Climate Risk, Regulation, and Health in Carceral Settings

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ABSTRACT

This essay reflects on a multidisciplinary panel convened by the Criminal Law and Justice Center at UC Berkeley Law on climate change and correctional facilities, bringing together carceral clinicians, public health researchers, and occupational safety officials to examine how extreme heat, wildfire smoke, and other environmental hazards are experienced inside prisons and jails. Carceral settings remain understudied and underreported, and many of the conditions practitioners described do not yet have a developed empirical literature behind them. This essay draws on practitioner testimony alongside published research, treating both as evidence in a field where the formal record lags behind institutional reality. It examines how institutional design, security priorities, and limited adaptive capacity shape climate exposure to people who live and work in carceral settings, and why existing regulatory and legal frameworks have failed to prevent foreseeable harm.

Panelists described conditions such as housing units routinely exceeding 90°F, poor ventilation, and security constraints that prevent individuals from seeking relief, highlighting differences between public health evidence and constitutional standards, as courts have generally considered more extreme heat conditions than those associated with documented physiological harm. Using the hierarchy of controls as an analytic framework, this essay argues that individualized mitigation to climate hazards is insufficient for incarcerated

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people and workers, and that systemic interventions are necessary. It concludes that incarceration authorizes deprivation of liberty but not exposure to preventable environmental harm.

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INTRODUCTION

Prisons and jails are increasingly sites of climate-related exposures, where hazards such as extreme heat and wildfire smoke create acute and long-term health risks for incarcerated people and the workers who staff these facilities.[1] The distinctive constraints of carceral environments intensify these risks: aging heating and cooling infrastructure, rigid security protocols that restrict evacuation, and regulatory carve-outs that exempt carceral facilities from basic health protections.[2] An expanding body of research has documented the disproportionate burden of climate-related exposures in carceral settings, linking extreme heat and wildfire smoke to increased mortality, mental health harms, violence, and respiratory illness among incarcerated populations. Studies have

1. Kristen N. Cowan, Wildfire Smoke Exposure and Poor Health Outcomes Among People who are Incarcerated in California and Oregon (2025) (Ph.D. dissertation, U.N.C. Chapel Hill) (Carolina Digital Repository); Ufuoma Ovienmhada, Andrew West, Ahmed T. Diongue & Danielle R. Wood, *Spatial Pattern of Outdoor PM2.5 Air Pollution in U.S. Prison Landscapes from 1998 to 2022*, 60 ENV'T. SCI. & TECH. 4931 (2026); Katherine LeMasters & Lawrence A. Haber, *The hidden crisis of incarcerated individuals during wildfires*, 43 LANCET REG'L HEALTH – AMERICAS 101032 (2025); Ufuoma Ovienmhada, Mia Hines, Michael Krisch, Ahmed T. Diongue, Brent Minchew & Danielle R. Wood, *Spatiotemporal Facility-Level Patterns of Summer Heat Exposure, Vulnerability, and Risk in United States Prison Landscapes*, 8 GEOHEALTH e2024GH001108 (2024).

2. Rachel Sklar, Elizabeth Noth, Ada Kwan, David Sears & Stefano Bertozzi, *Ventilation conditions during COVID-19 outbreaks in six California state carceral institutions*, PLOS ONE, Nov. 7, 2023; Carl Dement, *Coordinating the Chaos: An Evaluation of Carceral Evacuations*, 103 PRISON J. 541 (2023); Jeanne Kuang, *What California's long-delayed indoor heat rule means for workers*, CALMATTERS (updated July 24, 2024).

estimated that incarcerated people in the United States experience more than 40 million person-days of hazardous heat exposure annually,[3] and that in some prison systems a substantial proportion of deaths during warm months may be attributable to extreme heat.[4] Researchers have also shown that heat exposure in prisons is associated with higher rates of suicide-watch incidents, violence, and worsening mental health, particularly in facilities without adequate cooling.[5] At the same time, wildfire smoke is increasingly recognized as a major but understudied risk in carceral settings, especially in facilities located in fire-prone regions and in aging buildings with poor ventilation and limited air filtration.[6]

The Criminal Law and Justice Center at the UC Berkeley Law School convened the 2025 Fall Symposium in response to this evidence and the growing recognition that climate hazards in carceral settings remain understudied and underreported—many of the conditions practitioners encounter in these settings do not yet have a developed empirical literature behind them. The essay herein reflects on a multidisciplinary panel of carceral clinicians, public health researchers, and government officials from the Cal/OSHA research and standards division, who discussed how climate change impacts prisons and how related health risks are currently understood and addressed for both incarcerated people and workers in carceral settings.[7] Practitioner testimony is treated here as a form of situated expertise, particularly valuable in fields where formal empirical documentation lags behind lived institutional practice. The title of the panel session was "*Mapping What We Know About Climate Impacts in Correctional Facilities*." Overall, the panel discussion highlighted how prisons are excluded from core public health, occupational safety, disability, and disaster-planning systems, resulting in predictable and preventable harm to both

3. Cascade Tuholske, Victoria D. Lynch, Raenita Spriggs, Yoonjung Ahn, Colin Raymond, Anne E. Nigra & Robbie M. Parks, *Hazardous heat exposure among incarcerated people in the United States*, 7 NATURE SUSTAINABILITY 394 (Apr. 2024).

4. Julianne Skarha, Keith Spangler, David Dosa, Josiah D. Rich, David A. Savitz & Antonella Zanobetti, *Heat-related mortality in U.S. state and private prisons: A case-crossover analysis*, PLOS ONE, March 1, 2023; Julianne Skarha, Amite Dominick, Keith Spangler, David Dosa, Josiah D. Rich, David A. Savitz & Antonella Zanobetti, *Provision of Air Conditioning and Heat-Related Mortality in Texas Prisons*, JAMA NETWORK OPEN, Nov. 2, 2022.

