levels of happiness and decreased sick calls.^{43,44}

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Temperature. Adequate temperature control is a basic environmental need within any personal living space. Thermal comfort is critical to a habitable indoor environment, but many prisons are built with heat-trapping materials like brick, stone, and concrete.⁴⁵ Without designs in place to control temperature, like heat-resistant building materials and effective mechanical ventilation systems, intolerable prison temperatures can lead to increased rates of misconduct and violent assaults.⁴⁶ Providing reasonable control over one's living space temperature can provide a small but valuable sense of autonomy and satisfaction with the quality of an indoor environment.

Air Quality. Ventilation and fresh air are a result of a building's architectural design, and inadequate ventilation systems can lead to significant discomfort in indoor space. Like temperature, a living space with poor air ventilation can create unnecessary stress and undermine habitability. Poor airflow can significantly exacerbate health concerns among residents and staff like upper respiratory illnesses and the transmission of diseases like COVID-19.⁴⁷ Having some degree of control over this aspect of the environment can also improve satisfaction with indoor air quality.

Privacy in Personal Space.

The amount of privacy available to an incarcerated individual in their personal living space is directly linked to design choices. Moore found that audio, spatial, and visual autonomy were essential to humanizing prison environments.⁴⁸ The use of building materials, a cell door's design, or access to a partition to conceal a toilet are all design choices that can influence privacy. A recent study conducted at a maximum-

35. Sloan, J. (2012). "You can see your face in my floor": Examining the function of cleanliness in an adult male prison. *The Howard Journal of Criminal Justice*, 51(4), 400–410.

36. See footnote 7: Wener, R.E. (2012).

37. See footnote 14: Beijersbergen, K. A., Dirkzwager, A. J. E., van der Laan, P. H., & Nieuwebeerta, P. (2016).

38. Karthaus, R., Bernheimer, L., O'Brien, R., & Barnes, R. (2017). Wellbeing in prison design: A design guide. See page 56. (Retrieved from <http://www.matterarchitecture.uk/research/>)

39. Stansfeld, S. A., & Matheson, M. P. (2003). Noise pollution: Non-auditory effects on health. *British Medical Bulletin*, 68(1), 243–257.

40. Glass, D. C., & Singer, J. E. (1972). *Urban stress: experiments on noise and social stressors*. New York, Academic Press.

41. See footnote 38: Karthaus, R., Bernheimer, L., O'Brien, R., & Barnes, R. (2017).

42. See footnote 25: Jewkes, Y. (2010).

43. See footnote 12: Moore, E. O. (1981).

44. Barton, J., & Pretty, J. (2010). What is the best dose of nature and green exercise for improving mental health? A multi-study analysis. *Environmental Science and Technology*, 44(10), 3947–3955.

45. See footnote 30: Atlas, R. (1984).

46. See footnote 4: St. John, V. J. (2020).

47. Ryan, C., Sabourin, H., & Ali, A. (2020). Applying an Indigenous and gender-based lens to the exploration of public health and human rights implications of COVID-19 in Canadian correctional facilities. *Canadian Journal of Public Health*, 111(6): 971-974.

48. See footnote 12: Moore, E. O. (1981).

security men's prison in Norway found that residents' access to private cells was the most appreciated design intervention within Halden Prison, a prison designed to prioritize normalization and rehabilitation.⁴⁹ Residents of Halden Prison report that being able to come and go from one's cell, change the lighting, and hang personal photos on their cell walls, all helped to create a sense of personal privacy and normality within their space. Certainly, not all incarcerated individuals are housed in a similar manner, so it is important to consider privacy designs within cells and dorms. Research in open dormitories have found higher rates of perceived crowding, limited privacy, and illness complaints compared to single and double cells.⁵⁰ Interestingly, installing cubicles within open dormitories can increase privacy and a sense of environmental control that can offset or eliminate the impacts of crowding.⁵¹

Category II: General Prison Spaces

The second category includes designs within general prison spaces that can influence the wellbeing of staff and incarcerated individuals. While nature could be a domain within personal living space, for example, existing literature mostly studies the impact of shared outdoor green space.

