

AETHER: Glass as a Medium for Atmospheric Spatial Design in Urban Contexts

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Abstract

AETHER investigates the potential of glass as a medium for generating atmospheric spatial conditions within dense urban environments. Situated in Bangkok, the project responds to the city's overstimulated context by proposing a temporary architectural installation that creates a space for pause, reflection, and sensory recalibration.

The research explores how modular glass block systems transform light into spatial and perceptual experience. Through the interaction of natural and artificial light, the installation produces shifting visual effects that evolve throughout the day and night. Glass is treated not merely as a construction material, but as an active agent that filters, diffuses, and reconfigures perception.

The design process combines material experimentation, field observation, and iterative prototyping, informed by local glass production processes in Thailand. The installation integrates ephemeral elements such as mist, sound, and vegetation to enhance its atmospheric qualities. These components soften spatial boundaries, blur visual clarity, and introduce temporal variation.

AETHER repositions the glass block, commonly associated with utilitarian construction, as a medium for sensory and spatial exploration. The project demonstrates how material-driven design can generate immersive environments that engage perception and encourage stillness.

The research contributes to ongoing discourse on atmospheric architecture, proposing that temporary installations can act as micro-retreats within the city. It highlights the capacity of architectural interventions to mediate between materiality, perception, and urban experience, offering an alternative approach to designing for well-being in contemporary urban contexts.

Keywords: atmospheric architecture; glass blocks; temporary installation; urban well-being;
sensory urbanism; spatial perception; material experimentation; public space;
Bangkok Design Week; multisensory design

Introduction

AETHER emerges from the intersection of material research, local production, and urban observation. Situated in Bangkok, a dense and highly stimulated metropolitan environment, the project addresses the need for spaces that enable moments of pause, reflection, and sensory recalibration (Figures 1 and 2).



Figure 1. Detail view of glass block surfaces reflecting and diffusing colored light within the AETHER installation.



Figure 2. Overall view of the AETHER installation situated within the urban context of Bangkok Design Week.

Although glass blocks have been widely used in architecture as construction elements for light transmission, privacy, and enclosure, their potential as atmospheric devices within temporary public installations remains relatively underexplored. In the context of Bangkok, public spaces are often shaped by circulation, commerce, heat, noise, and visual saturation, while fewer spatial interventions directly address sensory overstimulation and the need for pause. Existing applications of glass blocks commonly emphasize façade systems, partitions, or decorative surfaces rather than their capacity to generate temporary environments of stillness through light, reflection, sound, mist, and vegetation. This research addresses this gap by investigating how a standard industrial material can be reconfigured into a modular spatial system that supports sensory recalibration and urban well-being.

The project builds upon an ongoing research inquiry into atmosphere as a spatial condition, where architecture is understood not only as physical form but also as a medium shaping perception, mood, and embodied experience (Böhme, 2017; Pallasmaa, 2012). Drawing on theoretical frameworks of atmospheric architecture, the work considers how material properties such as transparency, reflection, and diffusion influence the perception and inhabitation of space (Zumthor, 2006).

AETHER was developed in collaboration with the Thai Ceramic Society and informed by the study of local glass production in Rayong. This engagement with regional manufacturing processes provided both technical insight and conceptual grounding, particularly in understanding glass as a material positioned between material solidity and immateriality (Figures 3 and 4).



Figure 3. Glass block production process observed during factory research in Rayong, Thailand.



Figure 4. Glass block molds and manufacturing components used in local production processes.

By reinterpreting the conventional glass block, typically associated with utilitarian construction, the project investigates its potential as a spatial and atmospheric device. The installation positions glass as an active mediator of light, environment, and perception, contributing to broader discussions on material-driven design and temporary architectural interventions in contemporary urban contexts (Figures 5 and 6).