5. David H. Cloud, Brie Williams, Regine Haardörfer & Lauren Brinkley-Rubinstein, Hannah L. F. Cooper, *Extreme Heat and SuicideWatch Incidents Among Incarcerated Men*, JAMA NETWORK OPEN, Aug. 11, 2023; Anita Mukherjee & Nicholas J. Sanders, *The Causal Effect of Heat on Violence: Social Implications of Unmitigated Heat Among the Incarcerated* (Nat'l Bureau of Econ. Rsch., Working Paper No. 28987, July 2021).

6. Sklar, Noth, Kwan, Sears & Bertozzi, *supra* 2; Kristen N. Cowan, Meghan Peterson, Katherine LeMasters & Lauren Brinkley-Rubinstein, *Overlapping Crises: Climate Disaster Susceptibility and Incarceration*, 19 INT'L. J. ENV'T. RSCH. PUB. HEALTH 7431 (2022); LeMasters & Haber, *supra* 1.

7. The panel consisted of a clinician and chief medical executive at the San Quentin Rehabilitation Center within the California Department of Corrections, a clinician providing primary care at Coyote Ridge Corrections Center in the Department of Corrections, a representative from the Cal/OSHA Research and Standards Division, and a postdoctoral researcher in the Bellwether Collaborative for Health Justice.

incarcerated people and workers in carceral settings. The discussion also made clear that regulatory exceptionalism in carceral settings happens routinely as layered oversights, regulatory carve-outs, and weak enforcement pathways collectively insulate them from accountability during climate events. This essay reflects on that discussion, drawing on practitioner testimony alongside published research in a field where the formal record lags behind institutional reality.

I. CLIMATE RELATED HAZARDS IN PRISONS

A. Extreme Heat as an Institutional Condition

The clinicians on the panel who work to provide care inside California and Washington state prisons described housing units routinely exceeding 90°F, often with no active cooling systems and inadequate ventilation. Prolonged exposure to high temperatures has been shown to impair the body's ability to regulate heat, leading to dehydration, heat exhaustion, and, in severe cases, heat stroke which can be fatal if untreated.[8] At the extreme, sustained heat exposure can lead to organ failure and death, particularly in environments where individuals can not reduce their exposure.[9] In Texas, an estimated 13% of all deaths in prisons during warm months (2001-2019) were attributable to extreme heat.[10]

Incarcerated people often live in small, crowded cells with limited airflow and little capacity to mitigate heat exposure.[11] During extreme heat events, some facilities can experience power outages which disable fans and air conditioning[12] and panelists described custody rules that prohibit individuals from blocking windows to reduce direct sunlight. These conditions also create occupational heat exposures for correctional staff who often wear uniforms or protective gear that may limit heat dissipation.[13]

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8. Skarha et al., *Heat-related mortality*, *supra* 4; Shakoor Hajat, Madeline O'Connor & Tom Kosatsky, *Health effects of hot weather: from awareness of risk factors to effective health protection*, 375 LANCET 856 (Mar. 6, 2010).

9. Abderrezak Bouchama & James P. Knochel, *Heat Stroke*, 346 NEW ENG. J. MED 1978 (2002).

10. Skarha et al., *Heat-related mortality*, *supra* 4.

11. Sklar, Noth, Kwan, Sears & Bertozzi, *supra* 2; Aishah Abdala, Abhilasha Bhola, Guadalupe Gutierrez, Eric Henderson, & Maura O'Neill, ELLA BAKER CTR. FOR HUM. RTS., *Hidden Hazards: The Impacts of Climate Change on Incarcerated People in California State Prisons*; Ben Nevis Barron, Shawhin Roudbari, Phaedra C. Pezzullo, Shideh Dashti & Abbie B. Liel, *"Because we're dying in here": A study of environmental vulnerability and climate risks in incarceration infrastructure*, 7 NATURE & SPACE 2437 (2024).

12. Doug Livingston & Brittany Hailer, *'I'm About to Die Here': What a Power Outage and Heatwave Were Like in a Jail With No AC*, MARSHALL PROJECT (July 3, 2025); Sunita Sohrabji, *Solano Prison Inmates Reportedly Experienced Heat Stroke Amid 3-Day Power Outage*, AM. CMTY. MEDIA (July 18, 2024).

13. Nat'l Inst. for Occupational Safety & Health (NIOSH), *PPE Heat Burden*, U.S. Ctrs. for Disease Control & Prevention (Mar. 3, 2026), https://www.cdc.gov/niosh/heat-

Institutional responses to heat in carceral settings may center on identifying medically vulnerable individuals and targeting protective measures at that defined group. For example, in California, CDCR's staged heat contingency plan triggers enhanced protections for incarcerated people designated as "heat risk" when outdoor temperatures exceed 90°F. While some institution-wide cooling and hydration measures begin when indoor temperatures reach 90°F, medical monitoring requirements are primarily directed toward heat-risk individuals and are triggered when indoor temperatures reach 95°F.[14] Heat vulnerability lists can create a false sense of protection by suggesting that risk is limited to a defined group. In practice, however, many people outside that defined vulnerability may face substantial heat strain. At elevated indoor temperatures, particularly in poorly ventilated environments, heat can cause dehydration, fatigue, headaches, sleep disruption, and impaired concentration even before clinically defined heat illness occurs.[15] Elevated temperatures in prisons have also been linked to increased mortality and other adverse outcomes, indicating that heat exposure affects the broader incarcerated population beyond those with identified medical vulnerabilities.[16] These effects are not limited to clinically defined heat illness but include subclinical impacts that can impair cognition and physical functioning, particularly in enclosed and poorly ventilated environments.[17]

The panelists discussed how vulnerability classifications may rely on a narrow set of fixed criteria, such as age or diagnosed medical conditions, and may fail to capture other factors that increase susceptibility to extreme heat. For example, certain medications can impair thermoregulation and increase the risk of heat-related illness but may not trigger placement on a formal vulnerability list.[18] Even when heat-sensitive medications are identified as a risk, institutional responses often rely on spatial accommodations, such as relocating individuals to cooler housing.[19] This type of relocation is also difficult to implement in some cases as housing assignments in correctional settings are governed by custody classifications, staffing constraints, and separation requirements related to gang

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stress/recommendations/ppe.html; Miyo Yokota, Larry G. Berglund & Xiaojiang Xu, *Thermoregulatory modeling use and application in the military workforce*, 45 APPLIED ERGONOMICS 663 (2014).