Size and Crowding. The size of a prison population refers to the number of incarcerated individuals in an institution and crowding relates to building occupancy and density. Both size and crowding within a prison population can drastically impact the health and wellbeing of staff and residents. Chronic

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crowding has been linked to increased blood pressure in adults and damaging behavioral responses like self-isolation, hostility, and unhealthy sleep patterns.⁵² Social density, meaning the number of individuals sharing a cell or dorm, may be the most damaging factor of overcrowding on wellbeing. Though a dorm may have more physical space per person than a single or double cell, a dorm will have a much higher social density with many people sharing one room. Low social density, like single or double cell units, has more positive impacts on wellbeing compared to dorms with more space.⁵³ A prison's design will determine the building's capacity limits and social density, as these markers depend on the number of cells or dorms allotted for housing units, all of which can have unique impacts on wellbeing.

Visitation. It is generally understood from existing research that prison visiting has a positive influence on incarcerated individuals.^{54,55,56} One study investigated the visitor experience in liminal prison space, the area not yet behind prison walls, at San Quentin State Prison in California.⁵⁷ The design of the visitation waiting room, a small space lacking heating, seating, signage and basic amenities, was found to send building users a clear message of 'contemptuous neglect' (p. 83). Aiello and McCorkel also found the harsh design of liminal spaces that young and unaccompanied children had to walk through, including large metal detectors, loud metal doors, and bleak hallways, led to a secondary prisonization experience for young children visiting family.⁵⁸ Visiting areas designed to create positive

49. Abdel-Salam, S., & Kilmer, A. (2022). A Prison Is a Prison: Perspectives From Incarcerated Men on the Therapeutic and Punitive Aspects of Halden Prison in Norway. *The British Journal of Criminology*.
50. Cox, V.C., Paulus, P.B., & McCain, G. (1984). Prison crowding research: The relevance for prison housing standards and a general approach regarding crowding phenomena. *American Psychologist*, 39(10), 1148-1160.
51. Schaeffer, M. A., Baum, A., Paulus, P. B., & Gaes, G. G. (1988). Architecturally mediated effects of social density in prison. *Environment and Behavior*, 20(1), 3-20.
52. See footnote 7: Wener, R. E. (2012).
53. McCain, G., Cox, V., & Paulus, P. B. (1976). The relationship between illness complaints and degree of crowding in a prison environment. *Environment and Behavior*, 8, 283-290.
54. Cochran, J. C., & Mears, D. P. (2013). Social isolation and inmate behavior: A conceptual framework for theorizing prison visitation and guiding and assessing research. *Journal of Criminal Justice*, 41(4), 252-261.
55. Moran, D. (2013a). Between outside and inside? Prison visiting rooms as liminal carceral spaces. *GeoJournal*, 78, 339-351.
56. Moran, D. (2013b). Carceral geography and the spatialities of prison visiting: Visitation, recidivism, and hyperincarceration. *Environment and Planning D: Society and Space*, 31(1), 174-190.
57. Comfort, M. (2003). In the tube at San Quentin: The "secondary prisonization" of women visiting inmates. *Journal of Contemporary Ethnography*, 32(1), 77-107.
58. Aiello, B., & McCorkel, J. (2017). It will crush you like a bug: Maternal incarceration, secondary prisonization, and children's visitation. *Punishment & Society*, 20(3), 351-374.

environmental stimuli may increase the likelihood and frequency of children visiting an incarcerated parent if visitation spaces incorporated comfortable furniture, play areas, and bright colors.⁵⁹ In England, researchers studied prison visitor's centres, buildings near prisons but run by third parties, and found they provided much-needed facilities, like clean bathrooms, child-friendly play areas, and a place to eat a snack or have a coffee before entering the prison.⁶⁰

