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## From Hardhats to Headspace: The Link Between Mental and Physical Safety in Construction

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Mental health is a critical yet often overlooked element of workplace safety in construction, an industry with high stress and distraction levels that elevate accident risks and contribute to suicide rates 4.3 times the national average. This paper synthesizes Maslow’s Hierarchy of Needs, Conklin’s Five Principles of Human and Organizational Performance (HOP), and Meadows’ leverage points to propose a framework for embedding mental health into safety practices. A literature review methodology was employed to integrate these theoretical frameworks and identify practical applications. Findings highlight the importance of addressing basic human needs, creating error-tolerant systems, and fostering non-punitive workplace cultures. Small interventions, such as encouraging feedback loops and regular rest breaks, improve trust, resilience, and collective safety. The study concludes that aligning mental and physical safety enhances organizational outcomes, offering a roadmap for transitioning from compliance-focused practices to a culture of care. By integrating well-being into workplace safety, construction organizations can foster environments where mental health is valued alongside physical protection, supporting both individual and team performance.

Keywords: Mental health in construction, Psychological safety in construction, Workplace safety integration, Systems thinking in safety, Human and organizational performance (HOP)

### Introduction

Mental health is intricately linked to overall well-being and performance in the workplace. Workers face unique stressors such as tight deadlines, physically demanding tasks, and an environment that often stigmatizes mental health discussions in the construction industry. The impact of mental health on workers’ ability to perform hazard assessments and execute tasks in a safe manner is profound. Research indicates that individuals experiencing stress or distraction are significantly more prone to accidents compared to their more focused counterparts (Kelloway & Barling, 2010). Supportive work environments foster empathy and collective safety practices, encouraging employees to demonstrate greater concern for their colleagues and enhancing overall safety (Barling et al., 2003). Additional research categorizes a psychological safety climate as dependent on organizational participation, organizational communication, management priority, and management commitment (Golzad et al., 2023). These categories reflect the need for an individual approach to building psychologically safe

climates but also addressing team dynamics and organizational systems. This raises two essential questions: How can organizations effectively promote mental well-being and resilience as integral aspects of workplace safety? Is mental health as crucial to safety as physical protection measures such as personal protection devices?

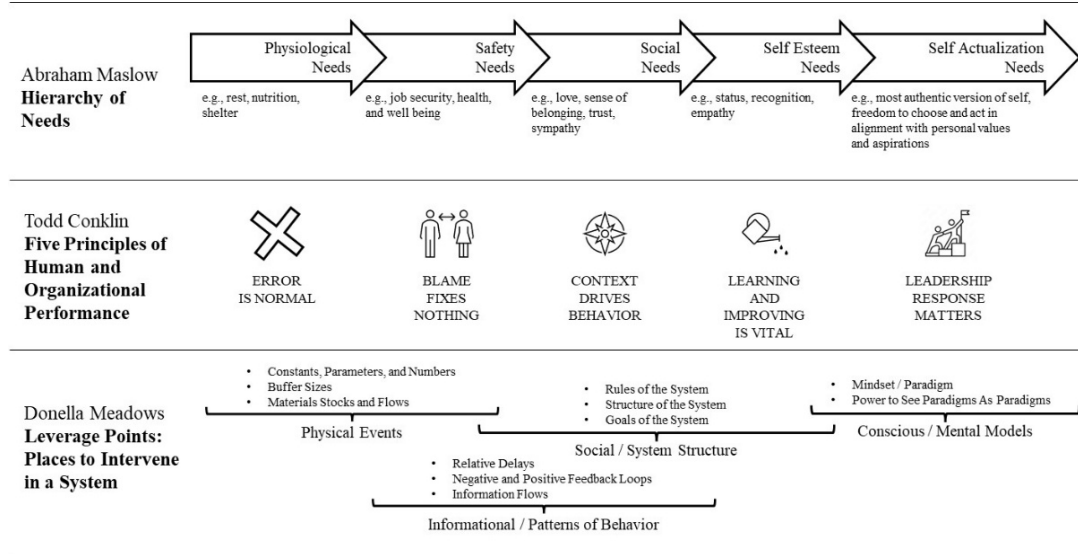
This paper highlights that safe practices in construction cannot be fully realized without considering the stages of human motivation and development. Where individuals are situated on this continuum profoundly influences their capacity to perceive hazards, adapt to risks, execute tasks with care, and prioritize the well-being of themselves and those around them. Moreover, this alignment with human needs impacts their ability to innovate—enabling the discovery of smarter, more efficient, and safer operational methods on construction sites. By weaving these elements together, we recognize that safety is not merely about compliance but about empowering individuals to thrive in environments where both physical and psychological well-being are prioritized. This paper presents a progressive framework for aligning mental health with workplace safety through the integration of Maslow's Hierarchy of Needs (Maslow, 1943), Todd Conklin's Five Principles of Human and Organizational Performance (HOP) (Conklin, 2019); and Donella Meadows' Thinking in Systems (Meadows, 1999). Maslow's model provides a conceptual foundation for understanding human needs as a flow of progression, moving systematically from basic physiological needs to self-actualization. However, the flow of progression between stages requires continuity; more basic human needs must remain satisfied as higher-level aspirations are pursued. Todd Conklin's HOP principles then provide practical mechanisms to operationalize these changes, emphasizing designing error-tolerant systems, fostering non-punitive cultures, and promoting leadership that prioritizes learning and improvement. Donella Meadow's leverage points offer a systemic intervention guide to this progression by addressing information flows, feedback loops, and mental models.