14. Cal. Dep't Corr. & Rehab. (CDCR), *Extreme heat prevention and response*, https://www.cdcr.ca.gov/family-resources/2022/09/02/cdcr-and-cchcs-extreme-heat-prevention-and-response-efforts/ (last visited: Apr. 23, 2026). *See also* California Correctional Health Care Services, 2025 Heat Plan (Quality Management Committee, Apr. 2025) (on file with author).

15. Hajat, O'Connor & Kosatsky, *supra* 8; Michael N. Sawka, Lisa R. Leon, Scott J. Montain & Larry A. Sonna, *Integrated Physiological Mechanisms of Exercise Performance, Adaptation, and Maladaptation to Heat Stress*, 1 COMPREHENSIVE PHYSIOLOGY 1883 (Oct. 2011).

16. Skarha et al., *Heat-related mortality*, *supra* 4.

17. Hajat, O'Connor & Kosatsky, *supra* 8.

18. Skarha et al., *Heat-related mortality*, *supra* 4.

19. CDCR, *supra* 14.

affiliation, prior conflicts, or protective custody status.[20] These constraints illustrate how medical accommodation comes second to security priorities, even when foreseeable health consequences are known.

Other heat mitigation strategies that are commonly used in carceral settings rely on fans, hydration, or relocation to marginally cooler spaces, which may provide only limited relief in the absence of adequate ventilation or cooling infrastructure.[21] In the absence of air conditioning, and when available mitigation strategies are inadequate, panelists told stories of incarcerated individuals engaging in improvised and sometimes unsafe cooling practices. For example, some incarcerated people resort to flooding their cells, at times with toilet water, to cool their bodies.[22] In facilities without air conditioning, individuals may also reduce clothing to cope with heat, which can conflict with institutional rules and increase the potential for disciplinary action or confrontation with staff. These conditions are further compounded in settings where individuals return from outdoor labor in extreme heat without access to adequate cooling or hygiene, reinforcing prolonged exposure.[23]

Formal heat plans exist in some facilities and typically focus on identifying individuals vulnerable to heat stress and implementing staged responses during extreme temperatures, such as increased monitoring, access to water and cooling resources, and as described by the panelists, relocation to lower tiers or otherwise cooler spaces.[24] However, clinicians on the panel emphasized that these measures are often insufficient to meaningfully reduce heat exposures. In their experience, individuals are often moved to only marginally cooler environments while remaining housed in small, double-occupied cells with limited ventilation.

Heat exposure may be particularly severe in solitary confinement units, where individuals have the least ability to adapt or seek relief.[25] In these settings, panelists described institutions disciplining individuals who attempted to cool themselves through methods such as removing clothing or lying on the floor, treating these survival behaviors as violations of cleanliness or conduct rules.[26] Panelists also noted that engineering responses such as industrial fans often

20. Seena Fazel & Jacques Baillargeon, *The health of prisoners*, 377 LANCET 956 (2011); David H. Cloud, Ernest Drucker, Angela Browne & Jim Parsons, *Public Health and Solitary Confinement in the United States*, 105 AM. J. PUB. HEALTH 18 (Jan. 2015).

21. Barron, Roudbari, Pezzullo, Dashti & Liel, *supra* 11; VERA INST. JUST., *Why Temperatures in Prisons and Jails Matter* (Aug. 10, 2018).

22. Barron, Roudbari, Pezzullo, Dashti & Liel, *supra* 11; VERA INST. JUST., *supra* 21.

23. ASSOCIATED PRESS, *Louisiana prisoner suit claims they're forced to endure dangerous conditions at Angola prison farm* (Sep. 16, 2023).

24. CDCR, *supra* 14.

25. Cloud, Williams, Haardörfer & Brinkley-Rubinstein, *supra* 5.

26. Aryn Baker, *'Air Conditioning is a Human Right.' Heat-Related Prison Deaths Are Rising Due to Climate Change*, TIME (updated Dec. 11, 2023).

circulated hot air without reducing temperatures, while increasing noise and limiting communication.[27]

Extreme heat may also intersect with violence and survival strategies. For example, at San Quentin in California, individuals who fear assault on the yard may wear multiple layers of clothing for protection against being stabbed, a practice that increases heat risk. Suicide watch placements and self-harm incidents may increase during the summer months, particularly among people with serious mental illness.[28] In large dormitory-style housing units, often housing one hundred or more people, extreme heat was also described as exacerbating underlying tensions, with panelists observing increased violence during summer months.[29] Heat exposure has been associated with increased irritability, aggression, and worsening of underlying mental health conditions, which may contribute to observed increases in violence and self-harm during hotter periods. In Louisiana prisons, suicide-watch incidents were 29–36% higher on days with extreme heat compared to cooler days[30] and analyses of correctional facilities in Mississippi found that days with unsafe heat index levels were associated with a 20% increase in violent interactions and an 18% increase in the likelihood of any violence.[31]