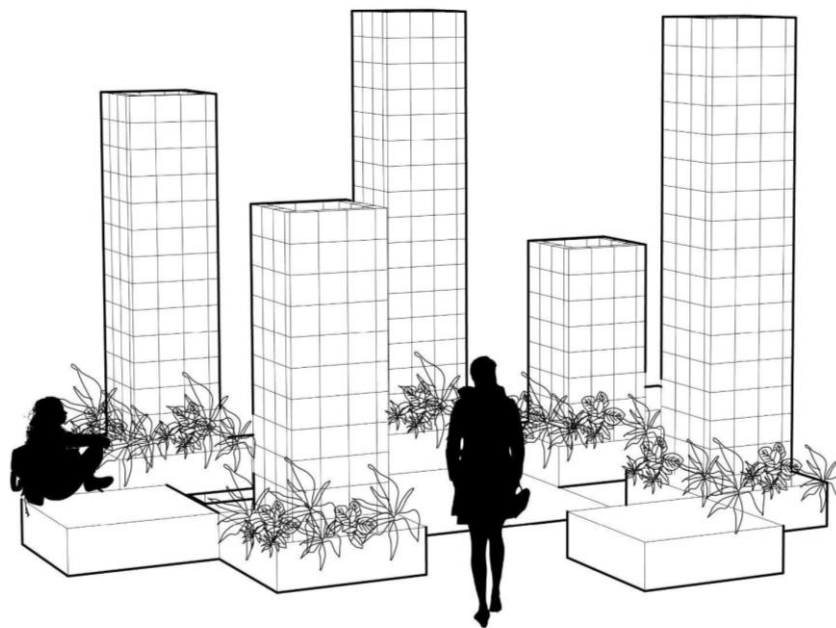


Figure 5. Axonometric spatial diagram of the AETHER installation showing modular composition, spatial relationships, and visitor interaction.

