*architecture*

MDPI

*Essay*

# Interconnected Architectural Wellbeing: Laszlo Moholy-Nagy & Siegfried Ebeling

**Sarah Breen Lovett**

School of Architecture and Built Environment, University of Newcastle, Callaghan, NSW 2308, Australia; sarah.breenlovett@newcastle.edu.au

**Abstract**

This paper investigates how architectural theories from the Bauhaus in the 1920s have the opportunity to influence approaches to wellbeing through the built environment today. Through a literature review, the study examines work and writings by primarily Hungarian artist László Moholy-Nagy and German architect Siegfried Ebeling, as well as their contemporaries and predecessors at the Bauhaus. The research identifies a gap in architectural history where past architectural theories and practices have been underexplored in relation to wellbeing, particularly in early modernist discourse. By analyzing Moholy-Nagy and Ebeling writings, this paper reveals how their work prefigures and expands contemporary concerns in wellness design. The key finding is: in the examined works there are clear links between metaphysical thinking, environmental conditions, construction innovation and wellbeing. This study contributes to architectural discourses by: firstly proposing that metaphysically informed design thinking can offer valuable insights for architectural practices aiming to enhance occupant wellbeing; secondly, recontextualizing historical ideas within present-day design challenges, and thirdly offering future research directions for developing understandings of wellbeing in relation to architecture.

**Keywords:** architecture; interconnectivity; wellbeing; metaphysical; sustainable

check for updates

Academic Editor: Nils Jäger

Received: 15 July 2025
Revised: 14 September 2025
Accepted: 15 October 2025
Published: 21 October 2025

**Citation:** Breen Lovett, S. Interconnected Architectural Wellbeing: Laszlo Moholy-Nagy & Siegfried Ebeling. *Architecture* **2025**, *5*, 97. https://doi.org/10.3390/architecture5040097

**Copyright:** © 2025 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

## 1. Introduction

Despite the growing interest in holistic wellness design today, the historical roots of this ethos within Western architectural canons remain underexplored. The Bauhaus school, founded in 1919, is widely recognized as the most famous school for architectural education, because of its revolutionary contributions to developing modernist design. While much scholarship has focused on its formal aesthetics and pedagogical innovations, less attention has been paid to its contribution to human wellbeing. To address this gap, this paper revisits the work of key figures from the Bauhaus, and expands this with a detailed literature review of two Bauhaus-affiliated figures, the well-known Bauhaus Master Laszlo Moholy-Nagy and the lesser-studied Bauhaus student Sigfried Ebeling. The research uncovered a complex interconnectivity between metaphysical concepts, environmental awareness and construction innovation to achieve a greater sense of wellbeing through architectural design.

It is important to clarify that "interconnectivity" in the context of this paper, is referred to as the implicit, explicit and codependent connections between different aspects of architectural design. This includes how metaphysical ideas and phenomena are connected to the environmental conditions, construction innovation and wellbeing ambitions. While, "metaphysical concepts", in this paper, refers to real or imagined invisible, intangible and

unexplainable forces that shape human experience. This is because both Moholy-Nagy and Ebeling proposed architectural theories and visions that extended beyond material form, emphasizing dynamic undefined relationships between bodies, environments, and energetic systems.

Methodologically, the paper employs a literature review and conceptual analysis, drawing from primary texts, archival materials, and secondary scholarship. The research questions guiding this inquiry are: What concepts at the Bauhaus relate to wellbeing in architecture? How were these ideas articulated through different writings and works? And how can these ideas contribute to contemporary architectural approaches to wellbeing?

The analysis is structured in five parts: first, it looks at the historical context of influences on Moholy Nagy and Ebeling; second, it examines the metaphysical foundations of each thinker's work; third, it explores the link to environmental conditions; fourth, it investigates the potential for construction innovations; and fifth, the paper concludes by reflecting on how these historical insights might inform contemporary practice in architectural wellbeing and future research.

## 2. Historical Context

The critical relationships between architectural design and wellness-oriented concerns are evidenced through the teachings and outputs from the Bauhaus throughout the early 20th Century. Specifically, pertinent works in this vein are by Moholy-Nagy and Ebeling, who both proposed an urgency around realizing a greater sense of connection between ourselves and the environment for increased psychological and physical wellbeing. Evidently, it can be seen that, this way of thinking was related to a lineage of key, well-known teachers at the Bauhaus, such as Walter Gropius, Paul Klee, Wassily Kandinsky, Johannes Itten and lesser known, Gertrud Grunow.

To understand the development of theories and design approaches related to wellbeing from the Bauhaus, the concept of interconnectivity is central. From the school's inception, this idea was not only philosophical but also practical, manifesting across disciplines from visual arts to architecture [1]. The Bauhaus aimed to dissolve boundaries between fields, fostering a holistic approach to design that could support human flourishing. This ambition was most clearly articulated by Walter Gropius, the founder and director of the Bauhaus (1919–1928), in his Bauhaus Manifesto:

> "Let us strive for, conceive of and create the new building of the future that will unite every discipline, architecture and sculpture and painting, and which will one day rise heavenwards from the million hands of craftsmen as a clear symbol of a new belief to come." [2].

This quote reflects a metaphysical vision of architecture—not merely as a technical endeavor, but as a symbolic and spiritual act. Gropius imagines architecture as a collective expression of belief, unity, and transformation. The "new building of the future" is not just a structure, but a manifestation of interconnected human creativity, rising from shared labor and purpose. Gropius further elaborated this idea in 1923, emphasizing the spiritual dimension of work and its potential to liberate individuals from mechanistic constraints:

> "Every act of work becomes a manifestation of our inner being. Only such work retains spiritual meaning. As long as economy and machinery are ends in themselves rather than means to free spiritual forces from mechanical burdens, the individual remains unfree and society cannot organize itself." (p. 7, [1]).