B. Wildfire Smoke and the Limits of Indoor Protection

Wildfire smoke emerged as another environmental exposure discussed by panelists and one that is increasingly shaped by climate conditions, where prisons are built, and the availability and functionality of building infrastructure like air filtration. Wildfire smoke contains fine particulate matter ($PM_{2.5}$) that can penetrate deep into the lungs and enter the bloodstream, contributing to respiratory irritation, reduced lung function, systemic inflammation, and increased risk of cardiovascular events.[32]

Remaining indoors during a wildfire smoke event does not reliably reduce exposure when prison buildings lack effective filtration or any capacity to maintain clean indoor air, rendering shelter-in-place a largely nominal safeguard.[33] Even short-term exposure to wildfire smoke has been linked to exacerbation of asthma, chronic obstructive pulmonary disease, and other respiratory conditions, as well as increased hospitalizations and mortality in

27. PJP Contributors, *Summer Heat in Prisons: Just How Hot Are Our Nation's Prisons*, PRISON JOURNALISM PROJECT (Sep. 19, 2024).

28. Cloud, Williams, Haardörfer & Brinkley-Rubinstein, *supra* 5.

29. Randy Atlas, *Violence in Prison: Environmental Influences*, 16 ENV'T & BEHAV. 275 (May 1984); Mukherjee & Sanders, Working Paper, *supra* 5.

30. Cloud, Williams, Haardörfer & Brinkley-Rubinstein, *supra* 5; Mukherjee & Sanders, Working Paper, *supra* 5.

31. Mukherjee & Sanders, Working Paper, *supra* 5.

32. Colleen E. Reid, Michael Brauer, Fay H. Johnston, Michael Jerrett, John R. Balmes, & Catherine T. Elliott, *Critical Review of Health Impacts of Wildfire Smoke Exposure*, 124 ENV'T HEALTH PERSPS. 1334 (Sep. 2016).

33. LeMasters & Haber, *supra* 1.

exposed populations.[34] The challenge is particularly acute for facilities housing medically vulnerable populations. For example, California Medical Facility (CMF), which provides specialized medical and hospice care, has not been evacuated during the state's major recent wildfires.[35] Smoke exposure in such settings may exacerbate age-related and respiratory vulnerabilities increasing the likelihood of adverse health outcomes among individuals with complex medical needs.[36] Yet, carceral settings offer few of the protections that would ordinarily be expected for older adults in the community, such as access to clean indoor air, timely medical monitoring, or the ability to relocate away from hazardous conditions.

The panelists emphasized wildfire smoke as a recurring event now, particularly in rural facilities located in or near fire-prone regions.[37] During smoke events, air quality inside prisons often deteriorates alongside outdoor conditions due to aging infrastructure and limited filtration or other indoor air quality controls.[38] The panelists reflected on past smoke events describing the absence of clear communication and standard operating procedures which contributed to chaotic conditions, as both incarcerated people and staff were left to navigate prolonged exposure to indoor and outdoor wildfire smoke with limited information, insufficient protective equipment, and no smoke mitigation infrastructure such as portable air cleaners or clean rooms that are available for outside communities.

II. PRISON LOCATION, EVACUATION CONSTRAINTS, AND DISASTER RESPONSE

Many prisons are sited in remote and rural areas due to the low cost of land, economic decline in rural communities, and political incentives that have framed prisons as sources of stable employment.[39] In California, for instance, several prisons are located in areas that are prone to flooding, extreme heat, and wildfire, especially in the Central Valley, high desert, and Sierra foothills.[40] These siting decisions have placed facilities in regions with disproportionate exposure to climate-related hazards. This has created substantial logistical and security

34. Reid et al., *supra* 32.

35. Heather Harris, Alexandria Gumbs & Joseph Hayes, *What Can California Prisons Do When Wildfires Close In?*, PUB. POL'Y INST. OF CAL. BLOG (Nov. 13, 2020), https://www.ppic.org/blog/what-can-california-prisons-do-when-wildfires-close-in/.

36. Reid et al., *supra* 32.

37. Rachel Sklar, Samantha Kramer, Fred Lurmann, Marissa Childs, Stefano Bertozzi & Elizabeth Noth, *Occupational Exposure to Heat and Wildfire Smoke in California Correctional Facilities*, MEDRXIV (Aug. 8, 2025), https://doi.org/10.1101/2025.08.04.25332973 [Preprint].

38. Sklar, Noth, Kwan, Sears & Bertozzi, *supra* 2.

39. John Eason, *Mapping prison proliferation: Region, rurality, race and disadvantage in prison placement*, 39 SOC. SCI. RSCH. 1015 (2010).

40. ELLA BAKER CTR. FOR HUM. RTS., *supra* 11.

constraints on evacuation, leaving shelter-in-place as the default response in carceral settings.[41]

In theory, defend-in-place strategies, sheltering occupants within a structure that has been specifically equipped to protect people from wildfire hazards, can be appropriate in institutional settings where mass evacuation would pose a greater risk.[42] For example, in healthcare settings, defend-in-place is premised on specific infrastructural and operational conditions, including fire-resistant construction, reliable backup power, compartmentalized buildings that allow horizontal relocation, or functional HVAC systems capable of maintaining safe indoor air.[43] In some prisons such as those in California, by contrast, shelter-in-place often functions as the default response to climate-related emergencies, despite the absence of the conditions that would make a defend-in-place strategy protective.[44] Aging facilities frequently lack filtration systems that would be effective against smoke exposure[45] and emergency power systems such as lightning, security doors, and communications between staff appear to be designed to maintain critical functions related to custody rather than environmental or exposure mitigation systems.