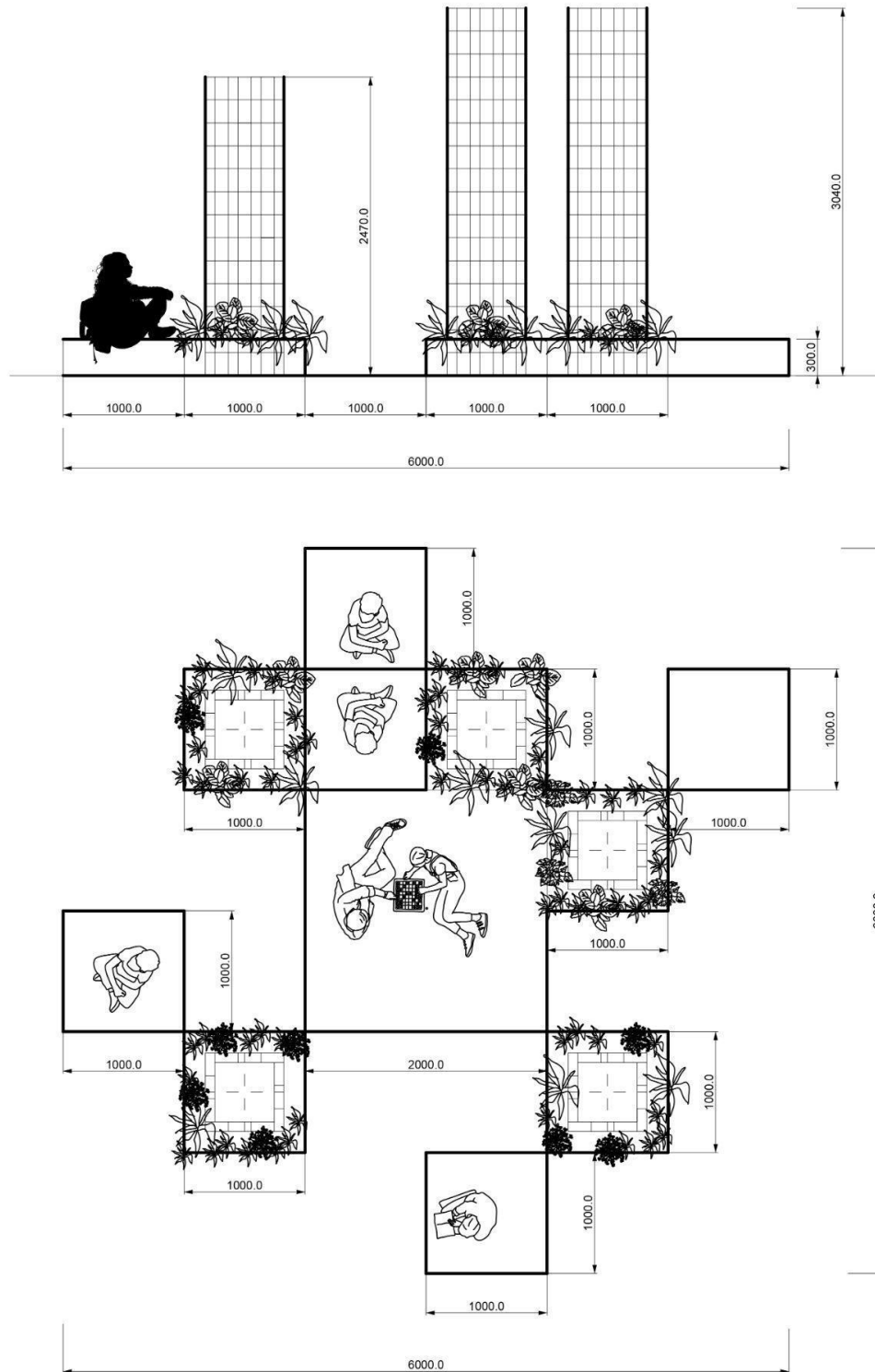


Figure 6. Plan and elevation drawings of the AETHER installation illustrating spatial configuration, seating elements, circulation, and vertical glass block structures.

Literature Review

Atmospheric architecture research emphasizes that spatial experience is shaped not only by form and function, but also by light, materiality, sound, temperature, movement, and bodily perception (**Böhme, 2017; Pallasmaa, 2012; Rasmussen, 1964**). Böhme describes atmosphere as a relational condition produced between environment and subject, while Pallasmaa argues that architecture is experienced through the whole body rather than vision alone. Zumthor similarly frames atmosphere as an architectural quality emerging from material presence, light, sound, and spatial proportion (**Zumthor, 2006**).

Within contemporary urban discourse, these ideas connect to broader concerns surrounding sensory urbanism and urban well-being (**Goldhagen, 2017; Sennett, 2018**). Dense cities often produce conditions of overstimulation through noise, heat, speed, visual density, and continuous movement. In this context, small-scale spatial interventions can contribute to urban life by creating temporary conditions of rest, orientation, and perceptual awareness (**Lefebvre, 1991; Tuan, 1977**). This aligns with Sustainable Development Goal 11, which emphasizes inclusive and sustainable cities, and Sustainable Development Goal 3, which addresses health and well-being (**United Nations, 2015**).

AETHER positions itself within this intersection of atmospheric architecture, material experimentation, and urban well-being. Rather than treating glass blocks as conventional construction components, the project investigates their capacity to filter light, diffuse perception, blur spatial boundaries, and create temporary conditions for pause and sensory recalibration within the urban environment.

Materials and Methods

The design methodology combined field observation, material experimentation, and iterative prototyping to explore the atmospheric potential of glass as a spatial medium. The process began with site analysis in Bangkok, focusing on conditions of urban density, sensory overstimulation, and patterns of movement within public space. These observations informed the conceptual framework of the project, particularly the intention to create a contrasting environment that promotes stillness and perceptual engagement (Figure 7).

A key component of the research involved engagement with local glass production processes in Rayong. A factory visit provided insight into the material composition, manufacturing techniques, and structural characteristics of glass blocks. This knowledge informed decisions related to scale, modularity, and assembly, ensuring that the design remained grounded in feasible production methods.

Material exploration focused on the use of standard glass blocks as modular units. A series of physical and spatial tests were conducted to investigate their behavior under different lighting conditions, including direct sunlight, reflected light, and artificial illumination. These experiments examined properties such as transparency, refraction, and diffusion, as well as the visual depth created through stacking and layering.

The installation was developed through iterative prototyping, testing various configurations to understand spatial relationships and user interaction. Additional environmental elements, including mist, vegetation, and sound, were introduced as complementary components to enhance the atmospheric qualities of the installation.

These elements were not treated as decorative additions but as integral parts of the spatial system, contributing to the modulation of light, humidity, and sensory perception.

Lighting design played a central role in the methodology. Both natural and artificial lighting conditions were carefully considered to ensure that the installation would produce distinct atmospheric effects throughout different times of the day. The integration of these variables allowed the project to function as a dynamic system, continuously responding to changing environmental conditions.