Here, Gropius critiques the reduction in design to mere efficiency or industrial output. It could be said that he was arguing that: true freedom and wellbeing emerge when work expresses inner life and spiritual purpose. Architecture, in this view, becomes a vehicle

for metaphysical liberation—a way to reconnect individuals with meaning, creativity, and community. These early Bauhaus ideas laid the foundation for later explorations of wellbeing through design, where architecture was seen not only as shelter but as a medium for emotional, sensory, and existential engagement.

The metaphysical and spiritual dimensions of wellbeing were not only embedded in Bauhaus inception, but also deeply explored by its artists and educators—most notably Wassily Kandinsky (Bauhaus 1922–1933) and Paul Klee (Bauhaus 1921–1931). Their writings, artworks, and teachings reflect a profound commitment to understanding the invisible forces that shape human experience, and how these forces can be accessed through creative practice.

Kandinsky's seminal treatise from 1911, On the Spiritual in Art [3] written before his time at the Bauhaus, is a foundational text in metaphysical aesthetics. It presents art as a medium for spiritual awakening and emotional resonance, emphasizing interconnectedness. It can be considered a homage to recognizing the relationship between art, nature and spirit for greater wellbeing. This is evidenced in the following statement, which says:

> "As man develops further, the circle of impressions widens to embrace different beings and objects and the development continues until these beings and objects acquire the value of spiritual harmony." (p. 40, [3]).

This whole text reflects Kandinsky's belief that art is not merely decorative or expressive, but a spiritual force capable of transforming perception and elevating consciousness. His approach aligns with the above outlined Bauhaus ethos of unifying disciplines to foster holistic human development. In this view, wellbeing is not just physical or psychological—it is existential, cultivated through engagement with beauty, harmony, and metaphysical depth.

Paul Klee, similarly, articulated a metaphysical understanding of interconnectivity in his 1923 writings about the Bauhaus. He describes the artist's journey as one of intuitive inference, moving from surface appearances to deeper physiological and cosmic truths:

> "...the artist intuitively infers the inner nature of the object from its outer appearance, moving from anatomical to physiological understanding. Beyond this internalization, the artist reaches humanization of the object, forming a resonant relationship beyond optics: One path rises from earthly rootedness (from below). The other descends from cosmic unity (from above)." (pp. 24–25, [4]).

Klee's poetic description reveals a metaphysical duality: the artist is both grounded in the material world and attuned to cosmic forces. This resonant relationship between earth and cosmos suggests that wellbeing arises from a balanced engagement with both the tangible and the intangible, the comprehensible and the incomprehensible. His emphasis on physiological understanding also hints at a somatic dimension of design, where the body becomes a site of metaphysical experience.

These ideas were not confined to theory or canvas, they were actively transmitted to Bauhaus students through pedagogy. Kandinsky and Klee's teachings encouraged students to perceive beyond form, to sense the energetic and spiritual qualities of space, and to design with an awareness of how art and architecture could shape human wellbeing ([3,4]).

The ethos of interconnection at the Bauhaus extended beyond inception, and artistic synthesis and it permeated the very foundations of its educational philosophy. This was especially evident in the teachings of Johannes Itten, who led the Bauhaus's first-year program from 1919 to 1923. Itten's pedagogy was deeply influenced by Mazdanan philosophies, which emphasized spiritual wellbeing through practices such as vegetarianism, breathwork, and yogic movement (p. 26, [5]). These practices were not peripheral but central to the Bauhaus's vision of cultivating creative and spiritual alignment in its students.

It can be deduced that Itten believed that artistic expression must emerge from a harmonized inner state, and that bodily discipline and spiritual awareness were prerequisites

for meaningful design. His integration of metaphysical and physiological practices reflects a holistic view of wellbeing, one that sees the body, mind, and spirit as interconnected systems that shape perception and creativity.

A key figure in Itten's first year program was Gertrud Grunow, a music teacher at the Bauhaus from 1919 to 1923, who developed a unique curriculum focused on sensory harmonization. Grunow taught students to attune their bodies to colors and sounds, guiding them through exercises that aligned mental, emotional, and sensory faculties. Only once students achieved this internal resonance were they permitted to advance to the next stage of study (p. 20, [6]). Grunow's approach was deeply metaphysical, emphasizing the unconscious as a source of renewal and expressive capacity. She articulated this philosophy in 1923:

> "In a place where striving is directed toward constructing and coexisting with the world in the most vital interaction, such as at the Bauhaus, nurturing self-activity from the unconscious as a beginning and constant aid will seem indispensable. Only from this source can the purest and deepest renewal, deepening, and strengthening of sensation and receptivity emerge. From this can grow the purest, deepest, and richest expressive ability. Both are prerequisites for a successful union of human and world." (p. 20, [7]).

This quote reveals a profound metaphysical insight: that creative expression and spatial awareness must begin with inner attunement. Grunow's emphasis on unconscious self-activity suggests that wellbeing is not merely a product of external conditions but arises from internal harmony and sensory receptivity. Her pedagogy aimed to cultivate a resonant relationship between self and place, where design becomes an extension of embodied awareness.

Together the writings and teachings of Gropius, Kandinsky, Klee, Itten and Grunow reflect a Bauhaus commitment to spiritual and physiological integration—a belief that architecture and art must emerge from a deeply attuned human experience, grounded in metaphysical understanding and holistic wellbeing.