Nature. The presence of nature, including trees, plants, flowers, birds, insects, and other wildlife, can counteract sterile prison environments and create positive stimuli.⁶¹ Research in health care settings has consistently linked nature contact with positive patient wellbeing.⁶² The impact of nature films on residents in solitary confinement was studied over the course of a year, and participants exposed to nature videos had 26 per cent less disciplinary referrals than those not exposed.⁶³ They also self-reported less stress, anxiety, and aggression, and improvements in communication and coping skills. Other researchers underline the importance of not only seeing nature but interacting with it, 'to not just be able to see a tree but touch it.'⁶⁴

Recent studies from England and Wales found that across 80 public prisons, the prisons with a greater percentage of vegetated space, regardless of being able to view or access it, reported lower levels of staff sick leave, self-harm among the incarcerated population, and violence both toward staff and among the incarcerated.^{65,66} Accordingly, the authors call for the greening of all possible space within prison walls to support occupants' wellbeing.

Prison Layout. While 'every shape known to geometry [has been] tried,' it remains unclear whether

a prison's layout has any measurable impact on wellbeing.⁶⁷ Studies on crowding suggests that building layouts that encourage social interaction in specific spaces can mitigate negative behavioral effects of residential crowding. Research from the Netherlands suggests that residents in facilities with panoptic designs report more negative relationships with staff than those residing in campus, radial, or high-rise layouts.⁶⁸ The same study found that incarcerated individuals in a campus-style layout had more direct lines of sight with staff and, compared to other designs, reported more positive relationships with staff. Findings from a recent autoethnography study further support the use of campus style prison layouts, noting the design's positive influence on behavior, increased access to nature, and smaller ratios between staff and residents.⁶⁹ While these findings may be limited to their

unique contexts, it is clear from existing literature that it is important to consider a prison's layout within the concept of ethical architecture, as overall prison designs can significantly influence the lived experience for staff and those incarcerated.

Security Technology.

Architecture, design, and technology is an important but overlooked feature of the lived experience in prison

environments. Commonly used technologies in prisons include wireless cameras, listening devices, and biometric and electronic monitoring to track visitors and incarcerated persons within prisons. While some residents may appreciate the regular use of cameras, for a sense of safety and evidence of abuses, the cameras also encourage self-censorship and undermine privacy.⁷⁰ The effect of almost constant surveillance on both residents and staff will require ongoing attention. Some technologies may increase privacy, like the use of

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59. Siegel, J. A., & Napolitano, L. (2021). Adult and child visiting at urban jails: Perspectives on visitation experiences and policies among visitors and people in jail. *The Prison Journal*, 101(3), 331-351.
 60. Woodall, J., & Kinsella, K. (2018). Striving for a "good" family visit: The facilitative role of a prison visitors' centre. *Journal of Criminal Psychology*, 8(1): 33-43.
 61. See footnote 1: Jewkes, Y. (2018).
 62. See footnote 11: Ulrich, R.S. (1984)
 63. 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.
 64. See footnote 1: Jewkes, Y., (2018) pg. 329.
 65. Moran, D., Jones, P. I., Jordaan, J. A., & Porter, A. E. (2021a). Does nature contact in prison improve well-being? Mapping land cover to identify the effect of greenspace on self-harm and violence in prisons in England and Wales. *Annals of the American Association of Geographers*, 111(6), 1779-1795.
 66. Moran, D., Jones, P. I., Jordaan, J. A., & Porter, A. E. (2021b). Nature Contact in the Carceral Workplace: Greenspace and Staff Sickness Absence in Prisons in England and Wales. *Environment & Behavior*.
 67. Fairweather, L. (2000). Does design matter? In L. Fairweather & S. McConville (eds.). *Prison architecture: Policy, design and experience*. Oxford: Architectural Press (p. 17).
 68. See footnote 14: Beijersbergen, K. A., Dirkzwager, A. J. E., van der Laan, P. H., & Nieuwbeerta, P. (2016).
 69. St. John, V. J., Blount-Hill, K.-L., Evans, D., Ayers, D., & Allard, S. (2019). Architecture and Correctional Services: A Facilities Approach to Treatment. *The Prison Journal*, 99(6), 748-770.
 70. See footnote 18: Moran, D. & Jewkes, Y. (2015).

