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The Seduction of the Glass Box

In 2011, the city of Emeryville, California, recruited five emerging local architects to transform an existing one-story, brick factory building into an innovative arts space that was to become “a focal point for the arts in Emeryville and a regional attraction.” The judges ultimately selected a submission by Jensen Architects featuring a glowing, three-story glass theater as its centerpiece. In the verbal description of the project, the architects make the following explicit claims for the glass theater:

1. A “radically open” building that links stage, building, and city, facilitating “unconventional relationships between artist and audience.”
2. Visual transparency, specifically, that the building acts as “built signage” for the arts center and the city, putting the performances on display.
3. A simple, open plan that lends a contemporary “workshop atmosphere.”

In drawings, the simple yet dramatic intervention casts an inspiring newness to the neighborhood without defacing the brick relic of Emeryville’s industrial past. The tone of the presentation was

straightforward, elegant, and filled with light, both emanating out from the building and filling interior spaces.¹

Once the project won the competition and entered design development, it was determined through conversations with the city and performing arts groups that the amount of glass would need to be dramatically reduced. Acoustic and lighting control would be difficult in a glass theater, at least within the available budget. Given that its central feature posed such obvious shortcomings for the specific program in question, why was the glass design initially so seductive?

Architectural critics have tried to shatter the ideal of the glass wall ever since it entered the realm of permanent architecture. In fact, critics have more than once predicted the end of the all-glass building. Writing for *The New Yorker* in 1951, Lewis Mumford judged that the failures of the UN Secretariat Building, particularly regarding sun exposure, were so obvious that all-glass curtain wall systems would soon be rejected by the industry as a “shallow aestheticism” of the International Style, an obsolete, “irrelevant romanticism.”²

Almost 60 years later, the opening editorial in a 2011 issue of *Detail Magazine* on “Glass Construction” used the Broadfield House Glass Museum addition to similarly predict the waning of our culture’s “prolonged fascination with glass.”³ Built in 1994, the Broadfield House has remained the largest all-glass structure to date (held together only by glass and adhesives), and was conceived by the designers as a manifesto to the latest achievements in glass technology. According to the author Christian Schittich, the project marked the peak of a dream to achieve ultimate transparency that was first set in motion by the modern movement. Although the project advanced the use of adhesives in glass construction, the Broadfield House suffered from extreme heat gain that prompted the Museum to apply black-out covers to the glass panels (Paxton’s team did the same in order to prevent the fairgoers

from roasting inside the Crystal Palace). Since this rude awakening, however, Schittich found that more “sensual” applications of glass had begun to replace the industry’s romance with transparency: “It is certain that once complete transparency was achieved, the original fascination with it dissipated.”⁴

As technologies have improved, these critiques and lessons learned about the functional potential of glass have expanded and enriched the role of glass in the language of architecture. Nevertheless, the ideal, pure, transparent glass box remains a persistent form, and its underlying aesthetic seduction often goes unquestioned. Meanwhile, to its critics, “the glass box” has remained a synonym for a shallow aesthetic trap, with no sensitive regard for indoor environmental quality. Thus remains a striking divide between the unquestioned formal potential of the glass building in one corner of the industry, and an equally unquestioned claim of its carelessness in another. That these opposing realities could coexist in the same industry is an interesting dilemma, which no one has really tried to solve. The central tension between the vision for and the experience of the glass building is rarely discussed with equal respect offered to both.

Solving this dilemma must go beyond the usual “form versus function” arm-wrestling match. It means taking an opportunity to look more carefully at how the glass building operates in our culture and in our minds as designers: where do the expectations we have for glass come from, where does glass derive its virtues when used well, and what assumptions do we take for granted?

Glass in the Discourse of Modern Architecture

The glass box is most often understood within the context of modernist ideology, epitomized by the work of Walter Gropius, Mies van der Rohe, Philip Johnson, and the post-WWII skyscrapers of New York

and Chicago. The legacy of these icons is a mentality that celebrates glass for its material “absence,” or visual transparency. This characteristic offered two groundbreaking advantages: first, the ability for onlookers to understand a building via its revealed interior volume, and second, an opportunity to connect inhabitants to what’s outside. Glass promised a pure, essential, “minimal” architecture that would empower structure and use to determine the meaning of a building. In the introduction to *Glass in Modern Architecture* (1928), Artur Korn expressed the belief that glass would help realize Bahaüs’ principles as follows:

The contribution of the present age is that it is now possible to have an independent wall of glass...and with this we have come to a turning point...it is the disappearance of the outside wall....the outside wall is no longer the first impression one gets of a building. It is the interior, the spaces of depth and the structural frame which delineates them.⁵

The promise of freedom from the load-bearing wall and the ornamented facade was a broad theme in the discourse of modern architecture, but flag-bearers of the movement did not universally link this idea to visual transparency and factory minimalism.⁶ As architects and expressionists were exploring glass in architecture, the “disappearance of the outside wall” was transmuted into numerous possibilities, some practical and some mythical, and many having more to do with the material “presence” of glass, namely: greater freedom of the designer, technological progress, and the ability to manipulate sun and light.