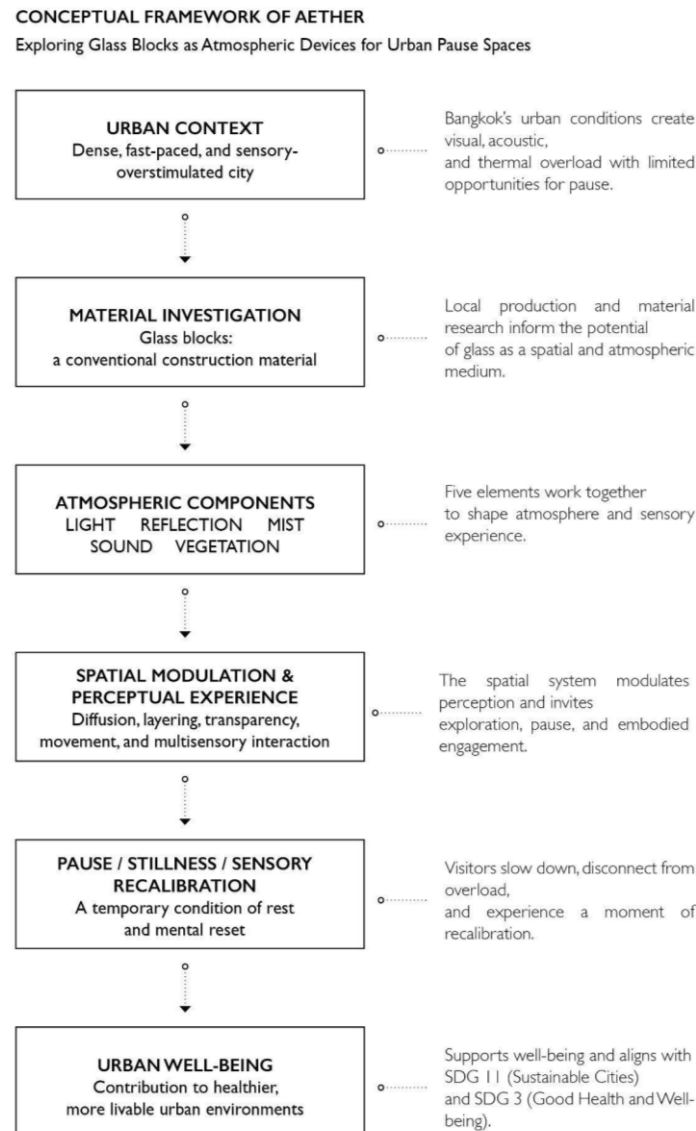


Figure 7. Conceptual framework illustrating the relationship between urban context, material investigation, atmospheric components, perceptual experience, and urban well-being within the AETHER project.

Results and Discussions

The AETHER installation demonstrates how conventional glass blocks can be reinterpreted as a spatial system extending beyond their typical architectural application. Rather than functioning as a static wall element, the modular arrangement creates a porous environment that invites movement, visual engagement, and interaction (Figures 8 and 9).



Figure 8. Daytime view of the AETHER installation demonstrating transparency, layering, and interaction with natural light.



Figure 9. Nighttime view of the AETHER installation showing atmospheric illumination and spatial transformation through artificial lighting.

Observational analysis conducted during the installation period indicated that visitors engaged with the project differently compared to surrounding circulation areas. Rather than moving continuously through the site, many users slowed their pace, paused within the installation, or occupied the seating elements for extended periods of time. The porous spatial arrangement encouraged non-linear movement and exploratory interaction, particularly during evening hours when lighting conditions intensified the atmospheric qualities of the installation.

Throughout the day, the installation responds dynamically to changing environmental conditions. In the morning, strong natural light is diffused through the glass blocks, producing softened gradients and reducing visual intensity. As daylight shifts toward the afternoon and sunset, the material begins to reflect its surroundings, incorporating fragments of the urban context. These reflections blur boundaries between object and environment, reinforcing the installation's role as a spatial mediator (Figure 10).

At night, artificial lighting transforms the installation into a luminous environment. Internal light sources activate the glass blocks, emphasizing depth, texture, and layering. The contrast between warm and cool light tones generates varied atmospheric conditions, visible in detailed light interactions within the material. This shift highlights the dual nature of glass as both reflective and emissive (Figures 11 and 12).



Figure 10. Detail of reflected and refracted light interactions within the glass block surfaces of the AETHER installation.



Figure 11. Detail view of glass blocks integrated with vegetation, demonstrating the relationship between material transparency, light diffusion, and vegetation.



Figure 12. Nighttime atmospheric condition of the installation illuminated through integrated lighting systems.

The incorporation of mist, vegetation, and sound further enhances the sensory experience. Mist introduces a fluctuating layer that softens visual clarity and amplifies light diffusion, while vegetation provides an organic contrast to the rigid geometry of the modules. Together, these elements create a multisensory environment engaging vision, touch, humidity, and sound.

The installation also generated distinct perceptual conditions throughout the day. During daytime, visitors were primarily attracted by the reflective and refractive properties of the glass under natural light, while nighttime conditions shifted attention toward illumination, shadow, and atmospheric immersion (Figure 13).

