

Meta-Representation and Spatial Perception: Towards a Taxonomy of Representational Bias

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Abstract

This paper asks the question: how do architectural modes of representation structure the experiential conditions of space? It examines how diagrams, rendering, atmospheric representational modes and photographs reconcile architectural perception and experience. Through a comparative analysis of OMA's Seattle Central Library (2004), BIG's The Twist (2019), and Diller Scofidio + Renfro's Blur Building (2002), we argue that representation functions beyond a communication tool as an active agent in shaping spatial knowledge. Each case illustrates a distinct mode of mediation: Seattle Central Library translates the conceptual diagram into an embodied paradox of clarity and confusion; The Twist minimizes the gap between image and experience through digital fidelity; and Blur Building resists static forms of representation, existing instead as a living field of atmosphere that continuously evolves forced into representational limitations. Drawing from Robin Evans, Juhani Pallasmaa, Gernot Böhme, Mario Carpo and Benjamin Bratton, the paper constructs a taxonomy of representational bias that clarifies how architectural images and media simultaneously describe and produce perception. The findings suggest that representation governs experiences as much as it depicts it – structuring how architecture is understood, navigated, and remembered. Ultimately, the project reframes representation as a site of architectural agency, calling for more deliberate use of its distortions to expand rather than limit the perceptual range of architecture.

Keywords

Representational Bias, Architectural Mediation, Spatial Cognition

1 Introduction

Representation has always mediated between architectural conception and architectural experience. Plans, diagrams, renderings, photography, and digital media do not merely document design, but form how architecture is anticipated, navigated, and re-

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membered. While architects routinely deploy these representational modes to communicate intent, less attention is given to the perceptual trade-offs they produce once buildings are occupied.

We ask the question: how do architectural modes of representation structure the experiential conditions of space? We argue that representational strategies are not neutral instruments of communication but working forces that reorganize the conditions of spatial experiences. Different modes of representation generate distinct perceptual consequences. Diagrams privilege conceptual clarity at the expense of embodied legibility. Renderings align image and reality so tightly that discovery is diminished. Atmospheric spaces resist static imagery all together, destabilizing visual representation in favor of multisensory immersion.

To examine these dynamics, this study analyzes three case studies – OMA’s Seattle Central Library (2004), BIG’s The Twist (2019), and Diller Scofidio + Renfro’s Blur Building (2002). Each can be understood as an architectural experiment in the translation of representation into built experience. The Seattle Central Library literalizes a programmatic diagram, The Twist fulfills the promise of the rendering with remarkable accuracy, The Blur Building dissolves conventional form into atmosphere, resisting stable representation all together.

The contribution of this paper lies in framing these cases within a taxonomy of representational bias, drawing from Evans on translation and distortion, Pallasmaa on the sensory limits of vision, Carpo on digital

architecture, Böhme on atmospheres, and Bratton on computational infrastructures. In doing so, it clarifies how architects might become more conscious of the experiential trade-offs embedded in their representational decisions.

2 Methods

Three axes guide this study:

1. **Translation and Distortion:** Following Evans, architectural drawings and diagrams inevitably undergo transformation and distortion upon construction.²
2. **Sensory Bias and Atmosphere:** Pallasmaa’s critique of ocularcentrism³ highlights the dominance of vision in representation, and Böhme’s account of “atmospheric architecture”⁴ underscore how representation can privilege or destabilize certain senses.
3. **Media and Digital Mediation:** Colomina’s insistence that modern architecture is inseparable from its media life,⁵ Carpo’s analysis of digital-era reproducibility,⁶ and Bratton’s theorization of planetary-scale computation⁷ each frame how architecture circulates and governs perception beyond its physical site.

Together, these metrics provide tools to track representational bias across diagram, rendering, atmosphere, and photography. Rather than remaining theoretical positions, they are translated into operational criteria that

² Robin Evans, “Translations From Drawing to Building,” *AA Files*, no. 12, 1986, 3-18.

³ Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses* (Chichester: Wiley, 2005), 14-15.

⁴ Gernot Böhme, *Atmospheric Architectures: The Aesthetics of Felt Spaces* (London: Bloomsbury, 2017).