Figure 1 illustrates the alignment of three conceptual frameworks, revealing new insights into the interplay between individual psychology, organizational performance, and systems thinking. Maslow's psychological theory of human motivation and development serves as the foundational layer, emphasizing how individuals' needs influence their ability to engage, innovate, and thrive within their environments. Building upon this, Conklin's HOP demonstrates how recognizing human error, focusing on behavioral context, and fostering learning environments lead to safer and more effective workplace practices. Finally, integrating Meadows' "Places to Intervene in a System" introduces a systems-level perspective, offering actionable strategies to provide feedback loops that enhance team performance and improve overall system resilience. Together, these models offer a holistic approach to understanding and improving human (mind and body) performance and organizational dynamics leading to safer construction projects.

This dynamic and interconnected framework captures the flow of progression between human needs, systemic intervention, and organizational actions. The framework recognizes that addressing mental health as a key safety concern requires moving beyond foundational solutions, such as hydration or PPE, to include social connections, esteem, and self-actualization. For example, physiological needs ensure workers show up with energy and capacity to engage meaningfully in their tasks, while social needs like belonging and recognition are essential for cultivating trust and collaboration on construction sites. As workers progress towards self-actualization, they will experience opportunities for leadership, mentorship, and professional growth, ensuring their continued engagement and contribution to the overall organization mission.

This paper highlights the necessity of treating mental well-being as a central component of construction safety by embedding mental health into workplace safety practices. This approach mitigates risk and fosters a culture of continuous improvement, where the mental and physical

dimension of safety are integrated to support individual resilience and collective performance. Figure 1 provides a framework to serve as a roadmap for organizations seeking to transition from transactional safety measures to transformational safety cultures. Speaking openly and candidly daily normalizes the topic of mental health and creates a dynamic within the culture of safety that is essential to developing and maintaining safe workplaces and healthy people.



**Figure 1.** Aligning human motivation, organizational performance, and systems thinking for enhanced safety and innovation (Maslow, 1943), (Conklin, 2019), (Meadows, 1999)

Despite the clear connection between mental health and safety, stigma remains a formidable barrier in the construction industry. This cultural resistance to discussing mental health contributes to a suicide rate 4.3 times higher than the national average, with an estimated ten to fifteen construction workers dying by suicide each day (Hafeli, 2022). The challenge extends beyond the workers themselves, as recognizing signs of mental distress often eludes managers and supervisors who lack specialized training in mental health (Dollard et al., 2010). Considering these challenges, training and skill development that nurture a supportive, empathetic work environment are essential. This includes building trust, communication, and active listening skills among team members and leaders. Strategic planning that fosters project completion within a supportive environment is required to create a culture where mental health is prioritized alongside physical safety (Lingard & Turner, 2020).

Maslow’s hierarchy of needs provides a useful framework for understanding the diverse requirements of construction workers, from physiological needs for rest and nutrition to psychological needs for belonging and esteem (Maslow, 1943). When these needs are met, workers are better able to perform safely and productively. However, crises such as a spouse’s serious health issue, natural disasters, or personal financial insecurities can disrupt these needs, impairing workers' ability to function and increasing their vulnerability to safety risks. Engaging in open dialogues about stressors, including issues related to childcare, personal budgeting, food insecurity, etc. helps to dispel harmful stigmas and challenges the cultural notion of "manning up" (Vogel et al., 2011). Daily safety briefings set up to discuss proper safe work practices, offer an opportunity to “huddle up” as a team and can transform procedural tasks into meaningful discussions that resonate with workers’ experiences. These conversations not only address immediate safety concerns but also provide a platform for fostering long-term mental well-being and resilience.