Documented power outages in correctional facilities have disrupted environmental controls, including heating. For example, a 2019 electrical fire at a federal detention facility in New York caused a week-long outage that coincided with extreme cold, during which stakeholders reported that the facility was without heat.[46] This illustrates how shelter-in-place in carceral settings often amounts to continued confinement under extreme environmental conditions and hazards. These conditions are associated with well-documented health risks: in the general population, wildfire smoke exposure is linked to increased respiratory and cardiovascular morbidity and mortality, while flooding is associated with injury, infectious disease, and adverse mental health outcomes.[47] Reports from events such as Hurricane Florence describe individuals confined in flooded facilities and exposed to contaminated water and extreme conditions

41. LeMasters & Haber, *supra* 1; Meghan Vumback, *Evacuating the Incarcerated: The Intricacies of Keeping Prisoner's Eighth Amendment Rights Intact during Natural Disasters*, 11 L.J. SOC. JUST. 57 (2019).

42. Richard Zane, Paul Biddinger, Andrea Hassol, Tom Rich, Jennifer Gerber, & Jennifer DeAngelis, *Hospital evacuation decision guide (AHRQ Publication No. 10-0009)*, AGENCY FOR HEALTHCARE RSCH. & QUALITY (May 2010).

43. Mary Kate McGowan, *Defend-In-Place: How HVAC Systems, Building Automation Can Help Hospitals Protect Against Fires*, ASHRAE J. NEWSLETTER (Apr. 24, 2018).

44. Sklar, Noth, Kwan, Sears & Bertozzi, *supra* 2; ELLA BAKER CTR. FOR HUM. RTS., *supra* 11.

45. Sklar, Noth, Kwan, Sears & Bertozzi, *supra* 2.

46. U.S. Dep't of Just., Off. of Inspector Gen., Evaluation & Inspections Div., Review and Inspection of Metropolitan Detention Center Brooklyn Facilities Issues and Related Impacts on Inmates Report 19-04 (Sep. 2019), https://www.oversight.gov/sites/default/files/documents/reports/2019-09/e1904.pdf.

47. Weiwei Du, Gerard Joseph FitzGerald, Michele Clark & Xiang-Yu Hou, *Health Impacts of Floods*, 25 PREHOSPITAL & DISASTER MED. 265 (2010).

without evacuation, illustrating how continued confinement can exacerbate these risks.[48]

III. REGULATORY EXCEPTIONALISM AND THE LACK OF INSTITUTIONAL ACCOUNTABILITY

Several themes raised by panelists help explain why climate-related hazards may be particularly difficult to address in carceral settings. A recurring concern raised was that prisons and jails are frequently excluded or only partially covered by, public health, environmental health, and occupational health protections that would apply in other settings. For example, although prisons and jails are technically subject to state occupational protection frameworks, the Cal/OSHA representative on the panel explained that enforcement barriers and regulatory cutouts often limit meaningful oversight of occupational health conditions in prisons.[49] While OSHA retains jurisdiction over correctional workplaces, reporting and corrective action related to workplace hazards are often limited in practice. Incarcerated workers face structural barriers to reporting unsafe conditions, including ambiguity in coverage under occupational safety regulations and a risk of retaliation for raising concerns, which may reduce the likelihood that hazards are formally reported or corrected.[50] California's relatively new indoor heat illness prevention standard explicitly excludes prisons, exemplifying how carceral facilities get cutouts from rules that would otherwise protect incarcerated people and carceral workers during extreme heat events.[51] The same types of exceptions arise with respect to wildfire smoke, where air-quality advisories, filtration guidance, and exposure thresholds that trigger protective measures in schools, healthcare facilities, or workplaces do not carry the same force inside prisons due to limited infrastructure improvements and limited evacuation options.[52]

Emergency preparedness for carceral contexts is often incomplete. A 2025 California Inspector General audit found significant gaps in CDCR's natural disaster emergency preparedness, identifying deficiencies in risk assessment, planning, and oversight across the state prison system.[53] Even where plans exist, staff may lack training or familiarity with emergency procedures, limiting effective response during fast-developing crises. Evacuation protocols most

48. *Caged for the Storm as Hurricane Florence Bears Down*, HUM. RTS. WATCH (Sept. 12, 2018, 6:37 PM).

49. *See, e.g.*, Anastasia Christman, *California Finally Approved Indoor Heat Rules. Why Were Prison Workers Excluded?*, NAT'L EMP. L. PROJECT (July 15, 2024).

50. Megan Hauptman, *The Health and Safety of Incarcerated Workers: OSHA's Applicability in the Prison Context*, 37 ABA J. LAB. & EMP. L. 71 (2023).

51. Christman, *supra* 49.

52. Sklar, Noth, Kwan, Sears & Bertozzi, *supra* 2; LeMasters & Haber, *supra* 1.

53. Amarik Singh & Shaun Spillane, *Audit of the California Department of Corrections and Rehabilitation's Natural Disaster Emergency Preparedness and Mitigation Efforts*, CAL. OFF. INSPECTOR GEN. (May 2025).

often presume voluntary mobility which does not hold in carceral settings with people under custody. Instead, evacuation depends on facility-level decision-making and is constrained by logistical challenges such as limited transport capacity, meaning that relocation is often delayed, partial, or does not occur during acute hazard events.[54]

Data opacity compounds these forms of exclusion. Although correctional agencies may collect internal heat logs, incident reports, or medical surveillance data during extreme weather events, access to these data is often limited, inconsistent, or non-transparent, requiring extensive records requests and reconstruction efforts by external researchers and journalists.[55] Without transparency or external reporting requirements, oversight lacks meaningful force, and the health consequences of climate-related emergencies in carceral settings remain difficult to document, evaluate, or remediate. Broader critiques of correctional oversight reinforce these concerns. A California State Auditor report found that CDCR often lacked the data needed to evaluate key operational issues, including the effects of overcrowding, health care needs, staffing shortages, overtime, and aging prison populations on institutional conditions and costs.[56] The report concluded that weak data collection and limited use of existing data undermined effective management and accountability.[57] These same limitations are likely to hinder efforts to identify, monitor, and respond to climate-related risks in carceral settings.[58]