## 3. Research Gap

Gropius, Kandinsky, Klee, Itten and Grunow have been studied for their pedagogical contributions and spiritual ideologies at the Bauhaus. While, these figures laid the groundwork for a design philosophy that emphasized attunement between inner and outer worlds the implications of this for human wellbeing, particularly in metaphysical and physiological terms, remains relatively underexplored within architectural historiography. What is even less examined is the lineage that connects these early Bauhaus ideas to later theoretical and practical developments by Moholy-Nagy, and later by Ebeling. Both carried forward the wellness ethos of the Bauhaus, albeit through different stylistic and conceptual lenses.

Several architectural theorists have explored these ideas in Moholy-Nagy's and Ebeling's works. Scholars such as Walter Scheiffele, Detlef Mertins, Oliver Botar and Spyros Papapetros, have pointed to the intellectual and conceptual links between Moholy-Nagy and Ebeling (p. II, [8]; p. 124, [9]; p. 431, [10]; p. XIV [11]). Scheiffele and Papapetros also suggest that Ebeling's influence may have extended to Walter Gropius, Buckminster Fuller, and Mies van der Rohe (p. VI, [8]; p. XIV, [11]). However, while these contemporary scholars acknowledge the cosmic and spiritual radicalism of both Moholy-Nagy and Ebeling, they do not offer a detailed comparative analysis of their works and theories, and how these thinkers conceived of space not just as form or function, but as a medium for human interconnectivity with architecture for wellbeing.

Moholy-Nagy's text, The New Vision, first published in 1928 and revised in 1947, served as both a reflection on his teaching and a foundational textbook for Bauhaus education. As Walter Gropius described it: "…a standard grammar for modern design."

(p. 6, [12]) This endorsement positions Moholy-Nagy's work as central to the Bauhaus legacy. While his approach may appear more technical or constructivist than the esoteric teachings of Klee, Kandinsky, Itten, and Grunow, a close reading of The New Vision reveals that metaphysical ideas—particularly those concerning perception, interconnectivity, and invisible forces—are still very much present. Moholy-Nagy's emphasis on light, motion, and sensory training reflects a continued concern with how architecture and design can shape human experience in profound, non-material ways.

Moreover, these threads are carried forward in an even more defined and defiant manner by Siegfried Ebeling, whose writings propose a radical rethinking of architecture as a biological and energetic system. Ebeling's work builds on Moholy-Nagy's foundation, pushing wellbeing design thinking into new territory, where buildings are conceived not just as structures, but as living membranes that respond to environmental and human forces. In 1926, Siegfried Ebeling wrote his visionary text Space as Membrane [13], published in Dessau but notably not by the Bauhaus itself. This distinction is significant, it suggests that while Ebeling was deeply influenced by Bauhaus pedagogy, his ideas were already pushing beyond its institutional boundaries. The text remained largely obscure until its English publication in 2010 by the Architects' Association (AA) in London, and its German republication in 2016 by Bauhaus Dessau, marking a renewed interest in Ebeling's radical thinking. This relatively recent rediscovery of Space as Membrane is crucial for understanding the pedagogical legacy of Itten and Grunow, as well as the philosophical trajectory of Moholy-Nagy's New Vision. Ebeling's work articulates a heightened capacity for interconnectivity, between self, environment, and construction, that builds directly on the foundations laid by his predecessors. His writing offers a synthesis of spiritual attunement and technical innovation, proposing architecture as a living, responsive system.

A close literature review of Moholy-Nagy and Ebeling's writings reveals three interconnected themes that consistently emerge in relation to wellbeing and architecture: 1. Metaphysical Phenomena, the invisible forces and spiritual dimensions that shape human experience. 2. Environmental Conditions, the dynamic relationship between body, space, and ecological context. 3. Construction Innovation, the use of materials and systems to create responsive, adaptive environments. These themes form the analytical framework for understanding how Bauhaus thought evolved from spiritual pedagogy to systemic design, and how it could continue to inform contemporary architectural approaches to wellbeing.

## 4. Metaphysical Phenomena

As outlined in the introduction, this paper uses the term metaphysical thinking to refer to the invisible, intangible, and unexplainable forces that shape human experience in space. These forces may include real or imagined, conscious or subconscious perceptual atmospheres, emotional resonances, energetic flows, and existential conditions that are not easily captured by material analysis or empirical observation. Rather than relying on a specific philosophical tradition, this interpretation draws from the etymological root of the word "metaphysical", which means *beyond*, *above*, or *after* the physical realm [14]. This approach allows for a broader and more inclusive understanding of metaphysical phenomena—one that encompasses spiritual, sensory, and psychological dimensions of architectural experience. It also aligns with the Bauhaus ethos, where design was seen not merely as functional or aesthetic, but as a medium for human transformation and attunement.

In this section, the focus will be on how László Moholy-Nagy and Siegfried Ebeling engaged with metaphysical ideas in their writings and pedagogical practices. These metaphysical insights are central to their vision of wellbeing, not as a static condition, but as a dynamic relationship between body, space, and system. By examining their texts and theoretical contributions, this section will illustrate how metaphysical thinking served as a

foundation for expanding architectural approaches to wellbeing, bridging the spiritual and the scientific, the intuitive and the constructed.

It is often assumed that the transition from Itten to Moholy-Nagy at the Bauhaus marked a decisive shift, from the metaphysical to the physical, the emotional to the functional, the expressionist to the constructivist, and the subjective to the objective. This narrative has been reinforced by the visual and material language of Moholy-Nagy's work, which embraced industrial materials, geometric abstraction, and technological experimentation. However, a closer reading of his writings and projects, particularly his seminal text The New Vision, reveals a more nuanced picture.