⁵ Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA: MIT Press, 1996), 14.

⁶ Mario Carpo, *The Digital Turn in Architecture 1992-2012: An Anthology* (Chichester: Wiley, 2013).

⁷ Benjamin H. Bratton, *The Stack: On Software and Sovereignty* (Cambridge, MA: MIT Press, 2016).

make perceptual consequences comparable across case studies.

2.1 Operational Criteria & Comparative Synthesis

From the theoretical framework, four recurring dimensions emerge as especially effective in the translation from representation to experience: legibility, discovery, sensory balance, and infrastructural mediation. These dimensions are consistently observable across the case studies and make “perception” and “engagement” analytically comparable. Thus, this paper evaluates each case through four criteria:

1. **Legibility** (clarity on paper vs clarity in use).⁸
2. **Discovery** (expectation vs lived experience).⁹
3. **Sensory Balance** (vision-dominant vs multisensory space).¹⁰⁻¹¹
4. **Infrastructural Mediation** (how representational systems direct behavior).¹²

This synthesis clarifies the research question: different representational modes produce distinct perceptual profiles – diagrams trade paper clarity for embodied opacity; renderings trade surprise for fidelity; atmospheres trade visual legibility for affective engagement

3 Results

Comparative Matrix: Representational Mode → Perceptual Outcome

Representational Mode	Promises (Conceptual Aim)	Produces (Perceptual Output)	Dominant (Sensory Bias)	Degree of Mediation
Diagram (<i>Seattle Central Library</i>)	Conceptual clarity, functional transparency	Embodied opacity, spatial confusion	Visual: abstract	High (programmatic/infrastructural)
Rendering (<i>The Twist</i>)	Photo-real fidelity, communicative alignment	Predictable experience, reduced discovery	Visual: aesthetic	Moderate (circulatory scripting)
Atmosphere (<i>Blur Building</i>)	Sensory indeterminacy, affective immersion	Affective engagement, disorientation	Multi-sensory/haptic	High (smart systems, environmental)
Photography/Media Circulation	Stability, legibility across publics	Image memory permanence, reduced ambiguity	Visual: representational	Very High (mediatic/cultural)

Figure 1 Comparative Matrix

3.1 Case Study 1

The *Seattle Central Library*, completed in 2004, is described by OMA as an innovative example of library organization where programming is “intuitively arranged across five platforms and four flowing...planes”¹³ driving the unique form - a literal extrusion of program. Joshua Ramus described the form as “a bar graph charting library services by percentage of building use,” with each platforms dimension “completely determined by the amount of program we’re trying to fit in.”¹⁴ This diagrammatic translation sought clarity and inevitability (*Figures 2 & 3*).

⁸ Evans, “Translations From Drawing to Building,” 6.

⁹ Pallasmaa, *The Eyes of the Skin*, 24-26.

¹⁰ Pallasmaa, *The Eyes of the Skin*, 28-30.

¹¹ Böhme, *Atmospheric Architectures*, 27.

¹² Bratton, *The Stack*, 329.

¹³ OMA, “Seattle Central Library,” 2004,

<https://www.oma.com/projects/seattle-central-library>.

¹⁴ Joshua Ramus, quoted in OMA, “Seattle Central Library,” 2004, <https://www.oma.com/projects/seattle-central-library>.

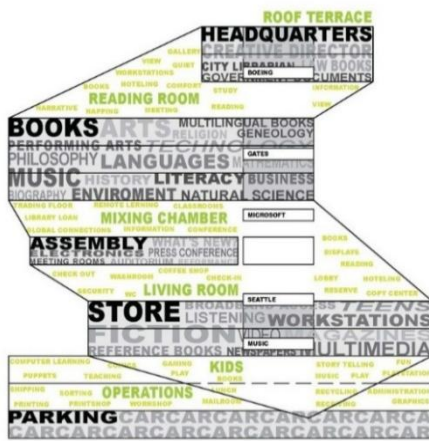


Figure 2 Legibility Section Diagram, Seattle Central Library; OMA+LMN, "Seattle Central Library," ArchDaily. <https://www.daily.com/11651/seattle-central-library-oma-lmn>.