full body scanners that reduce the need to conduct invasive strip searches of residents receiving visits.⁷¹ Facilities with communication technologies can increase individual autonomy through video visitation, secured internet access, and telemedicine.⁷²

Age of Prison. It is unclear whether newer prisons provide better or worse conditions for their occupants than older prisons. Madoc-Jones found that older prisons in England and Wales (built pre-1938) and newer prisons (built post-1978) scored much higher on safety, respect, purposeful activities, and resettlement scores, than middle-aged prisons (built between 1939-1977).⁷³ However, the relationship between a prison's age, public or private status, and staff culture is not straightforward. Some research from the UK suggests that older public prisons, with an 'us vs. them' culture between staff and residents, have more negative interactions between staff and incarcerated individuals than newer privatized prisons.⁷⁴ Research which distinguished different types of staff cultures, reported that some newer private prisons in fact had a more 'traditional-professional' staff culture than older prisons in the public sector. Residents rated these prisons with traditional-professional staff cultures more positively, even though staff attitudes were not very sympathetic toward incarcerated persons.⁷⁵ While it remains unclear whether a prison's age may directly impact lived experience, research has found that older prison buildings can have considerable differences in layout, lighting, thermal comfort, and noise compared to newer buildings, all of which can impact wellbeing.⁷⁶

Accessibility. Many prisons operating today were built in the nineteenth and twentieth centuries or they used architectural designs from these eras. Older prison

designs were not intended to house older populations, and many prisons today are ill-equipped to meet the accessibility needs of the growing number of older residents and people with disabilities. It is important to evaluate building accessibility in prisons, as appropriate ramps, railings, and signage can greatly influence autonomy and human dignity.⁷⁷ A UK-based study examined common environmental challenges facing aging residents and people with disabilities and found that a prison's layout often limited the mobility of wheelchair users, there was inadequate access to showers and elevators, and older residents were often assigned to housing units on higher floors or higher bed bunks when lower levels would have been more appropriate.⁷⁸ Beyond physical accommodations, many prisons are also inadequately designed to accommodate individuals with behavioral health issues, dementia, or social care needs.⁷⁹

Facilities. It is vital that prison building users have plumbing, electrical, and mechanical systems in good operating condition. Unreliable facilities can create unnecessary disruptions to daily life and damage morale throughout an institution. Poorly maintained mechanical systems like heating, cooling, and ventilation also influence noise levels, as they can create significant background noise in already loud prison buildings.⁸⁰ One study specifically focused on the structural control of water in carceral environments and found that the small amounts of shower water allotted per person, as well as the temperature of the water, served as another form of bodily control as it limited the ability to meet basic human needs.⁸¹ Sufficient and operational facilities throughout a prison environment directly impact the habitability of the space for both staff and residents.

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71. Ingel, S., Richards Karamarkovich, A., Bietsch, S. & Rudes, D.S. (2021). Privacy violations and procedural justice in the United States prisons and jails. *Sociology Compass*, 12847.
72. Larsen, D., Stamm, B. H., Davis, K., & Magaletta, P. R. (2004). Prison telemedicine and telehealth utilization in the US: State and federal perceptions of benefits and barriers. *Telemedicine J E Health*, 10 (Suppl 2):81-89.73. Madoc-Jones, I., Williams, E., Hughes, C., & Turley, J., (2016). *Prison building 'Does size still matter?': A re-assessment*. *Prison Service Journal*, 227, 4-10.
74. Shefer, G. & Liebling, A. (2008). Prison privatization: In search of a business-like atmosphere. *Criminology & Criminal Justice*, 8, 261-278.
75. Crewe, B., Liebling, A., & Hulley, S. (2011). Staff culture, use of authority and prisoner quality of life in public and private sector prisons. *Australian & New Zealand Journal of Criminology*, 44(1), 94-115.
76. See footnote 14: Beijersbergen, K. A., Dirkzwager, A. J. E., van der Laan, P. H., & Nieuwbeerta, P., (2016).
77. See footnote 4: St. John, V.J., (2020).
78. Williams, J. (2012). Social care and older prisoners. *Journal of Social Work*, 13(5), 471-491.
79. See footnote 38: Karthaus, R., Bernheimer, L., O'Brien, R., & Barnes, R., (2017).
80. See footnote 7: Wener, R. E., (2012).
81. Turner, J., & Moran, D. (2018). Careful control: The infrastructure of water in carceral space. Special Issue: Troubling Institutions at the Nexus of Care and Control. *Royal Geographical Society*, 51 (2): 208-215.