Rather than abandoning metaphysical inquiry, Moholy-Nagy reframed it through the lens of perception, biology, and environmental responsiveness. The New Vision can be read as a call to cultivate awareness of the invisible relationships between self and environment, and to design in ways that nourish human wellbeing through sensory and spatial engagement. His kinetic sculpture, the Light-Space Modulator (1928), is often interpreted as a technical exploration of light and motion. Yet Moholy-Nagy himself described it in terms that suggest a deeper metaphysical intent. It was not merely about reflective surfaces or mechanical movement but about stimulating new perceptual experiences that could enrich human life. As he wrote: "The capacity and courage to build up new relations between elements of expression. . . building up the biological nourishment of man." (p. 51, [12]).

This statement reveals his belief that exposure to new spatial and sensory environments could have a biological and psychological impact—a view that aligns with contemporary theories of environmental psychology and wellness design. Moholy-Nagy further expands this idea in explicitly metaphysical terms when he writes that the aim of design is to satisfy: "Human needs that are spiritual as well as utilitarian." (p. 11, [12]). Here, he positions design as a holistic practice, one that must address both the material and immaterial dimensions of human existence.

This dual concern is echoed in his reference to a "Sixth Sense", which he attributes to people living in close proximity to nature: "A special sense of orientation or time." (p. 23, [12]). This sixth sense suggests an intuitive, embodied awareness—a metaphysical attunement to space and rhythm that transcends rational measurement. Moholy-Nagy even ventures into speculative territory when he proposes that telepathy might be considered as a future mode of spatial experience: "Telepathy should be considered in experiencing space in new ways that had not been experienced before." (p. 58, [12]).

Such statements demonstrate that Moholy-Nagy was not simply a rationalist or technocrat. Rather, he was deeply invested in exploring how spiritual, biological, and scientific dimensions could be integrated into design to promote greater human wellbeing. His work bridges the gap between the esoteric teachings of his Bauhaus predecessors and the emerging technological paradigms of modernism, offering a vision of architecture as a medium for metaphysical nourishment and perceptual transformation.

In contrast to Moholy-Nagy's more perceptually driven metaphysical approach, Siegfried Ebeling's Space as Membrane (1926) offers a more radical vision of architecture. Ebeling's writing further expands metaphysical thinking into a cosmic and existential realm, emphasizing the urgency of reimagining human identity and spatial experience. He writes: "The greatest task facing us in the next hundred years is evidently the creation of a new type of human where builder and artist meet, where each perceiving being strives for, and radiates a new evaluation of himself and his connections to the mystery of the universe." (p. 26, [13]). This quote encapsulates Ebeling's metaphysical ambition: to cultivate a new human consciousness through architecture, one that is attuned to the mystery of existence and capable of expressing its inner life through spatial form.

Unlike Moholy-Nagy, who emphasizes exposure and stimulation, Ebeling proposes a more protective and autonomous model of architecture. He challenges the idea that architecture should influence or shape the inhabitant, arguing instead that it should serve as a membrane of protection, allowing the human being to evolve independently of external impositions. As he explains: "The conditions of atmospheric radiation are fundamentally different in relation to the human organism that has to confront them on a physiological level." (p. 16, [13]). This physiological framing suggests that architecture must respond to the unique sensitivities of the human body, shielding it from environmental overload. Architecture, in this view, becomes a space of refuge and self-realization, where external forces are filtered, so that we can "develop in complete autonomy, free from all external influences, into a self contained Being-for-oneself – a microcosm." (pp. 10–11, [13]).

Yet Ebeling's metaphysical vision is not limited to individual autonomy. He also articulates a collective and planetary awareness of all beings. He writes: "A psychology based on the principle of symbiosis and the parapsychological relationships of the living environment is aware that the dull lethargy on an [Inuk] in winter, for example, may well affect people living in our environment under particular atmospheric conditions." (p. 15, [13]). This statement reveals a profound sensitivity to the global resonance of environmental conditions, suggesting that wellbeing is not isolated but shared across geographies and cultures. Ebeling calls this the: "Parapsycho-logical interconnectedness of all creatures on earth." (p. 15, [13]).

Importantly, Ebeling does not shy away from the spiritual dimensions of these ideas. While he is critical of religious dogma—particularly Bruno Taut's cosmic-religious architecture, which he dismisses as superficial: "Like all ecstatics they failed to go sufficiently deep, or grasp the problems either at the right points or decisively enough." (p. 25, [13]). He nonetheless embraces the mystical and transcendental as essential to architectural innovation. He writes:

> "I will not flinch at the consequences, even if this means deciding in favour of the intangible mysteries of all Becoming, natural and organic, when the limitations of science impose a halt in this field, or the technical solutions lie in the distant future." (p. 6, [13]).

This declaration affirms Ebeling's commitment to pushing the boundaries of the known, integrating scientific inquiry with spiritual speculation to advance architectural design. His work invites us to consider how metaphysical awareness, whether expressed through protection, resonance, or transcendence—can inform the creation of spaces that support wellbeing.

While it may seem that Ebeling is trying to enforce some kind of intangible universal approach, he is explicit in rejecting architecture as a vehicle for projecting societal ideals such as beauty, religion, or authority. Instead, he advocates for a design ethos centered on the sensual and autonomous human being, a "flesh-and-blood human being who is in full possession of a boundlessly expanding sensuality." (p. 10, [13]).

It is precisely this engagement with the mystical, spiritual, and physical realms that makes both Moholy-Nagy and Ebeling's work so valuable. By venturing beyond the limits of science and perception, they open up new possibilities for designing environments that nourish the human spirit. In the following section, we will examine how each of these practitioners links their metaphysical concerns to environmental conditions of the built environment.