Addressing mental health in construction requires a systemic, multi-layered approach that integrates principles from systems thinking, and relies on the concept of the learning organization. Donella Meadows' (2008) idea of leverage points specific areas where small interventions can yield significant changes is particularly relevant in construction safety. By identifying and activating the proper leverage points, organizations can introduce targeted interventions, such as regular well-being check-ins or non-punitive reporting systems, that not only support mental health but also contribute to a safer, more resilient work environment. This system's approach aligns with Peter Senge's (2006) vision of a learning organization, which continuously adapts and improves through feedback and open communication. In this framework, small acts of kindness, like a simple smile or an encouraging word, serve as powerful tools for fostering an environment of psychological safety and trust.

Incorporating mental health as an integral component of safety within the construction industry requires a shift from transactional, rule-based practices to transformational approaches that recognize the human side of construction. By using Meadows' leverage points, the principles of HOP, and Maslow's hierarchy, organizations can develop a framework that embeds mental health in their safety culture. This involves creating systems that are responsive to human needs, designing supportive environments where mental health is openly addressed, and fostering a culture of continuous improvement. Evidence suggests that informed, engaged workers are not only safer but also more productive (Sonntag, 2018). This holistic approach supports not only individual growth and satisfaction but also enhances collective safety performance, enabling a workplace where mental and physical safety are interconnected and mutually reinforcing.

### **Research Methodology**

The research methodology for this study employs a literature review to explore the intersection of mental health and workplace safety in the construction industry. This approach allows for an examination of existing knowledge, theories, and empirical findings related to the subject matter. This provides a foundation for exploring the complex relationship between mental health and workplace safety in the construction industry. By synthesizing existing knowledge and theoretical frameworks, it contributes to a more holistic understanding of how mental health initiatives can be effectively integrated into construction safety practices, leading to improved worker well-being, improved productivity, and safer work environments.

The source selections for the literature review encompasses a range of academic and professional sources, including: Peer-reviewed journal articles from fields such as occupational health, psychology, and construction management; Industry reports and white papers; Books on workplace safety, mental health, and organizational behavior; Government publications and statistics; Conference proceedings and academic theses; Sources were selected based on their relevance, credibility, and recency, with a focus on publications from the last decade to ensure up-to-date information. The literature review was structured around three key theoretical frameworks: Abraham Maslow's Hierarchy of Needs; Todd Conklin's Five Principles of Human and Organizational Performance (HOP); and Donella Meadows' Thinking in Systems. These frameworks provide a multifaceted lens through which to analyze the relationship between mental health and workplace safety in construction.

The review process involved a thematic analysis of the selected literature. Key themes are identified, including: The impact of stress and mental health on workplace safety; Specific stressors affecting construction workers; Mental health interventions in construction settings; The role of organizational culture in promoting mental health and safety; and Systems thinking approaches to workplace safety. The literature review synthesized findings from various sources to develop a comprehensive

understanding of how mental health initiatives can be integrated into safety practices in the construction industry. This synthesis aims to identify gaps in current knowledge and highlight areas for future research. Relevant information and qualitative insights were extracted from the reviewed literature. This information was analyzed to identify patterns, trends, and correlations between mental health factors and safety outcomes in construction settings. Based on the synthesis of literature findings, Table 1 was developed to show practical application examples that integrate Maslow's Hierarchy, Conklin's HOP, and Meadows' leverage points. These examples model how addressing basic human needs and viewing error as normal can establish buffers against stress, while a non-punitive culture creates open channels for feedback.

The limitations of a literature review-based methodology are acknowledged, including potential publication bias and the lack of primary data collection. To mitigate these limitations, efforts were made to include diverse perspectives and sources, including industry reports and practitioner insights alongside academic literature. While this methodology does not involve direct human subjects, ethical considerations are still important. Care was taken to accurately represent the findings of other researchers and to avoid plagiarism through proper citation and referencing.

### **Research Question**

How can the integration of mental health systems, modeled after frameworks like Maslow's Hierarchy of Needs, Conklin's HOP principles, and Meadow's Systems Thinking, enhance workplace safety for the mind AND the body within the construction industry?