Discussion

Imprisonment will cause distress regardless of a prison's design features. Nevertheless, two recent studies support the idea that more normalized environments can attenuate some of the harms and pains experienced by incarcerated individuals. Mjåland and others directly compared the experience of open and closed prisons between England and Wales and Norway and found that all environmental dimensions under investigation scored higher in open prisons in both countries.⁸² Respondents housed in open prisons reported their environment as less 'heavy', 'deep' and 'tight,' and they reported more autonomy, trust, sense of safety, and less worry about reintegration. Respondents were more positive about the support and services they received. In both welfare-oriented (Norway) and neo-liberal (England and Wales) contexts, those incarcerated in open and closed prisons reported similar pains of imprisonment, but those within open prisons in both contexts reported pains of imprisonment to a lesser degree than their closed counterparts. The study underscores that open prisons are capable of relieving at least some of the pains of imprisonment, but that they are still very much experienced as prisons by the residents confined there.

Abdel-Salam and Kilmer studied lived experiences at Halden, a maximum-security men's prison in Norway.⁸³ Halden is known internationally for its unique designs that aim to encourage wellbeing, motivation, and an overall humane environment. The facility integrates normalization into every aspect of the prison environment to reflect the outside world as much as possible.⁸⁴ The authors found that while the prison's design was generally viewed favorably by respondents, they did not perceive the prison as having a strong motivational or therapeutic influence. Compared to the punitive aspects of confinement, like the loss of freedom and ability to make meaningful choices for oneself, the physical features of Halden were less

significant. Still, respondents resoundingly identified the importance of private cells at Halden, as they allowed for privacy, helped respondents decompress, process anxiety, and for some, their private cell supported a positive mentality. Consistent with Mjåland's findings, Abdel-Salam and Kilmer argue that pains of imprisonment are an inherent part of the carceral experience even when a facility is entirely designed to promote rehabilitation over punishment. Halden and open prisons in both England and Norway are still very much experienced as prisons by those who are confined within them, but their associated pains are experienced to a lesser degree because of their intentional design and are thus less harmful than places of higher security and with less attention to design.

Respondents housed in open prisons reported their environment as less 'heavy', 'deep' and 'tight,' and they reported more autonomy, trust, sense of safety, and less worry about reintegration.

Future Research

The present study has important implications for practitioners and future prison research. The domains identified in the ethical architecture concept provide a framework for understanding the underexplored link between prison design and wellbeing. The prison environment may represent an important indicator of prison climate, but it has yet to be clearly incorporated in existing prison climate assessment tools and may have been overlooked because it is a challenging domain to accurately measure.⁸⁵ We developed an ethical architecture survey as an on-site

assessment tool to gain insights from residents and staff on their experiences with aspects of prison design. This assessment could be conducted independently or alongside an existing prison climate assessment tool. Conducting on-site assessments on ethical architecture in prison environments can provide invaluable environmental impact data for individual prisons, from which local leadership can make informed design improvements. Assessments may also lead to a variety of important advances in prison studies by increasing the existing empirical evidence on the relationship between prison designs and how they are experienced by staff and incarcerated populations.

82. Mjåland, K., Laursen, J., Schliehe, A. & Larmour, S. (2021). Contrasts in freedom: Comparing the experiences of imprisonment in open and closed prisons in England and Wales and Norway. *European Journal of Criminology*.