Public reception was less aligned. Paul Goldberger noted skepticism from board members and the public before the opening, shifting to awe at the crystalline form but also confusion inside.¹⁵ Empirical research confirmed that the library's wayfinding posed challenges (Figure 4): Saskia Kuliga et al. demonstrated measurable difficulty in spatial orientation, attributing this to the building's complexity and representational logic.¹⁶ Evans argues that architectural drawings do not simply predict buildings; they transform them. In the *Seattle Central Library*, the programmatic diagram appears clear and rational on paper, yet once built, the clarity becomes neutralized. What reads as orderly in representation becomes difficult to navigate in experience. The project's circulation exposes a trade-off between diagrammatic clarity and embodied disorientation.

Evaluation through Operational Criteria: Viewed through the four operational criteria,

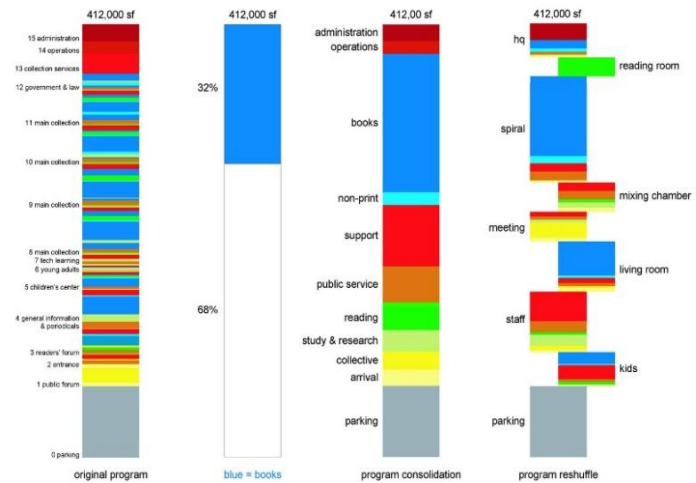


Figure 3 Seattle Program Diagram, Seattle Central Library; OMA+LMN, "Seattle Central Library," ArchDaily. <https://www.archdaily.com/11651/seattle-central-library-oma-lmn>.

the *Seattle Central Library* demonstrates high diagram legibility but reduces embodied clarity as documented by wayfinding difficulty.¹⁷ Discovery is mixed – visitors encounter spectacle alongside confusion. Sensory balance remains primarily visual, and infrastructural mediation is pronounced, as the program stack governs circulation and spatial hierarchy.

3.2 Case Study 2: The Twist (BIG, 2019)

The Twist, completed in 2019, is a museum for contemporary art located in the Kistefos Sculpture Park north of Oslo, Norway. BIG frames *The Twist* as “not just a museum, but a bridge, a sculpture, and an inhabitable installation,” whose form emerged directly from the need to span the Randselva River

¹⁵ Paul Goldberger, “High-Tech Bibliophilia,” *The New Yorker*, May 24, 2004, <https://www.newyorker.com/magazine/2004/05/24/high-tech-bibliophilia>.

¹⁶ Kuliga et al., “Exploring Individual Differences,” 654-656.

¹⁷ Saskia F. Kuliga et al., “Exploring Individual Differences and Building Complexity in Wayfinding: The Case of the Seattle Central Library,” *Environment and Behavior* 51, no. 5 (2019), 654-656.



Figure 2 Wayfinding performance, Seattle Central Library. Adapted from Saskia F. Kuliga et al., "exploring Individual Differences and Building Complexity in Wayfinding: The Case of Seattle Central Library," *Environment and Behavior* 51, no. 5 (2019): 648-649..

while linking disjointed galleries.¹⁸ Renderings and press images circulated globally before completion, solidifying the twist as the project's essence. Media coverage, such as *The Architect's Newspaper* article, noted that the experience of *The Twist* largely fulfills the promise of its renderings, emphasizing continuity between the building's iconic form and its interior experience.¹⁹

This reveals the representational trade-off: renderings compress experience into singular, iconic views that circulate prior to construction and shape perception before the building is ever occupied. By fixing lighting, perspective, and atmosphere in advance, the rendering predefines how the building is expected to be encountered. When the built space closely reproduces these canonical images (*Figures 5-8*), ambiguity narrows and the opportunity for discovery diminishes. Representation's success in alignment leaves limited room for

the building to surprise or exceed its pre-circulated image.