### **The Link Between Mental Health and Workplace Safety**

Addressing mental health as a component of safety requires a shift towards a systems-thinking approach. This paper integrates insights from Donella Meadows' concept of leverage points (1999) and Todd Conklin's Human and Organizational Performance (HOP) (2019) principles to develop a holistic safety framework. This framework acknowledges that small, targeted interventions such as: fostering open communication, encouraging kindness, and building feedback loops can transform workplace culture. By embedding mental health support into safety practices, construction organizations can create a resilient, adaptive environment where mental well-being is recognized as integral to physical safety.

Research highlights the profound link between mental health and workplace safety. Stress, distraction, and emotional distress impair decision-making, slow reaction times, and reduce adherence to safety protocols, placing workers at higher risk (Kelloway & Barling, 2010). The workplace environment itself plays a crucial role in shaping mental well-being. In supportive environments, employees are more likely to look out for each other and engage in proactive safety behaviors, fostering a collective culture of safety (Barling et al., 2003). Conversely, environments that ignore mental health concerns can lead to isolation, reluctance to speak up, and decreased safety engagement.

For the construction industry, where physical demands and tight deadlines are common, addressing mental health is especially important. Stressors related to work and personal crises can exacerbate safety risks, as workers struggling with mental health issues may be distracted or physically fatigued. A systems-based approach that integrates HOP principles—such as recognizing human variability and encouraging open communication—creates a structure where mental health is viewed as integral to safety. This approach not only benefits individual workers but also enhances overall safety culture by promoting collective responsibility and support.

Creating a supportive work environment where mental health is prioritized requires intentional efforts in training, communication, and management practices. Recognizing the signs and symptoms of mental health issues, such as stress, burnout, or anxiety, poses challenges even for trained professionals. For managers without specialized training, this task is even more difficult (Dollard et al., 2010). Therefore, an effective safety culture must incorporate training that fosters trust, active listening, and empathy. Managers must engage regularly with workers, inquire about their well-being, and respond to their concerns—particularly in high-stress environments like construction, where deadlines, physical demands, and external crises (such as natural disasters) can elevate stress levels.

Safety briefings and regular check-ins provide structured opportunities to engage workers in open conversations about their well-being. By integrating mental health into these sessions, managers can shift the perception of safety briefings from routine updates to meaningful discussions that address both physical and mental health. Such discussions help build trust, reduce stigma around mental health, and create a culture where workers feel safe to share their challenges. This supportive environment aligns with the principles of a learning organization, as it continuously adapts to meet the needs of the workforce and creates feedback loops that improve the system over time.

### **Operationalizing Mental Health into Safety Practices**

The integration of Maslow's Hierarchy of Needs, Todd Conklin's Five Principles of Human Performance (HOP), and Donella Meadows' Systems Thinking Leverage Points provides a comprehensive synthesis for addressing workplace safety and mental health in highly stressful and complex industries such as construction. This research underscores that workplace safety is not a static concept but an evolving system that necessitates meeting both the physical and psychological needs of workers. Emphasizing that mental health is as integral to safety as personal protective equipment, fostering a more holistic understanding of risk management. By aligning Maslow's foundational needs with practical safety measures, such as hydration and rest stations, and combining these with Conklin's HOP's recognition that error is normal, organizations can reduce stress while accommodating human variability. Furthermore, Meadows' leverage points, such as feedback loops and mental models, offer targeted interventions to reinforce safety culture at every organizational level.

### **Maslow's Hierarchy of Needs and Workplace Safety**

Prioritizing the human side of construction necessitates creating environments where workers can progress seamlessly through the hierarchy of needs, enabling them to thrive both mentally and physically. Addressing mental health aligns directly with Maslow's (1943) model, as each level provides a foundation for the next. For example, ensuring workers' physiological needs such as: rest, nutrition, and hydration, are consistently met creates a baseline for physical and mental readiness. Once these needs are secured, workers can focus on safety and well-being, supported by consistent job security, hazard-free environments, and mental health resources. Daily safety briefings and team huddles can serve as entry points for addressing safety needs while integrating conversations about stressors and mental health, transforming these procedural events into moments of connection and support.