Panelists further emphasized lagging research-to-practice pipelines in carceral settings. Prisons and jails lag behind the already slow translation of public health evidence into policy and practice. Structural and institutional barriers, including the prioritization of security over health and limited mechanisms for accountability, contribute to delays in incorporating evidence into standards, guidance, and operational change in carceral settings.[59]

IV. THE EIGHTH AMENDMENT AND CLIMATE-RELATED CONDITIONS OF CONFINEMENT

Although it was not a focus of the panel, many of the conditions that were discussed map closely onto the Eighth Amendment framework used in prison conditions litigation. The Eighth Amendment prohibits cruel and unusual

54. LeMasters & Haber, *supra* 1; David Murphy, *Identifying Preparatory and Tactical Techniques for Emergency Responses to Jail Evacuations*, FED. EMERGENCY MGMT. AGENCY.

55. Clare Farley & Disha Raychaudhuri, *How Reuters collected and analyzed prison temperature data*, REUTERS, (July 30, 2025, 2:52 AM).

56. Elaine M. Howle, *California Department of Corrections and Rehabilitation: It Fails to Track and Use Data That Would Allow It to More Effectively Monitor and Manage Its Operations*, CAL. STATE AUDITOR (Sept. 2009).

57. *Id.*

58. *Id.*

59. Justin Berk, Hannah E. Frank & Mari-Lynn Drainoni, *Locked in and left out: the "prison penalty" for implementation of evidence-based interventions*, IMPLEMENTATION SCI. COMMC'N (2024).

punishment, which courts have interpreted to include conditions of confinement that willfully expose incarcerated people to a substantial risk of serious harm.[60] In practice, this standard has often made it difficult for incarcerated people to challenge environmental conditions unless those conditions are accompanied by clear evidence of illness, injury, or death rather than discomfort alone. For example, incarcerated people at a Florida prison lost their Eighth Amendment heat claim despite summer temperatures regularly reaching into the nineties, because the court found sufficient mitigating factors—those who were incarcerated were not required to wear many clothes, each had running water and a drinking cup, cells were not directly exposed to sunlight, and they were not required to exercise or perform labor outdoors.[61] Successful cases, on the other hand, tend to involve more severe facts such as when a district court found an Eighth Amendment violation where a man died of heat stroke after being held for a single week in a county jail cell with a steel door and no air conditioning, where temperatures reached at least 110°F during the day and 103°F at night.[62]

The gap between what public health evidence identifies as harmful and what courts have required to establish a constitutional violation is wide. OSHA guidance identifies a heat hazard at indoor temperatures above 70°F under moderate workloads.[63] A large body of epidemiological and physiological research demonstrates that heat-related health risks arise well before temperatures reach levels typically associated with heat stroke or other acute medical emergencies. Heat exposure has been linked to increased cardiovascular morbidity and mortality, dehydration, impaired thermoregulation, and progressive physiological strain, particularly among older adults and individuals with underlying health conditions.[64] The physiological basis for these effects is

60. *See, e.g.*, Farmer v. Brennan, 511 U.S. 825 (1994) (holding that prison officials may be held liable for denying humane conditions under the Eighth Amendment only if they knew inmates faced substantial risk of serious harm); Wilson v. Seiter, 501 U.S. 294 (1991) (holding that prisoners claiming conditions of confinement were unconstitutional under the Eighth Amendment were required to show deliberate indifference on part of prison officials); Estelle v. Gamble, 429 U.S. 97 (1976) (holding that petitioner's complaint showing he had been seen and treated by medical personnel 17 times within 3 months was insufficient to state a cause of action for Eighth Amendment violations).

61. Chandler v. Crosby, 379 F.3d 1278, 1297–98 (11th Cir. 2020).

62. Brock v. Warren Cnty.,Tenn., 713 F. Supp 238, 244 (E.D. Tenn. 1989); *see also* Ava Kaufman, Kathrina Szymborski Wolfkot, Brianna Seid, *Extreme Heat Exacerbates Dire Prison Conditions, With Few Paths to Relief*, STATE CT. REP. (June 26, 2025).

63. U.S. Dep't of Labor, Occupational Safety & Health Admin., OSHA Technical Manual Section III, Chapter 4, (2017), https://www.osha.gov/otm/section-3-health-hazards/chapter-4.

64. Rachel M. Cottle, S. Tony Wolf, W. Larry Kenney, *Cardiovascular challenges of aging in a hotter environment: A narrative review*, J. APPLIED PHYSIOLOGY (Sept. 1, 2025); Robert D. Meade, Ashley P. Akerman, Sean R. Notley, Nathalie V. Kirby, Ronald J. Sigal & Glen P. Kenny, *Effects of Daylong Exposure to Indoor Overheating on Thermal and Cardiovascular Strain in Older Adults: A Randomized Crossover Trial*, 132 ENV'T HEALTH PERSP. (Feb. 8, 2024); Jingwen Liu, Blesson M. Varghese, Alana Hansen, Ying Zhang, Timothy Driscoll, Geoffrey Morgan, Keith Dear, Michelle Gourley, Anthony Capon & Peng Bi, *Heat exposure and cardiovascular health outcomes: a systematic review and meta-analysis*, 6 LANCET PLANET HEALTH (Aug. 3, 2022); Antonio Gasparrini, Yuming

well-established: sustained heat exposure increases progressive cardiovascular strain, increases dehydration risk, and degrades thermoregulatory capacity through mechanisms that precede clinically defined heat illness.[65] Occupational safety frameworks have translated this science into actionable thresholds that trigger protective interventions at temperatures and workloads far below those at which courts have found constitutional violations.[66] Courts, on the other hand, have drawn the constitutional line closer to the point of acute crisis. In Raiford, Florida, the Eleventh Circuit found no Eighth Amendment violation at temperatures regularly reaching into the nineties.[67] Violations have been found primarily at the extreme end where prisoners died or faced imminent risk of death, as in Tennessee where a man died of heat stroke in a cell reaching 110°F.[68]