Evaluation through Operational Criteria: Viewed through the operational criteria, *The Twist* demonstrates high alignment between representation and occupation. Design-to-experience honesty is strong, while discovery remains limited, as visitors encounter space that closely matches their prior expectations. Sensory balance remains primarily visual, and infrastructural mediation is moderate, with circulation structured by the rotational logic of the twist itself.

¹⁸ BIG, "The Twist," accessed Sept 2025, <https://big.dk/projects/the-twist-1337>.

¹⁹ Jonathan Hilburg, "BIG's twisting sculpture-bridge-museum opens in Norway," *The Architect's Newspaper*, September 18th,

2019. <https://www.archpaper.com/2019/09/big-the-twist-sculpture-bridge-museum-opens/>.

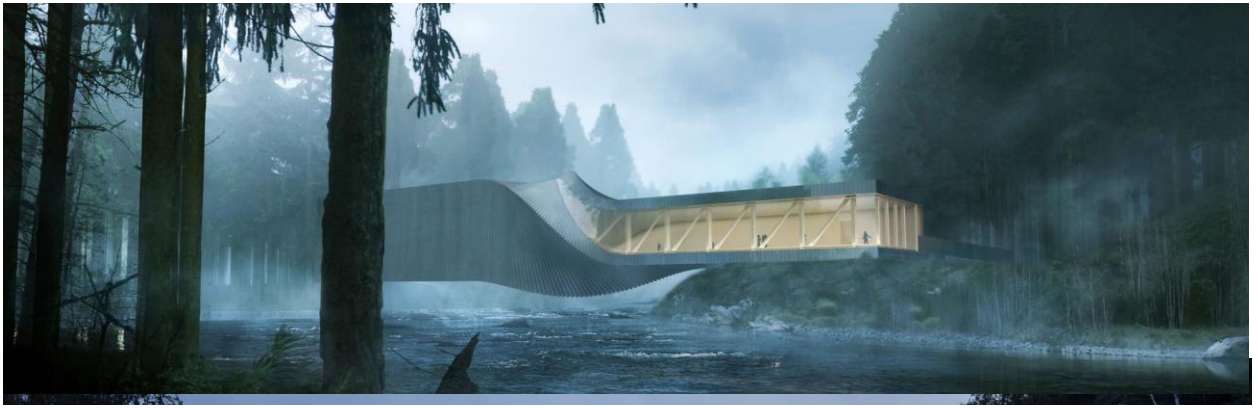


Figure 5 Rendering of The Twist Museum, Jevnaker, Norway. Illustrated by Bjarke Ingels Group (BIG). Image courtesy of Kistefos Museum. <https://www.kistefosmuseum.com/art/the-twist-gallery>.



Figure 6 The Twist Museum, Jevnaker, Norway. Photograph by Laurian Ghinitoiu, 2019. ArchDaily. https://www.archdaily.com/925106/the-twist-museum-big?ad_source=search&ad_medium=projects_tab.

3.3 Case Study 3: Blur Building (DS+R, 2002)

Blur Building was constructed for the Swiss National Exposition in 2002, located in Yverdon-les-Bains, Switzerland, as a critique on the oversaturation of technology-driven digital installations at showcases during the time.²⁰ Diller and Scofidio described it as “an architecture of atmosphere – a fog mass resulting from natural and man-made forces [where] the public can drink the building.”²¹ Their intent was a “low-definition” counterpoint to high-definition digital media environment.

Visitors encountered a unique experience: entering via ramps, they found vision and

acoustics erased in an optical white-out and white noise.²² Wearable “braincoats” embedded them in a responsive computational ecology, while the smart weather system regulated fog density.²³ Lucas Crawford, a Professor and scholar of transgender and queer theory who writes on architecture and spatial politics, read *Blur* as a structure of nothingness, and a metaphor for gender fluidity.²⁴ Ulrik Ekman, a media and cultural theorist who writes on architecture and digital media at the University of Copenhagen, framed it as a

²⁰ DS+R, “Blur Building,” accessed Sept 2025, <https://dsrny.com/project/blur-building>.

