

INTENTIONAL SPACES:
THE POWER OF PLACE

ROADMAP

EXECUTIVE OVERVIEW: INTENTIONAL SPACES ROADMAP

The Roadmap was developed by the International Arts + Mind Lab, Center of Applied Neuroaesthetics at Johns Hopkins University School of Medicine, in consultation with a coalition of global experts, this project invites researchers, designers, developers, policymakers and technologists to reimagine the built environment—not merely as a backdrop, but as a powerful tool for human whole health and flourishing.

The Roadmap outlines a strategic plan to build neuroarchitecture with practical steps and system-level recommendations for the field.

Importantly, this body of work represents a shared ambition: to move beyond theory and into applied practice, creating environments that actively support emotional, cognitive, and physical health.



FROM RESEARCH TO MOVEMENT: BUILDING THE FIELD

The Intentional Spaces Roadmap (Roadmap) is a call to action to build a new interdisciplinary field focused on envisioning, designing, and creating environments—both physical and virtual—that intentionally support human health, connection, creativity, learning, and wellbeing. While this movement embraces insights from neuroarchitecture, it extends beyond it to also incorporate diverse perspectives from psychology, sociology, environmental design, public health, and cultural—creating a holistic approach to shaping spaces that truly serve people and communities.

We navigate through a variety of environments every day including our homes, schools, offices, hospitals, parks, and countless other spaces. Yet we rarely stop to consider the quiet but powerful influence that these surroundings exert on our minds, our bodies, and our sense of self. Every color, sound, texture, and spatial arrangement shapes how we feel, how we interact, and even how we heal.

When environments are designed with intention, guided by insights from psychology, neuroscience, and human-centered research, they can become active agents of wellbeing. A thoughtfully lit classroom can sharpen focus and support emotional regulation. A welcoming public park can foster community and encourage physical activity. A hospital room that incorporates natural light and calming materials can measurably reduce recovery times. These are not just aesthetic preferences; they are design decisions with real human consequences.

Despite growing evidence, many built environments continue to follow outdated conventions or prioritize visual appeal over lived experience. We often see spaces that are beautiful but cold, efficient but alienating, or functional but deeply disconnected from the people who use them. This gap between what we know and what we build is not just a missed opportunity, it can actively cause harm.

To move forward, we must treat design not

as decoration, but as a form of care. Our environments should reflect not just form and function, but empathy, access, and a deep understanding of human needs. When we build with intention, we do not just create spaces—we shape experiences, and ultimately, we shape lives.

FROM RESEARCH TO MOVEMENT: BUILDING THE FIELD

The Roadmap builds on the foundational work of the NeuroArts Blueprint, a seminal framework for the broader field of neuroarts, of which Intentional Spaces is a subfield. This work outlines a focused strategy for applying neuroarchitecture, neuroaesthetics, and intentional design to guide architects, designers, researchers, artists, policymakers, funders, and community members in creating spaces that both serve practical needs and support human flourishing.

In November 2023, the pivotal Intentional Spaces Summit convened by the International Arts + Mind Lab Center for Applied Neuroaesthetics (IAM Lab) at Johns Hopkins School of Medicine and the Academy of Neuroscience for Architecture brought together over 300 leaders to align research, design, and community voices around this vision. These insights shape a set of clear, actionable recommendations to help advance the field of neuroarchitecture:

- Enhance Basic and Translational Research and Diverse Ways of Knowing
- Establish Career Pathways that Incorporate New Knowledge
- Expand Methods and Technology to Advance Intentional Spaces
- Strengthen Messaging and Communication for Multiple Stakeholders
- Generate Economic and Impact Evidence
- Advance Policies that Encourage Intentional Space Design
- Build Capacity, Leadership, and Inclusion

The Roadmap was co-created with the Intentional Spaces community, reflecting a shared commitment to developing further a field that honors culture, identity, and belonging through collaboration across disciplines and lived experiences. By centering community voice and inclusion, this plan aims to close the gap between research and real-world practice. The intention is for the Roadmap to model the integrated, inclusive approaches needed to build and sustain this emerging field.

While challenges remain, such as perceived costs, limited standards, and the complexity of measuring impact, short-term wins are possible as the long-term efforts continue. Intentional Spaces is, at its heart, a generative movement requiring new models of collaboration. We are at an inflection point. Advances in neuroscience, design, and public engagement now make it possible to design with intention and impact.

SETTING THE STAGE FOR THE INTENTIONAL SPACES MOVEMENT

In 2020, the Intentional Spaces Initiative was launched by the IAM Lab, a research-to-practice initiative at the Johns Hopkins School of Medicine, which promotes evidence-based innovation at the intersection of arts, aesthetics, and technology.