## 5. Environmental Conditions

While metaphysical thinking outlined above, emphasized the more esoteric and even spiritual relationships to place, it also laid the groundwork for a more attuned awareness of environmental conditions. For both Moholy-Nagy and Ebeling, the metaphysical was

not separate from the environment, it was embedded within it. There is a concern for the interrelationships between environmental phenomena such as wind, light, solar power, and electromagnetic radiation. These elements are not treated as mere technical considerations, but as active agents in shaping spatial experience and wellbeing. Moholy-Nagy approached these forces as perceptual stimuli that could nourish and awaken the senses, while Ebeling viewed them as physiological and parapsychological conditions that architecture must mediate or protect against. Together, their writings suggest that the interplay between body, space, and environment is central to how architecture can support human wellbeing.

Moholy-Nagy's metaphysical thoughts translate into environmental conditions through his concept of an "architecture of forces"; this is a vision of architecture not as static form but as a dynamic interplay of invisible environmental phenomena. As he articulates, "real space experiences rest on interpenetrations of inside and outside, above and beneath, on the communication of the in and the out, on the often-invisible play of forces present in the materials and their relationships in space." (p. 62, [12]). Moholy-Nagy's emphasis on this invisible play of forces suggests a sensitivity to environmental conditions—such as light, air, and energy—that are not always visible but are nonetheless integral to spatial experience. His call to the "lightening up of dissolution of material" in order to move from "restricted closed spaces to free fluctuation of forces" (p. 48, [12]) is not merely conceptual, but also structural: it is a move toward an architecture that is responsive, open, and in dialogue with its surroundings. This reveals a profound shift from traditional architectural thinking rooted in enclosure and solidity, toward a spatial understanding shaped by flux, permeability, and energetic exchange.

These ideas were not merely theoretical. They found early expression in the proposed "Dynamic Constructive Energy System" developed with Alfred Kemeny in 1922. This system proposed "the activation of space by means of a dynamic constructive system of forces . . . instead of static material construction (material form and relations), dynamic construction (vital constructivism and force relations must be evolved where the material is employed as the carrier of forces" (p. 49, [12]). Here, Moholy-Nagy reimagines material not as inert substance but as a conduit for energy and interaction. The architectural object becomes a field of relations, between materials, forces, and users, rather than a fixed form. Moholy-Nagy's architecture of forces can be seen as a precursor to contemporary environmental design practices that treat buildings as dynamic systems embedded in broader ecological and energetic networks.

Despite the radical potential of this system, Moholy-Nagy's articulation of the "Dynamic Constructive Energy System" remains largely metaphorical in its environmental implications. While he frames it as a relationship between "man, material, power and space," (p. 50, [12]) he stops short of exploring how these dynamics might engage with environmental systems or technological infrastructures such as electrical power. His vision remains rooted in a phenomenological and aesthetic register, rather than a technical or ecological one.

In a more advanced and materially grounded form, the ideas around environmental conditions of Moholy-Nagy find resonance and elaboration in the work of Ebeling. Ebeling's writings articulate a clearer and more technically engaged vision of architecture's interconnectivity with environmental forces. This lies in stark contrast to his critique of modern architecture, which centers on its reliance on materials that are inert and unresponsive to their surroundings; a failure, in his view, to engage with the dynamic conditions of the natural world (pp. 12, 32, [13]). This critique forms the foundation for his proposition that architecture should evolve into a responsive system, a machine that enhances human wellbeing by harnessing and converting environmental energy sources for domestic use (p. 23, [13]).

Ebeling's concept of the "space-cube" exemplifies this vision (p. 16, [13]). It is not merely a volumetric form but a responsive architectural entity attuned to the specific environmental conditions in which it is situated. He emphasizes the interaction of three primary forces: the mineral composition of the ground surface, rays of light, and atmospheric fluctuations. These forces, he argues, flow into the building and directly affect the inhabitant's experience. "The degree of harmonious balance between these three components determines the character and the quality of the architecture" (p. 8, [13]). This statement underscores a holistic and ecological understanding of architecture—one that sees spatial quality as emerging from the dynamic equilibrium between environmental inputs and architectural mediation.

Central to this mediation is the architectural envelope, or what Ebeling refers to as the "skin" or "membrane" between interior and exterior. This membrane is not a passive separator but an active interface that modulates environmental forces. Its character: material, permeability, thermal properties, determines the building's ability to maintain balance and comfort. In this way, Ebeling anticipates contemporary concerns with building envelopes in sustainable architecture, where the skin becomes a site of energy exchange, insulation, and environmental control.

Ebeling also explores the technological potential of solar energy, proposing speculative systems such as black boxes and infra-red absorbing saline glass blocks to insulate and energize architecture (pp. 14, 24, 29–33, [13]). These innovations reflect a forward-thinking approach to environmental design, one that integrates material science with spatial experience. His architectural experiments, such as the *Metal Round House* (1931) and the *Spherical House in the Ocean* (1926), embody these principles. The former is conceived with solar energy in mind, while the latter engages wave power; each representing a synthesis of form, technology, and environmental responsiveness (p. XVIII, [11]). Ebeling concludes his text highlighting the interplay between the environmental conditions and wellbeing when he says:

> "On the whole it should be stressed that the house is to be perceived as a conducting medium, channeling a continuous stream of forces. . . In the center of this play of forces, in each instance, are organisms subject to both physiological and psychological laws." (p. 33, [13]).