²¹ Elizabeth Diller and Richardo Scofidio, “Blur Building.” In *Earth, Water, Air, Fire: The Four Elements and Architecture*, 132–135.

²² Diller and Scofidio, “Blur Building,” 132.

²³ Cary Wolfe, “Lose the Building: Systems Theory, Architecture, and Diller+Scofidio’s *Blur*,” *Postmodern Culture* 16, no 3 (May 2006).

²⁴ Lucas Crawford, *High Line Scavenger Hunt* (Calgary: University of Calgary Press, 2018), 52.

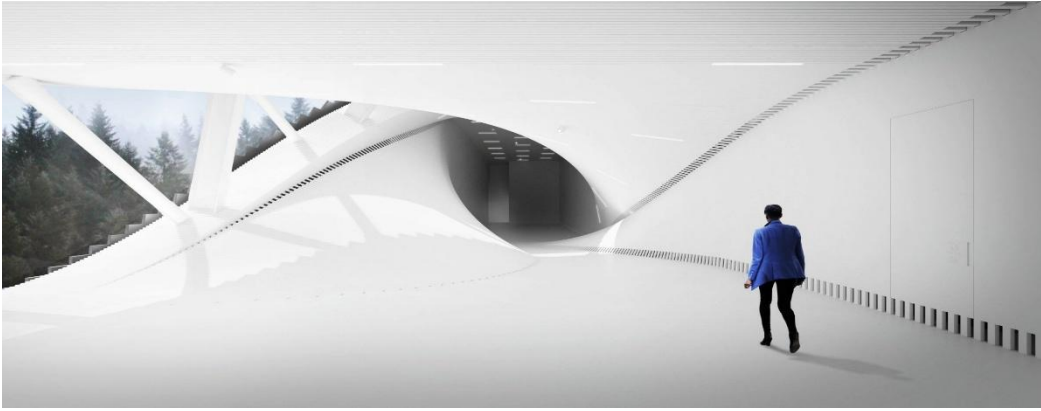


Figure 7 Interior Render. The Twist Museum, Jevnaker, Norway. Archello. <https://archello.com/es/project/the-twist>.



Figure 8 Interior. The Twist Museum, Jevnaker, Norway. Photograph by Laurian Ghinitoiu, 2019. ArchDaily. https://www.archdaily.com/925106/the-twist-museum-big?ad_source=search&ad_medium=projects_tab.

“mixed worlding,” an experiment in embedding ubiquitous computing within atmosphere.²⁵

Phenomenologically, *Blur Building* moves beyond ocularcentrism, forcing multisensory orientation. The paradox is that media representations such as photography re-visualized *Blur* as an icon of fog, stabilizing what was designed to destabilize (Figure 9). Here the gap between representation and perception is most evident: people experienced shifting atmosphere, with unique perspectives, but have flat images to remember the building.

Evaluation through Operational Criteria: Through the operational criteria, *Blur Building* inverts the priorities of conventional architectural representation. Legibility is intentionally reduced, while discovery is heightened through fluctuating atmospheric conditions. Sensory balance shifts decisively away from vision toward multisensory engagement. Infrastructure mediation remains high, as wearable devices and climate-responsive systems structure the experience.²⁶

²⁵ Ulrik Ekman, “Irreducible Vagueness: Mixed Worlding in Diller & Scofidio’s *Blur Building*,” *Postmodern Culture* 19, no. 2 (2009).

²⁶

Ekman, “Irreducible Vagueness.”



Figure 9. Fog sequence of Blur Building, Yverdon-les-Bains, Switzerland (2002). Stills from time-laps video by Diller Scofidio + Renfro. <https://dsrny.com/project/blur-building>.