Progression through belongingness, esteem, and self-actualization highlights the importance of an integrated framework. Belongingness is cultivated through team-building activities, peer recognition programs, and open communication, allowing workers to feel connected to their teams and projects. At the esteem level, fair recognition and equitable workflows, such as those enabled by Kanban boards, validate workers' contributions and empower them to engage fully with safety practices. Self-actualization occurs when workers are given opportunities for skill development, leadership, and

autonomy, ensuring they feel both valued and motivated. This progression underscores that workplace safety is not just about mitigating hazards but about fostering an ecosystem where mental health and physical safety reinforce each other.

### **Five Principles of Human Performance and Workplace Safety**

Todd Conklin's Five Principles of Human Performance operationalize the progression through Maslow's hierarchy while reinforcing the systemic changes outlined in Meadows' leverage points. These principles provide actionable insights that address each flow of progression, ensuring mental health is as integral to safety as PPE.

Error is Normal is supported by Maslow's definition of physiological needs by designing systems that account for human fallibility. For example, ensuring that adequate work breaks and hydration protocols are enforced reduces fatigue-related errors, creating error-tolerant systems at the foundational level. Similarly, Blame Fixes Nothing aligns with safety needs, fostering a non-punitive culture where workers feel psychologically secure to report incidents and share concerns. This principle supports open communication channels that are vital for mental health interventions. Learning is Vital and Context Drives Behavior are pivotal for transitioning from safety and belongingness to esteem. Continuous feedback loops ensure that lessons from incidents are integrated into workflows, while understanding and addressing contextual factors such as: excessive workloads or unclear responsibilities, enhances both safety and collaboration. Finally, Safety is About System Design mirrors the aspirations of self-actualization by embedding safety and mental health into organizational values. Leadership initiatives, such as mentorship programs and skill-building workshops, empower workers to achieve their potential while contributing meaningfully to their teams and projects.

### **Systems Thinking Leverage Point Framework and Workplace Safety**

Donella Meadows' leverage points provide a practical framework for designing systems that enable seamless progression through Maslow's hierarchy, ensuring that mental health is integrated into workplace safety at every level. Physical events, such as providing hydration stations and mandatory rest breaks, address immediate physiological needs while laying the foundation for higher-level mental well-being. Buffers, such as flexible schedules and additional resources for high-stress periods, ensure that workers can operate effectively despite unforeseen challenges, minimizing the strain that disrupts safety practices. Feedback loops and information flows serve as bridges between safety needs, belongingness, and esteem. Positive reinforcement for reporting near-misses or safety concerns not only increases engagement but also creates a transparent and trusting environment. Sharing mental health resources and success stories during daily safety briefings reduces stigma and encourages collective responsibility. At the structural level, systems that prioritize inclusivity, such as non-punitive reporting mechanisms, foster a sense of psychological safety, allowing workers to voice concerns without fear of reprisal. The final leverage point, mindset shifts, transforms organizational culture by embedding mental health into the definition of workplace safety. By expanding the construction industry's definition of safety to include emotional and psychological resilience, organizations create a culture where mental well-being and physical safety are inseparable.

<b>Table 1.</b> Integrative framework for embedding mental health into construction safety practices					
<b>Maslow’s Hierarchy of Needs</b>	Physiological (e.g.: Rest, nutrition, shelter)	Safety (e.g.: Job security, health, well-being)	Belongingness (e.g.: Trust, belonging, support)	Esteem (e.g.: Recognition, empathy, fairness)	Self-Actualization (e.g.: Acting in line with values)
<b>HOP Principles</b>	Error is Normal	Blame Fixes Nothing	Learning is Vital	Context Drives Behavior	Safety is About System Design
<b>Meadows’ Leverage Points</b>	Buffers, resource flows	Feedback loops	Goals and feedback	Social/system structure	Mental models
<b>Mental Health Stressors</b>	High demands, unsafe environment	Job insecurity, unclear roles	Isolation, low support	Low recognition, unfair practices	Limited growth, lack of control
<b>Strategies to Integrate into Workplace Safety</b>	Ensure adequate rest and hydration	Develop a culture of psychological safety	Strengthen team cohesion	Enhance leadership capabilities	Support career growth and resilience
<b>Practical Steps</b>	Provide break schedules, hydration stations, clean environments (including hygiene facilities), and fit-to-work assessments	Use non-punitive language, reporting systems and anonymous feedback channels	Foster peer recognition and aligning team efforts with clear project objectives (e.g. via enhanced daily huddles)	Provide ongoing targeted leadership/team training and transparent workflows to ensure fairness and accountability	Offering mentorship opportunities and aligning individual development with organizational goals