Intentional Spaces is a distinct and interconnected area within the broader emerging field of neuroarts, which itself is rooted in the study of neuroaesthetics and other ways of knowing. Neuroarts is defined as the transdisciplinary study of how the arts and aesthetic experiences measurably change the body, brain, and behavior, and how this knowledge is translated into specific practices that advance health and wellbeing.

Intentional spaces are multidimensional ecosystems, encompassing interior and exterior architecture, landscape design, furnishings, lighting, acoustics, and materiality. Each component plays a distinct yet interconnected role in guiding emotional and cognitive states and, when thoughtfully integrated, they create environments that

are not only “beautiful” but also deeply functional and often therapeutic. This field thrives on collaboration and inclusivity, drawing together a wide network of architects, interior designers, landscape architects, contractors, manufacturers, researchers, and healing practitioners. As intentional space design continues to evolve, it underscores a fundamental truth: transformative experiences are not accidental; rather, they are cultivated, supported, and sustained through deliberate choices in our built and natural environments.

The Intentional Spaces Initiative draws from both quantitative and qualitative research to inform design, impact, and evolution. Quantitative methods—such as neuroimaging, environmental psychology assessments, physiological measures (e.g., heart rate variability, cortisol levels), and spatial analytics—offer measurable insights into how environments influence brain activity, stress responses, and overall wellbeing.

At the same time, qualitative approaches—including ethnographic observation, user interviews, participatory design, somatic feedback, and narrative inquiry—capture the rich, lived experiences of individuals and communities interacting with these spaces. Together, these methodologies provide a holistic understanding of how spaces can shape emotional, cognitive, and social outcomes. By integrating diverse forms of evidence, intentional space design becomes not only evidence-informed but also deeply empathetic, responsive, and inclusive of multiple ways of knowing.

MULTIPLE WAYS OF KNOWING

Designing spaces that support healing, connection, and human flourishing requires more than technical expertise alone. It calls for an integrated understanding of how people experience environments cognitively, emotionally, culturally, and physically.

A foundational concept is the acknowledgment of multiple ways of knowing: the recognition that people perceive and experience the world through diverse lenses. Drawing on the framework

developed by Elissa Sloane Perry and Aja Couchois Duncan, these spaces embody:

- Practical Knowing in how they translate theory into design practice;
- Generalized Knowing through their grounding in research, patterns, and evidence;
- Artistic Knowing by engaging the senses and emotions through visual, auditory, and spatial storytelling; and
- Foundational Knowing by honoring lived experience, ancestral wisdom, and the natural world. (Perry & Duncan, 2017)

Many of these approaches, regardless of how the knowledge is acquired, are grounded in rigorous inquiry and offer valuable insights for shaping healing environments. Together, these ways of knowing reflect a holistic approach to creating environments that are not just built, but deeply felt and purposefully lived in: spaces that support healing, connection, and transformation.

ADVANCES IN TECHNOLOGY

The momentum for neuroarts has also been driven in part by the development of innovative tools and technology such as Functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), and Magnetoencephalography (MEG) that reveal and measure the complex neural mechanisms involved when we are exposed to art in any form. Increasingly, we understand how art and aesthetics experiences stimulate brain systems that engage with reward, motor activity, perception, and the senses in ways unmatched by anything else.

As the field matures, interdisciplinary teams are increasingly working together to translate insights into real-world applications. For example, evidence now shows that music can enhance cognitive function and alleviate trauma, dance can reduce symptoms of Parkinson's disease, and poetry can support

clinicians in navigating end-of-life care (Aspen Institute/IAM Lab, 2021). Similar patterns are emerging in the study of the built environment. A growing body of research demonstrates that when architecture, interior design, and urban planning principles are intentionally applied, they can foster healing in clinical settings, reduce provider burnout, improve workplace wellbeing, and encourage physical activity at the community level (Golden et al., 2024).

FIELD-BUILDING

Efforts to nurture Intentional Spaces growth have been deeply shaped by the NeuroArts Blueprint Initiative, a collaboration developed by the IAM Lab and Aspen Institute's Health, Medicine and Society Program in 2019. Guided by a groundbreaking document, The NeuroArts Blueprint: Advancing the Science of Arts, Health, and Wellbeing (Aspen Institute/IAM Lab, 2021), the NeuroArts Blueprint Initiative breaks new ground at the crossroads of science, the arts, and technology. Its mission is to cultivate neuroarts as a fully recognized field of research and practice, with educational and training pathways, dedicated funding, supportive public sector and private sector policies, effective leadership, well-crafted communications strategies, and infrastructure capacity.

A diverse and growing community of organizations and professionals has been instrumental in advancing the field of intentional spaces and neuroarchitecture. Groups like the Academy of Neuroscience for Architecture (ANFA), the American Society of Landscape Architects (ASLA), the Environmental Design Research Association (EDRA), The Centre for Conscious Design, the Building Brains Coalition, the Humanise Campaign, and the Centre for NeuroArchitecture and NeuroDesign—as well as academic initiatives from numerous institutions—have been instrumental in advancing the field of intentional spaces. These organizations, along with countless individuals, companies, and community-led initiatives, are bridging science and design: fostering dialogue, generating evidence, and

pushing the boundaries of interdisciplinary innovation. This collective effort reflects an inclusive and evolving movement, one grounded in curiosity, compassion, and a shared commitment to creating spaces that are not just built but intentionally crafted to enhance human experience.