This section has demonstrated how environmental conditions effect wellbeing, this is articulated by Moholy-Nagy in terms of invisible forces and spatial interpenetration, and is translated into concrete architectural propositions by Ebeling. While Moholy-Nagy gestured toward the relationship between architecture and environment through the idea of 'forces", it is Ebeling who fully articulates the potential of architecture to harness environmental energy and regulate environmental forces for improved thermal performance and wellbeing.

We shall now examine how both Moholy-Nagy and Ebeling approach the idea of wellbeing in architecture, in relation to emerging techniques in construction and material innovation.

## 6. Construction Innovation

Building upon the metaphysical and environmental propositions of Moholy-Nagy and Ebeling, the next phase of inquiry turns toward the material and constructional innovations that emerged from the Bauhaus. While Moholy-Nagy gestured toward an architecture shaped by invisible forces and Ebeling articulated a more technologically grounded vision of environmental responsiveness, both thinkers laid the groundwork for reimagining new types of construction innovation. At the time of these writings by Moholy Nagy and Ebeling, there was an emphasis on industrial materials; steel, concrete, and glass, not only for their aesthetic alignment with modernist principles but also due to advancements in transportation and manufacturing that made them more accessible and widely deployable.

Also, architecture was increasingly conceived in terms of prefabrication and modularity. Walter Gropius, for instance, had been exploring prefabricated construction systems as early as 1910 (p. 39, [15]), reflecting a broader shift toward efficiency, standardization, and mass production. However, as the literature review reveals, while such construction innovations were not unique to the Bauhaus, what distinguishes the contributions of Moholy-Nagy and Ebeling is their articulation of how such systems might enhance human wellbeing through construction innovation. This section will explore how these early modernist experiments in construction, particularly prefabrication and material innovation, intersect with the metaphysical and environmental concerns previously discussed.

Moholy-Nagy conceived of a cyclical and reciprocal relationship between self-awareness, technological advancement, material innovation, and human wellbeing. His vision was not merely about the aesthetic or functional potential of architecture, but about its capacity to transform human life through a deeper connection between individuals and technology. This is evidenced through his statement, "only when it is clear to the individual that he has to function as a productive entity in the community of mankind will he come closer to a true understanding of technical progress" (p. 16, [12]). This statement underscores his belief that technical progress is not autonomous or purely mechanical but is intimately tied to human consciousness and social responsibility.

For Moholy-Nagy, technical progress is inseparable from the logic of mass production. He advocates for the use of industrialized processes not simply to increase efficiency, but to improve the quality of life for all individuals, regardless of class or social status. He envisions a future where technological systems liberate human energy, allowing for a more balanced and fulfilling existence: "a balanced life through the full use of our liberated energies" (p. 16, [12]). This liberation is not just physical, but psychological and existential, an opportunity for individuals to engage in meaningful work and self-expression. He further asserts, "the right of the individual to have a satisfying occupation, a life work that meets inner needs, a balanced way of life and a real release of energies" (p. 18, [12]). These ideas reflect a humanist ethos embedded within his technological optimism, where architecture and design serve as mediators between industrial systems and personal wellbeing.

This cyclical model, where awareness leads to innovation, which in turn enhances well-being, thereby fostering further awareness and innovation, suggests a dynamic feedback loop between human experience and architectural production. Moholy-Nagy's emphasis on "liberated energies" can be interpreted as a call to reduce the burdens of manual labor and time-consuming domestic tasks through intelligent design and mechanization. In doing so, architecture becomes a tool for social emancipation, enabling individuals to redirect their energies toward creative, intellectual, or communal pursuits.

However, despite the clarity of his philosophical framework, Moholy-Nagy does not provide a detailed methodology for how these ideals might be realized through advanced construction techniques. His writings remain largely conceptual, gesturing toward the potential of prefabrication, modularity, and industrial materials without specifying the processes or systems required to implement them. This gap between vision and execution highlights the need to examine other contemporaneous or subsequent thinkers, such as Ebeling, who more explicitly engage with the technical dimensions of construction innovation.

Ebeling's vision for the future of architecture was encapsulated in his notion of biological architecture, a continuous, integrated system where all technical functions (heating, lighting, ventilation, medical radiation, telecommunications) are embedded within the building's skin and responsive to external environmental conditions (p. 20, [13]). This concept anticipates contemporary smart building technologies and environmental control systems, but with a more holistic and human-centered orientation. Ebeling saw this integration not only as a technical achievement but as a social imperative, proposing that such

systems could enable "rapid techniques of construction in response to mass migration and displacement" through prefabricated, mobile, and adaptable housing solutions (p. 23, [13]).

His prefabrication strategy was highly rationalized and logistically efficient. As he describes: "[a] standard flat roofed housing type that could be taken to the limits of rationalisation. * e.g . . . the entire load bearing frame is assembled in the factory (floor and ceiling beams have special profiles so they nest in one another) and the structure with all of its parts can be rolled onto two low riding freight train carriages or trucks and transported to the construction site where it is then pushed onto the prepared foundation, pulled open and finished" (p. 23, [13]). This approach reflects a synthesis of industrial production and architectural design, where the house becomes a modular, transportable unit, capable of rapid deployment and minimal on-site labor. It also echoes Moholy-Nagy's belief in mass production as a means of liberating human energy and improving wellbeing, though Ebeling provides a far more detailed and actionable framework for implementation.