In Louisiana, litigation has focused both on extreme heat inside prisons and on forced outdoor labor under dangerous conditions.[69] At Louisiana State Penitentiary, incarcerated people have challenged being required to work outside in extreme temperatures, arguing that these conditions violate the Eighth Amendment and, in some cases, disability protections when medically vulnerable people are denied accommodations.[70] Other lawsuits have alleged that the combination of extreme heat, overcrowding, poor medical care, and lack of air conditioning amounts to cruel and unusual punishment.[71]

California has seen a different but related form of oversight through the long-running *Coleman v. Newsom* litigation, which originally focused on mental health care but has increasingly expanded to include environmental conditions such as heat.[72] Court oversight has led to the development of prison heat plans, but recent reporting suggests that multiple facilities remain out of compliance and continue to expose incarcerated people to unsafe temperatures.[73] This distinction between formal planning and actual protection is especially important in climate-related cases as having a written heat plan, wildfire response protocol, or evacuation procedure does not necessarily mean that facilities have the

Guo, Masahiro Hashizume, Eric Lavigne, Antonella Zanobetti, et. al, *Mortality risk attributable to high and low ambient temperature: a multicountry observational study*, 386 LANCET 369 (May 21, 2015).

65. Sawka, Leon, Montain & Sonna, *supra* 15.

66. *See* Larry L. Jackson & Howard R. Rosenberg, *Preventing Heat-Related Illness Among Agricultural Workers*, J. AGROMEDICINE (2010) (discussing state led efforts to address heat in workplaces).

67. Chandler v. Crosby, 379 F.3d 1278 (11th Cir. 2004).

68. *Brock*, 713 F. Supp. at 241.

69. Ball v. LeBlanc, 792 F.3d 584 (5th Cir. 2015).

70. Press Release, ACLU, VICTORY: Federal Court Rules that Medical Care at Angola Violates Eighth Amendment Prohibition on Cruel and Unusual Punishment (Apr. 1, 2021).

71. *See, e.g.*, *Ball*, 792 F.3d 584; Lewis v. Cain, No. 3:15-CV-318, 2021 WL 1219988 (M.D. La. Mar. 31, 2021).

72. Coleman v. Newsom, 131 F.4th 948, 958 (9th Cir. 2025).

73. Singh & Spillane, *supra* 53; Disha Raychaudhuri, Clare Farley, Travis Hartman & Adolfo Arrranz, *Scorching Cells*, REUTERS (July 30, 2025, 3:00 AM).

infrastructure operations plans that are needed to protect people during extreme events and emergencies.[74]

Additional research may further strengthen these constitutional claims. For example, studies documenting indoor temperatures and the related health effects in carceral settings can help establish that climate-related conditions are predictable and recurring events that are not just uncomfortable but pose serious and predictable risks to health. Similarly, geographic analyses showing that prisons are disproportionately located in regions vulnerable to heat, wildfire, and flooding may make it more difficult for agencies to argue that these harms are unavoidable. In this way, scientific evidence may play an increasingly important role in demonstrating both the seriousness and foreseeability of climate-related harms in carceral settings and the ability to leverage the use of the Eighth Amendment as a basis for increased protections.

V. THE HIERARCHY OF CONTROLS FOR MITIGATING RISKS

The OSHA official on the panel emphasized that climate hazards become disasters not because they are unpredictable, but because institutions are unprepared to manage them. The official introduced the hierarchy of controls as a framework for thinking about how to improve conditions in the face of foreseeable risks such as extreme heat and wildfire smoke in carceral settings.[75] This framework prioritizes interventions that reduce exposure at the source before relying on more individual-level measures. Applied to the carceral setting, interventions can be ranked from the most to the least effective as follows:

1. Elimination: Removing people from the hazardous conditions through prison population reduction is the most effective way to reduce climate-related harm

2. Substitution: Relocating people from the most dangerous environments to safer facilities

3. Engineering controls: Physical infrastructure such as air conditioning, smoke filtration, or flood protections

4. Administrative controls: Policies allowing movement to cooler areas, modified schedules, or emergency medical access

5. Personal protective equipment: Items such as cooling garments or respirators are the least effective long-term solution

Much of the discussion during the panel centered on the tendency for climate adaptation in carceral settings to rely on administrative controls and individualized interventions rather than higher-order controls that reduce exposure at its source. Examples discussed included vulnerability lists, medical

74. Vumback, *supra* 41.

75. Nat'l Inst. for Occupational Safety & Health (NIOSH), *Hierarchy of Controls*, U.S. CTRS. FOR DISEASE CONTROL & PREVENTION (Apr. 10, 2024), https://www.cdc.gov/niosh/hierarchy-of-controls/about/index.html.

monitoring, relocation to cooler housing, modified schedules, and restrictions on movement during wildfire smoke events. These interventions share a common feature: they seek to manage exposure after it occurs rather than eliminate the hazard itself. By contrast, higher-order approaches such as population reduction, relocation from hazard-prone facilities, and engineering controls such as air conditioning received less attention despite representing higher-order controls that address hazards at their source.