3.4 Photography & Media Circulation as Co-Authors of Experience

Following Colomina, modern architecture is inseparable from its media life.²⁷ In these cases, photography functions as documentation as well as co-author:

Seattle Central Library: Press photography privileges the crystalline envelope and pop color moments; public reception primed by those images, confronts interior disorientation.²⁸



Figure 10. Seattle Central Library, Seattle, Washington (2004). Photographed by Nick Wagner, The Seattle Times, 2025. <https://www.seattletimes.com/pacific-nw-magazine/seattles-central-library-is-a-showcase-of-art-architecture-and-community/>.

²⁷ Colomina, *Privacy and Publicity*, 14.

²⁸ Goldberger, “High-Tech Bibliophilia.”

The Twist: Hero images recur across outlets, stabilizing a standard view that visitors then seek to confirm, compressing discovery.²⁹



Figure 11. Exterior. *The Twist Museum*, Jevnaker, Norway. Photograph by Laurian Ghinitoiu, 2019. ArchDaily. https://www.archdaily.com/925106/the-twist-museum-big?ad_source=search&ad_medium=projects_tab.

Blur Building: Long-lens shots fix an icon of “nothingness,” re-visualizing what was designed to dissolve vision.³⁰

In each of these cases, photography narrows potential readings of the space before occupation and works as a memory afterwards. Treating photography as a representational mode is essential to understanding how perception is shaped.

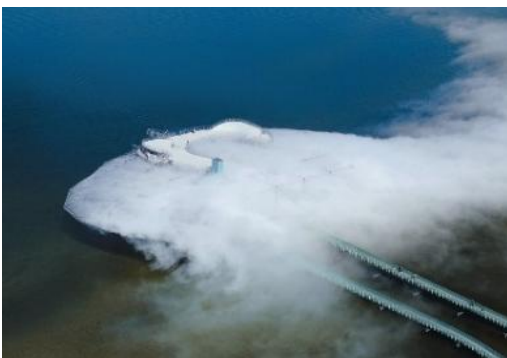


Figure 12. Aerial view, *The Blur Building*, Yverdon-les-Bains, Switzerland (2002). Diller Scofidio + Renfro. <https://dsrny.com/project/blur-building>.

3.5 Taxonomy of Representational Bias

Representation across these cases can be mapped onto four modes:

1. **Diagram (*Seattle Central Library*):** Promises conceptual clarity, produces embodied opacity.
2. **Rendering (*The Twist*):** Promises fidelity, produces predictability.
3. **Atmosphere (*Blur Building*):** Promises indeterminacy, produces affective engagement.
4. **Photography/Media:** Stabilizes perception, scripting both anticipation and memory.

4 Conclusion

Representation scripts experience as much as it conveys design. *The Seattle Central Library* demonstrates the distortion between diagram and occupation; *The Twist* reveals how renderings align perception so tightly that discovery is minimized; the *Blur Building* demonstrates the possibility of atmospheric representation, yet paradoxically re-visualized through photography.

Across these cases, the taxonomy shows that different modes of representation – diagram, rendering, atmosphere, photography – produce distinct perceptual outcomes. Diagrams offer conceptual clarity yet risk experiential friction. Renderings provide formal coherence and efficient communication yet may narrow discovery. Atmospheric spaces provide multisensory engagement yet resist stable visual capture.

²⁹ Hilburg, “BIG’s twisting sculpture-bridge-museum opens in Norway,” *The Architect’s Newspaper*.

³⁰ Wolfe, “Lose the Building.”

The implication is not that one mode should replace another. Rather, representational choices carry inherent trade-offs that shape how space is anticipated, navigated, and remembered. To answer the research question: representation shapes architecture not only in how it is drawn or photographed, but in how those modes structure the very conditions of engagement. The challenge for contemporary architecture is not to eliminate distortion, but to recognize and negotiate it deliberately.

While this study focuses on three contemporary projects, the framework invites broader application. Future research might examine how representational trade-offs operate in other typologies, from housing to large-scale infrastructure, or in emerging visualization environments such as virtual reality and AI-assisted design. Empirical studies of user behavior could further test whether the perceptual patterns identified here recur across contexts. Extending the taxonomy beyond these examples would clarify whether representational bias is a project-specific phenomenon or a structure condition of contemporary architectural production

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