83. See footnote 49: Abdel-Salam, S. & Kilmer, A. (2022).

84. See footnote 34: Høidal, A. (2018).

85. Liebling, A., & Arnold, H. (2004) *Prisons and their moral performance: A study of values, quality, and prison life*. Oxford: Oxford University Press.

Future studies could also examine specific areas of prison space that were not addressed in the present study, as has been done with visitation spaces. Dedicated green space, reception centers, age-appropriate, disability-appropriate and gender-appropriate designs could all benefit from targeted architectural analyses. Segregation units did not emerge in the systematic literature review but would benefit from explicit consideration in relation to a prison's ethical design. Assuming a Prison Service adheres to the Mandela Rules and prohibits the use of indefinite or prolonged solitary confinement, the appearance, type of furniture, and quality of views from segregation units can help a space feel less institutional, and a radio, tv, telephone and materials for activities can relieve some boredom. Exercise yards in segregation units can also be designed with the purpose of providing appropriate stimulation and a humane space.

Of all the studies presented, discussion on the impact of ethically designed prisons on correctional staff is almost nonexistent. Liebling noted that correctional staff might benefit from ethically designed prisons, so they are not being asked to do 'impossible work in impossible conditions.'⁸⁶ One study identified poor lighting as a design feature that may negatively affect relationships between staff and residents.⁸⁷ Still, future research should equally examine the impact of open prisons and places like Halden within the context of correctional staff's health and wellbeing. A future comparative study could compare staff perceptions of the prison environment with the findings from the same instrument completed by residents. Because correctional staff are the frontline workers keeping prisons safe and supporting personal growth among residents, it is important to know if other aspects of a prison's architecture and design may be undermining

occupational health and professional relationships with residents.

Conclusion

The ethical prison architecture concept may reinvigorate interest in an aspect of incarceration that has often been regarded as background noise, too difficult to measure, or inconsequential compared to factors like social climate.^{88,89,90} It is clear from the research reviewed in the present study that the design of the physical prison environment is related to the wellbeing of incarcerated individuals and staff. A commitment to ethical prison architecture should not only seek to minimize harmful outcomes of imprisonment, but also promote positive ones, with a central concern for human wellbeing. Terwiel argues that the health-based approach of humane treatment in prison still sanctions considerable suffering, and instead calls for the right to be comfortable, as this recognizes the human desire for play, pleasure, and art.⁹¹

The concept of 'ethical prison architecture' raises difficult questions and the discipline of criminology has not extensively engaged with such foundational questions, although there have been and are well-known voices in favor of prison abolition^{92,93,94,95,96,97,98} and emergent discussions on critical carceral studies.⁹⁹ Again, one could argue that abolition is the only ethical option. Decarceration is the clear next step, certainly in countries with high imprisonment rates and overcrowding, and this process must critically consider the impact of the built environment. Ethical prison architecture should be a site of debate where criminologists, geographers, and architects meet to discuss prison reform, environmental opportunities for harm reduction, and to consider if prisons can be spaces that promote healing and if so, how.

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87. See footnote 25: Jewkes, Y. (2010).

88. See footnote 21: Ross, M. W., Diamond, P. M., Liebling, A. & Saylor, W. G. (2008).

89. Tonkin, M. (2016). A review of questionnaire measures for assessing the social climate in prisons and forensic psychiatric hospitals. *International Journal of Offender Therapy and Comparative Criminology*, 60(12), 1376-405.

90. See footnote 8: Nadel, M., & Mears, D. (2018).

91. Terwiel, A. (2018). What is the Problem with High Prison Temperatures? From the Threat to Health to the Right to Comfort. *New Political Science*, 40(1), 70-83.

92. Carlton, B., & Russell, E. (2018). *Resisting Carceral Violence: Women's Imprisonment and the Politics of Abolition*. Cham: Palgrave Macmillan.

93. Christie, N. (1981). *Limits to Pain: The Role of Punishment in Penal Policy*. Eugene, OR: Wipf and Stock.

94. Mathiesen, T. (1974). *The Politics of Abolition*. London: Martin Robinson.

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