VI. AUTONOMY AND DISABILITY IN CLIMATE ADAPTATION

Panelists discussed how efforts to adapt to climate hazards in prisons raise difficult questions about autonomy for incarcerated people. Outside the carceral context, information about climate hazards enables individuals to assess risk and take protective action.[76] In prisons, by contrast, responses often default to restriction rather than the expansion of options. For instance, during wildfire smoke events, facilities may restrict movement or implement lockdown conditions as a protective measure, yet individuals often remain exposed due to poor indoor air quality and limited access to filtration or protective equipment. Recent wildfire events describe situations in which incarcerated people were confined indoors while smoke and ash entered facilities, with minimal means to reduce exposure.[77]

The discussion emphasized how meaningful autonomy depends on access to information as well as practical means of adaptation. In carceral settings, however, options for mitigating environmental exposure are limited. Basic heat-protective measures such as access to cooled spaces, fans, hats, and sunscreen may not be available without medical authorization. In some correctional settings, individuals attending yard must choose either to remain indoors or to go outside for the duration of the yard period and cannot freely move between the two environments. As a result, responses to changing heat conditions or other conditions such as wildfire smoke may be governed by institutional rules rather than individual assessments of heat strain or other discomfort.

The autonomy constraints described above take on additional legal weight when the people affected have disabilities. Climate-related exposures such as extreme heat or wildfire smoke may also exacerbate existing disabilities, including heat sensitivity, respiratory illness, and mobility issues.[78] Because prisons are subject to disability rights laws, climate-related risks may also raise questions about whether existing accommodations adequately address

76. *About Heat and Your Health*, U.S. CTRS. FOR DISEASE CONTROL & PREVENTION (July 25, 2025), https://www.cdc.gov/heat-health/about/index.html; *Communicating Air Quality Conditions: The Air Quality Index*, ENV'T PROTECTION AGENCY (Sept. 30, 2025), https://www.epa.gov/wildfire-smoke-course/communicating-air-quality-conditions-air-quality-index.

77. LeMasters & Haber, *supra* 1.

78. Sally Lindsay, Shalynn Hsu, Sharmigaa Ragunathan, & John Lindsay, *The impact of climate change related extreme weather events on people with pre-existing disabilities and chronic conditions: a scoping review*, 45 DISABILITY & REHABILITATION 4338-4358 (Nov. 16, 2022).

environmental conditions that affect people with disabilities. Clinicians on the panel pointed to opioid use disorder (OUD) as an example of how recognition of a condition as a protected disability can reshape institutional decision-making about treatment access and housing, requiring those decisions to be justified under disability-related standards.[79] Panelists also suggested that similar recognition of climate-exacerbated disabilities could shift how institutions evaluate housing, work, and movement during extreme weather.

VII. CARCERAL CONDITIONS AND PUBLIC RESPONSIBILITY

Several panelists underscored that public indifference to conditions inside prisons remains a central barrier to reform and contributes to limited political will to treat carceral environments as part of the public health landscape. The panel repeatedly returned to the premise that criminal sentence authorizes the deprivation of liberty, not exposure to preventable illness, injury, or death.[80] When incarceration is used as a mechanism of public safety, government responsibility for the conditions of confinement should follow. Panelists further emphasized that these conditions are not confined to prison walls. Indeed, approximately 95% of incarcerated people will eventually be released from prison and return to their communities,[81] potentially carrying with them the physical and psychological consequences of conditions they experienced while incarcerated.[82] Because climate-related exposures that lead to poor health outcomes in prison therefore undermine not only basic legal and ethical obligations, but also the rehabilitative and public safety goals that incarceration is purported to serve.[83] This disconnect is sustained by public indifference which is driven by limited visibility into carceral conditions. Improving transparency through data and research access as well as legal oversight can help shift these harms from unseen risks to public concerns that warrant intervention.

Although the panel focused primarily on extreme heat and wildfire smoke, these hazards reflect only part of the climate-related risks facing carceral facilities. As climate-related hazards such as flooding, wildfire, and heat intensify, institutional failures, including inadequate planning, unsafe conditions of confinement, regulatory gaps, and persistent data opacity, are likely to persist unless carceral settings are fully incorporated into public health, safety, and disaster-preparedness frameworks.

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79. *Opioid Use Disorder*, DEP'T OF JUSTICE, https://www.ada.gov/topics/opioid-use-disorder/.

80. *See, e.g.*, Brown v. Plata, 563 U.S. 493 (2011).

81. Press Release, U.S. Atty's Off., E.D. Pa., Looking Back on Second Chance Month 2024 and a Year of Reentry Initiatives (Apr. 30, 2024), https://www.justice.gov/usao-edpa/pr/looking-back-second-chance-month-2024-and-year-reentry-initiatives.

82. Michael Massoglia, *Incarceration as exposure: the prison, infectious disease, and other stress-related illnesses*, 49 J. HEALTH & SOC. BEHAV. 56-71 (2008).

83. Danielle Wallace & Xia Wang, *Does in-prison physical and mental health impact recidivism?*, 11 SSM-POPULATION HEALTH (2020).

CONCLUSION

Climate-related hazards in carceral settings are neither isolated events nor unforeseeable disasters. Extreme heat, wildfire smoke, flooding, and other environmental exposures are increasingly predictable features of incarceration in many parts of the United States. Yet as discussed here, prisons and jails remain largely excluded from the public health, occupational safety, disability, and disaster-preparedness systems that would otherwise govern these risks in populations outside of carceral facilities. As a result, people living and working in carceral settings continue to experience disproportionate and preventable harm.

Addressing these risks requires more than individualized accommodations or emergency responses after conditions become dangerous. The hierarchy of controls offers a useful framework for prioritizing interventions that reduce exposure at its source, including population reduction, relocation from the highest-risk facilities, infrastructure improvements, and stronger emergency planning. It also requires better data and an evidence base that includes routine monitoring of indoor temperatures, smoke infiltration, health outcomes, and emergency responses in correctional settings. These forms of evidence will be increasingly important for informing protective interventions, supporting policy development and rulemaking, and assessing how correctional systems are meeting their legal and ethical obligations to protect the health of those in their custody and those they employ.