Ebeling's architectural vision was also exemplified by his concept of the 'energy-autonomous' Metal Round House (1931). This experimental dwelling served as a prototype for how prefabricated metal housing could be used not only structurally, but also as a conductor of electricity for domestic use, integrating energy systems directly into the architectural envelope (pp. IX–X, [8]). The house was not merely a shelter but a technological organism—an early attempt to fuse architecture with infrastructural autonomy. This ambition was likely shaped by Ebeling's formative experience at the Junkers Aeroplane Factory in Dessau, a hub of industrial innovation where he was exposed to advanced techniques in metal processing and prefabrication (p. II, [8]). During this period, Gropius was also proposing mass housing factories, and Georg Muche was investigating metal fabrication for housing components (pp. II–V, [8]), creating a fertile context for Ebeling's ideas to evolve.

Ebeling's ultimate goal, like Moholy-Nagy's, was through technical efficiency there would be the creation of spaces that support metaphysical and emotional wellbeing. He envisioned architecture as a medium for human flourishing, writing it should be:

> "a space for free rhythmic dancing movement and a Dionysian fervour for life, or for absolute concentration, a site for mystical ceremonies; for a place where star gazers could commune with the night sky in a state of peace. . . If just a single one of these needs were universal, then the architect would have the welcome obligation to regroup the organism of the house around this lifestyle in a spatially dynamic way, and to reassess its constructional relations." (p. 26, [13]).

This poetic articulation reveals Ebeling's belief that architecture must respond not only to environmental and technological conditions but also to the inner life of its inhabitants. His work bridges the gap between industrial rationalism and spiritual humanism, proposing a built environment that is both efficient and emotionally resonant.

In summary, both Ebeling and Moholy-Nagy championed the idea of mass-produced or prefabricated architecture as a means to advance technological integration and promote interconnectivity, between building and environment, environment and inhabitant, and ultimately between individuals and their own metaphysical selves. While Moholy-Nagy hinted at these possibilities in New Vision, Ebeling in Space as Membrane provided a concrete architectural and constructional roadmap, demonstrating how rapid, responsive building systems could be designed to support wellbeing and social transformation.

## 7. Implications

Contemporary architectural discourse around wellbeing tends to focus on measurable environmental conditions, such as: access to natural light, air quality, thermal comfort, and acoustic performance. These parameters are often framed within building standards and performance metrics, reflecting a largely physiological and environmental understanding

of wellbeing. However, revisiting the work of Moholy-Nagy and Ebeling reveals a more expansive and integrated conception of wellbeing, one that encompasses not only environmental conditions, technological integration, and constructional innovation but also metaphysical ideas.

Both Moholy-Nagy and Ebeling proposed that architecture could serve as a conduit for human flourishing by aligning material systems with psychological and existential needs. Moholy-Nagy's emphasis on the cyclical relationship between self-awareness, technical progress, and social wellbeing suggests that architecture should not only shelter but also elevate the human spirit. Similarly, Ebeling's vision of biological architecture, where the building skin becomes an intelligent, responsive interface, extends the notion of wellbeing beyond comfort to include emotional resonance, metaphysical engagement, and even ritualistic or contemplative experience.

Their work challenges us to think beyond the current paradigm of wellbeing as a checklist of environmental criteria. Instead, it invites a redefinition of architectural wellbeing as a dynamic interplay between the individual, the built environment, and the broader ecological and technological systems in which both are embedded. By integrating metaphysical, environmental, and technological dimensions, Moholy-Nagy and Ebeling offer a framework for reimagining wellbeing in architecture, not as a static condition to be achieved, but as an evolving relationship to be cultivated. The implications of this expanded view are significant for contemporary practice, particularly in the context of climate change, housing precarity, and the growing interest in biophilic and responsive design.

Moholy-Nagy's belief in the transformative power of design aligns with contemporary environmental psychology, which suggests that exposure to natural light, open spaces, and novel forms may reduce stress and improve cognitive function. From this perspective, the historical research presented, through the work of Moholy-Nagy can inform contemporary ideas of wellbeing by encouraging architects to consider how metaphysical principles such as harmony, balance, and resonance might be integrated into design processes. This could involve rethinking materials, spatial configurations, and sensory experiences to create environments that support mental, emotional, and physical health.

Similarly, Ebeling's cyclical connection between metaphysical thinking and advanced conceptualization in architecture suggests that innovation in construction and design need not be divorced from philosophical inquiry. On the contrary, metaphysical reflection can inspire new forms of technological advancement that are more attuned to human and ecological needs. For example, the integration of design principles, which draw on the innate human affinity for connection, reflects a metaphysical understanding of the human–environment relationship.

Through a pedagogical lens, this paper invites future areas of research to answer such questions as: If metaphysical ideas had continued to be more central to the Bauhaus curriculum, might architectural education have evolved to include greater emphasis on psychology, physiology, phenomenology, and subsequentially more innovative and experimental space-making? If metaphysically challenging ideas had been foregrounded in architectural history and education, would we have arrived at different, and possibly more advanced, ideas of wellbeing in relation to architecture than we do now?

From an architectural history perspective, this account also opens possibilities for future research, for example: Was it because of the split in the Bauhaus where the functional took precedence over the expressive that the potential impact of the metaphysical in architecture was not fully explored? What other metaphysical ideas at the Bauhaus could have been translated into architectural concepts? Such speculative inquiries would open pathways to consider how metaphysical thinking, often sidelined in favor of technical rationalism, might enrich contemporary architectural discourse, particularly in relation to wellbeing.

In practical terms, this could manifest in researching new design strategies that prioritize sensory engagement, emotional resonance, spiritual sensitives and ecological integration. For instance, research into the use of wellbeing practices to heighten or dampen physiological responses to environments; research into how sustainable design, when guided by metaphysical principles, may enhance rather than alienate human experience creating buildings that respond to mood, movement, and environmental conditions in technically innovative ways; or research into links between ease of innovative methods of construction for enhancing wellbeing of not just occupants of architecture, but builders of it.