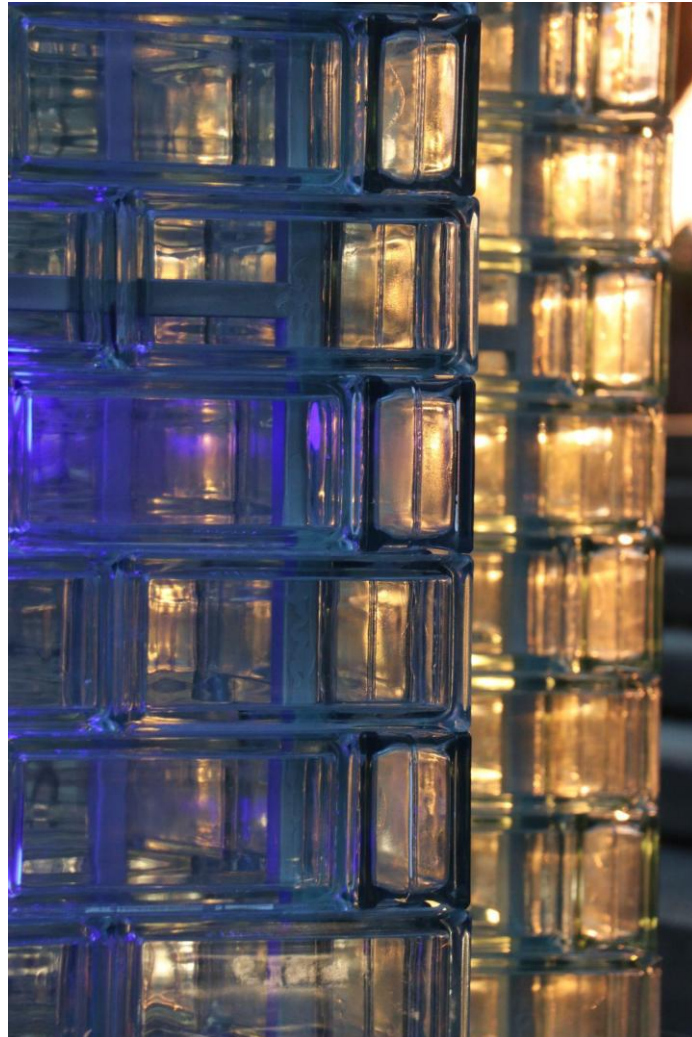


Figure 13. Atmospheric light diffusion and layered transparency within the AETHER installation during nighttime conditions.

Informal user observations suggested that the integration of mist and sound contributed to a perception of separation from the surrounding urban environment, reinforcing the project's intention to create a temporary sensory pause within the city.

Spatially, the installation encourages both movement and moments of pause. The configuration allows for varying degrees of enclosure and openness, producing different levels of intimacy and exposure. As seen in the overall views, the installation integrates with its surroundings while maintaining a distinct spatial identity.

These findings suggest that temporary architectural interventions can influence patterns of perception and occupation within dense urban environments. Rather than operating solely as visual installations, atmospheric spatial systems may support forms of urban well-being by encouraging slower movement, temporary rest, and heightened sensory awareness.

The project demonstrates that material-driven design can influence perception and behavior within urban environments. By reducing sensory overload and introducing temporal variation, AETHER creates a temporary condition of stillness within a dynamic city. Rather than presenting a fixed solution, it operates as a prototype for adaptable and modular atmospheric spatial systems.

Conclusion

AETHER proposes an approach to architectural design that foregrounds atmosphere, materiality, and temporality as key components of spatial experience. By reinterpreting glass blocks as an active medium rather than a purely structural element, the project demonstrates how material properties shape perception, light, and environmental conditions.

As a temporary installation within a dense urban context, AETHER highlights the potential of small-scale interventions to generate meaningful spatial experiences. Through the interaction of light, material, and environmental elements, it creates a dynamic atmosphere that encourages visitors to slow down and engage more consciously with their surroundings.

The work underscores the importance of local production and material knowledge in informing design processes. By drawing on glass manufacturing practices in Thailand, the project connects global architectural discourse with local material culture, suggesting that innovation can emerge from reinterpreting existing techniques.

Rather than presenting a fixed solution, AETHER operates as a prototype adaptable to different contexts. Its modular system allows flexibility in scale and configuration while maintaining a focus on sensory engagement and atmospheric quality.

Ultimately, the project suggests that architecture can move beyond functional and formal considerations to engage more deeply with perception and experience, offering alternative approaches to designing for well-being in contemporary urban environments.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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