SET AND SETTING

While the Intentional Spaces Roadmap incorporates traditional interdisciplinary frameworks and organizations, it also actively engages with complementary approaches and sectors, such as the principles of set and setting, to expand the understanding of how environments can support transformative human experiences. The concept of set and setting, originally rooted in the plant-based medicine community, refers to the internal mindset (set) and the external environment (setting) that together shape the outcome of transformative experiences. While it emerged as a framework for safe and meaningful psychedelic experiences, this model is increasingly also relevant in the design of intentional spaces aimed at supporting personal transformation, healing, and wellbeing.

The insights from this work suggest that environments are not neutral backdrops but active participants in shaping how we experience change, integrate insights, and sustain wellbeing. Whether addressing trauma, fostering learning, or supporting community health, the principles of set and setting offer a valuable foundation for creating environments that support whole-person healing—regardless of the root causes driving the need for care.

Through the components of set and setting—preparation, induction, the core experience, and post-experience integration—architecture and design play a vital role in creating conditions that foster psychological openness, safety, and introspection. A rapid scoping review on set and setting by the IAM Lab highlights how spatial design elements such as lighting, acoustics, and form can influence emotional states and therapeutic outcomes (Golden et al., 2022).

This aligns with research from other labs exploring the intersection of environment and consciousness. Studies of set and setting are contributing knowledge about the arc of transformation in places and spaces, from preparation through post-integration, which is invaluable to the Intentional Spaces field.

ECONOMIC BENEFITS

A growing body of research has demonstrated the significant economic value of well-designed environments, showing that intentional investments in physical spaces can yield measurable returns across sectors. In education, for example, studies have linked improved classroom design—including lighting, acoustics, and spatial layout—to better student performance and reduced absenteeism. In healthcare, evidence shows that healing-centered design can shorten hospital stays, reduce medical errors, and improve staff retention, translating directly into cost savings.

Commercial and workplace environments designed with employee wellbeing in mind have been shown to increase productivity, reduce turnover, and enhance innovation. In public spaces, thoughtfully designed parks, transit hubs, and streetscapes contribute to increased property values and local economic activity. Together, these findings make a compelling economic case: investing in human-centered environments is not just a social good, it is also a smart financial strategy.

POTENTIAL CHALLENGES

Researchers and practitioners often operate in distinct silos, speaking different professional languages and using varied methods to conduct studies, share findings, and describe their work. As a result, the pathways from research to practice are poorly paved, with few effective strategies for integrating evidence, standards, and approaches across disciplines and sectors. Compounding this disconnect is the fact that the value proposition of a science-informed approach, its potential to improve outcomes, elevate design, and serve communities more effectively, is not yet fully or convincingly

articulated in ways that can shift mindsets or influence industry-wide change.

INVESTING IN THE FIELD

The Pedersen Foundation has played a pivotal role in advancing the field of Intentional Spaces and neuroarchitecture through a thoughtful and strategic long-term funding approach. By supporting initiatives that bridge neuroscience, design, and real-world application, the foundation has helped catalyze interdisciplinary collaboration and knowledge translation. Their investment strategy focuses on amplifying field development: funding research, convenings, and platforms that bring together scientists, architects, and practitioners to explore how built environments can positively impact human wellbeing. Through this sustained commitment, the Pedersen Foundation is fostering a growing ecosystem of innovation and impact at the intersection of brain science and the built world.

All these components and more present extraordinary opportunities to support Intentional Spaces as the field of neuroarts gains traction. Although the body of data documenting the effects of the built environment on health and wellbeing is compelling, real-world applications of the evidence that links design and sensory

impacts remain limited. The involvement of many disciplines is a potential strength, but it also presents challenges related to methods, translation, concepts, structure, and communication.

LOOKING AHEAD

The overarching goal of the Intentional Spaces Roadmap is to share a co-created strategy that meets today's challenges and actively shapes a new future for how we design the spaces around us.

By weaving together the knowledge, tools, and insights from across fields—architecture, neuroscience, public health, design, education, the arts, and beyond—we can move from siloed efforts to collective action. This is not just a shift in practice, but also a paradigm shift in how we imagine and build our cities, communities, institutions, and homes. Recognizing both the emerging nature of the field and the growing momentum behind it, the Roadmap offers practical recommendations, shared principles, and pathways for action. It invites all stakeholders to participate in creating environments that are not only functional, but deeply supportive of human flourishing for individuals, communities, and future generations.

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