The implications of this expanded lens challenges architects, educators, and researchers to reconsider the foundations of architectural history, pedagogy and practice, and to imagine built environments that are not only efficient and sustainable, but also spiritually and sensorially enriching. The implications of such a shift are profound, not only for how we design, but for how we live, connect, and thrive within the spaces we inhabit.

## 8. Conclusions

This paper has illustrated, following the foundational beginnings at the Bauhaus through the work of Gropius, Kandinsky, Klee, Itten, and Grunow, and specifically two central practitioners, Moholy-Nagy and Ebeling, a clear cyclical connection between metaphysical thinking, advanced conceptualization in architectural design and wellbeing. Their contributions, though differing in emphasis and visibility, offer a compelling lens through which to reconsider the role of the built environment in shaping wellbeing.

Moholy-Nagy, while the more central and remembered figure from the Bauhaus, translated metaphysical thought into architectural ideas that were deeply embedded in his broader pedagogical and artistic philosophy. His work suggested that architecture could be more than functional; it could be a medium for expressing the invisible forces that shape human experience. Ebeling, by contrast, was less involved with the Bauhaus institutionally but more focused on architecture itself. He freely explored metaphysical ideas and their potential consequences on environment and construction, offering a more direct and applied interpretation of these concepts to wellbeing.

Ultimately, the historical insights from Moholy-Nagy and Ebeling challenge us to reconsider the foundations of architectural practice in relation to wellbeing. They remind us that architecture is not merely a technical, cultural and philosophical endeavor but also a metaphysical and physiological one. By revisiting the metaphysical undercurrents of the Bauhaus and exploring their implications for wellbeing, we can begin to imagine a future where architecture serves as a conduit for healing, connection, and transformation.

In conclusion, this paper has not only traced the metaphysical lineage within Bauhaus thought but also highlighted its relevance to contemporary architectural challenges. As we face unprecedented environmental and social pressures, the integration of metaphysical inquiry into architectural design may prove essential for creating spaces that truly support human and planetary wellbeing.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The original contributions presented in this study are included in the essay. Further inquiries can be directed to the corresponding authors.

**Acknowledgments:** This paper expands upon a previously presented conference paper “The Future of Interconnectivity: Laszlo Moholy-Nagy and Siegfried Ebeling” that was presented at the

Impact! From Bauhaus to IKEA 2019—Conference at the University of Technology Sydney, Australia, 30 September 2019 → 2 October 2019.

**Conflicts of Interest:** The author declares no conflict of interest.

## References

1. Gropius, W. Idee und Aufbau des Staatlichen Bauhauses. In *Staatliches Bauhais Weimar 1919–1923*; Kraus Reprint: Munchen, Germany, 1923; Translated from German to English through Adobe PDF Scanner with Co-pilot.
2. Gropius, W. Manifesto. 1919. Available online: https://designmanifestos.org/walter-gropius-manifesto-of-the-staatliches-bauhaus/Bauhaus (accessed on 18 October 2025).
3. Kandinsky, W. *On the Spiritual in Art*; Solomon R. Guggenheim Foundation: New York, NY, USA, 1946.
4. Klee, P. Wege des Naturstudiums. In *Staatliches Bauhais Weimar 1919–1923*; Kraus Reprint: Munchen, Germany, 1923; Translated from German to English through Adobe PDF Scanner with Co-pilot.
5. Otto, E. *Haunted Bauhaus, Occult Spirituality, Gender Fluidity, Queer Identities and Radical Politics*; MIT Press: Cambridge, MA, USA, 2019.
6. Otto, E.; Patrick, R. *Bauhaus Women a Global Perspective*; Bloomsbury Publishing: London, UK, 2019.
7. Grunow, G. Der Aufbau der lebendigen Form durch Farbe, Form, Ton. In *Staatliches Bauhais Weimar 1919–1923*; Kraus Reprint: Munchen, Germany, 1923; Translated from German to English through Adobe PDF Scanner with Co-pilot.
8. Scheiffele, W. Membrane Ecological Architecture. In *Space as Membrane*; by Siegfried Ebeling, I–XII; Architects Association: London, UK, 2010.
9. Mertins, D. Where Architecture Meets Biology: An Interview with Detlef Mertins. In *Interact or Die*; Brouwer, J., Mulder, A., Eds.; V2 Publishing: Rotterdam, The Netherlands, 2007; pp. 110–131.
10. Botar, O. Prolegomena to the Study of Biomorphic Modernism, Biocentrism, László Moholy-Nagy's New Vision and Erno Kallai's Bioromantik. Ph.D. Thesis, University of Toronto, Toronto, ON, Canada, 1998.
11. Papapetros, S. Future Skins. In *Space as Membrane*; by Siegfried Ebeling, XIII–XXI; Architects Association: London, UK, 2010.
12. Moholy-Nagy, L. *The New Vision 1928*; Wittenborn Shultz, Inc.: New York, NY, USA, 1946.
13. Ebeling, S. *Space as Membrane*; Architects Association: London, UK, 1926.
14. American Psychological Association. APA Dictionary of Psychology "Metaphysics". Available online: https://dictionary.apa.org/metaphysics (accessed on 18 October 2025).
15. Epstein Jones, D. Walter Gropius and the (Not So) Infinite Possibilities of Prefabrication. *ArcCA* **2007**, *7*, 4. Available online: https://arccadigest.org/wp-content/uploads/2023/08/arcCA_07-4_x_preFABiana_Full-Issue.pdf (accessed on 18 October 2025).

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.