Table 1 presents a comprehensive integration of three foundational frameworks Maslow’s Hierarchy of Needs, Todd Conklin’s Five Principles of Human Performance (HOP), and Donella Meadows’ Systems Thinking Leverage Points within the context of workplace safety and mental health in the construction industry. It provides an integrated framework for expanding construction safety practices



to include psychological safety and other aspects of mental health into construction practices. The table highlights how each framework's core concepts address different dimensions of human needs, organizational behavior, and system design to improve worker well-being and safety outcomes. Mental health stressors, commonly encountered in high-stress industries like construction, are mapped to strategies for integrating mental health into workplace safety. These strategies are operationalized into actionable steps, providing practical methods for fostering a culture of care and resilience. The table underscores the interconnected nature of mental health and safety but also provides a roadmap for creating environments that empower workers to thrive both physically and mentally while achieving organizational goals.

A significant barrier to addressing mental health in construction is the stigma surrounding discussions of vulnerability and stress. To overcome this stigma, it is essential to engage in open, non-judgmental dialogues about the stressors workers face, which include excessive job demands, poor working environments, job insecurity, low job support, and workplace injustice, as outlined in that order by Almaskati et al. (2023). These stressors, deeply ingrained in the construction industry's high-pressure culture, exacerbate mental health challenges and contribute to feelings of isolation, self-medication, burnout, and helplessness. Research by Vogel et al. (2011) highlights that fostering open conversations about these challenges cultivates a culture of empathy and support, reducing feelings of isolation and encouraging workers to seek help rather than "toughing it out" alone.

Maslow's hierarchy of needs provides a useful framework for structuring this approach to mental health. At the base of the hierarchy are physiological needs, such as food, shelter, and rest, which are fundamental for effective functioning. When these needs are disrupted whether by financial stress, inadequate living conditions, or external crises, workers' ability to focus on safety and productivity is compromised. By addressing these basic needs and supporting higher-level needs like belonging, self-esteem, and self-actualization, organizations can create safer, more resilient workplaces. Interventions designed with these multi-level needs in mind enable a holistic response to mental health challenges, breaking stigmas and fostering a workplace culture that values both mental and physical well-being.

The flow of progression through Maslow's hierarchy, supported by Meadows' leverage points and Conklin's HOP principles, demonstrates that mental health is not a standalone initiative but a cornerstone of workplace safety. Practical steps such as implementing hydration and nutrition stations, conducting regular team-building activities, and fostering transparent workflows ensure that workers can progress seamlessly through their needs. At each flow of progression, specific and measurable interventions, such as monitoring fatigue levels through wearables or evaluating team cohesion via surveys, provide actionable insights to refine practices. This integrated framework not only addresses immediate safety concerns but also promotes long-term resilience. By embedding mental health into safety practices, organizations create environments where workers feel valued, supported, and empowered to thrive. All of this ensures that both mental and physical safety are treated as equal priorities. Through the systematic application of these principles, construction organizations can lead the way in redefining workplace safety, creating cultures where well-being and productivity coexist harmoniously.

### **Conclusion**

Key takeaways from this study include the recognition that workplace safety is systemic, requiring interventions that span physical events, behavioral patterns, organizational structures, and mental models. The literature shows that leadership plays a pivotal role in fostering a paradigm shift, embedding mental health into the broader safety culture and transforming safety from a procedural mandate into a deeply human-centered practice.

This research demonstrates that addressing mental health within safety practices is not merely a supplementary measure but a fundamental aspect of creating adaptive, thriving workplaces. By recognizing the human dimensions of safety and operationalizing systemic principles, construction organizations can establish environments where workers feel valued, empowered, and supported. In the researchers' opinions, this holistic approach will not only enhance safety outcomes but also drives sustainable improvements in worker engagement and organizational resilience, paving the way for a future where mental and physical safety of humans is fully integrated.

This paper establishes that the well-being of workers must be viewed holistically, with mental and physical safety standing as equal pillars of a supportive, high-performing workforce. Let this call to action resonate across all levels of the industry: we cannot achieve workplace safety without addressing the psychological and physical well-being of the workforce. In prioritizing mental health, we honor the humanity of our workers, protect their ability to thrive, and lay the foundation for an industry built on respect, resilience, and unwavering care. It is time for mental health to take its rightful place as a cornerstone of construction safety.

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