The broader modern notion of liberation through glass can be traced to the writings of Paul Scheerbart, Bohemian novelist of pre-World War I Berlin, collaborator of Bruno Taut of the Deutsche Werkbund, and author of *Glass Architecture* (1918). With vivid prose, Scheerbart persuaded a generation of designers with sublime descriptions of a re-

enchanted world made of glass, including the psychological benefits of colored glass, glass fiber upholstery, and the feeling of a luminous, translucent floor. Scheerbart readily acknowledged problems of heat gain and loss, as well as air sealing issues that would need to be addressed in the future. He even suggested—somewhat prophetically—innovations such as double-pane glass and double-skin facades.

In his 1959 essay “The Glass Paradise,” Reyner Banham, like Mumford several years earlier, tried to dislodge the assumption that the all-glass facade was an architectural decision about “absence” derived from reason and function. In an act of sacrilege for his time, Banham deconstructs “the glass legend” of the modernists, a myth that generated a selective “skeletal history” of the movement, “with all the futurists, romantics, expressionists, elementarists and pure aesthetes omitted,” citing Scheerbart and his fellow materialists.⁷

Banham’s critiques of the modern movement lead us to two reasons why linking the formal potential of glass to a notion of “absence” is problematic. Firstly, it misrepresents the true range of interests at play in our culture, as demonstrated by the material’s earliest advocates. Secondly, a closer look at these early aspirations shows us that the use of glass implies a series of real human benefits that are combined into the image of a glass building: namely ideas about comfort, freedom (or prospect), access to light and view, and an awareness of—or connectivity with—what’s beyond. Ultimately, arguments for glass buildings were about generating a new modern architectural language, which was able to confuse how to *express* the aspirations of modern society, and how to *realize* these aspirations.

For Le Corbusier, the promise of glass was more explicitly tied to real human experience, in particular, the benefits of access to view and sun. In *Toward An Architecture*, for example, Le Corbusier framed his concept of the “free façade” not as an argument for complete

transparency, but rather for the freedom of the designer to compose a facade according to the needs of the site.⁸ But in the quest for a new architectural language that relied on visual representation, the logical extension of this new “freedom” was to embrace the sealed, south-facing glass façade, before welcoming back mediations like the *brise soleil* and “neutralizing wall” (Le Corbusier’s version of air conditioning) to handle greenhouse effects.

In 1964, “Texas Rangers” Colin Rowe and Robert Slutzky made an attempt to reclaim glass architecture from its (increasingly commercialized) image. In their essay, *Transparency Literal and Phenomenal*, the authors tried to distinguish phenomenal transparency, which referred to multiple, alternative readings of space, from literal transparency, the ability to literally see through something.⁹ Rowe and Slutzky used early cubist paintings and several examples of Le Corbusier’s work to show how transparency in the modern movement operated in diverse ways, and that the experience of transparency was not a function of any one style, but of the careful arrangement and hierarchy of building elements. With or without glass, buildings could be lucid or opaque. Unfortunately, this distinction never gained much traction outside of academic discourse, perhaps because the argument did not address all the expressive possibilities that had already become embedded in literal transparency.

The value of reading how modern architects and their critics wrote about glass and transparency is not to rehash outdated debates, but to make sure we are looking beyond the legacy of the international style to understand where the idea of the glass building derives its meaning culturally. Indeed, it is even more important to look beyond what is written about movements and iconic buildings altogether.

Focusing on the Contextual

While the tenets of architectural modernism may no longer possess the same intellectual cachet as in the heydays of the United Nations Secretariat Building, the Seagrams Building, or Philip Johnson's "Glass House," an emphasis on a literal notion of material absence remains a common stated desire of commercial building owners today, particularly corporate headquarters, from Apple to Comcast and the New York Times, but as well extends to commercial and residential projects of all scales. There are plenty of projects that use glass for other reasons, but these haven't displaced the former desire for material absence. Certainly in projects such as the Apple Cube or New York Times building, it is the image of transparency that is more potent than the environmental condition that the glass creates. The New York Times building towers above the public realm, while buildings in Silicon Valley are typically isolated. Seeing in requires lighting conditions that usually only occur at night, and assume occupants do not take measures to block the sight lines. The idea of the modern building as a mechanism of representation, explored by authors including Beatriz Colomina and Sarah Goldhagen,¹⁰ is a rich topic that, while not the focus of this paper, provides critical context for understanding the glass box.

Perhaps no glass box shines brighter in our cultural landscape than Apple's Fifth Avenue, New York flagship store. However, a closer look at the design objectives and process can reveal what we take for granted about even highly transparent glass. For Apple, the Fifth Avenue store was the physical manifestation of an idea that fits squarely within our traditional conception of a "Miesian," minimal architecture achieved through complete, literal transparency—not unlike the Broadfield House over a decade before. As recalled in his biography, Steve Jobs insisted on replacing the eighteen panes of glass comprising the original Fifth Avenue store entry with five enormous panels of glass, simply

because fewer elements is “always better, simpler, and...at the forefront of technology.”¹¹ This is not architectural modernism’s normal definition of minimalism, which takes its cues from the contemporary art world. For Jobs, it is actually the process of reduction via technical innovation that gave the final product its satisfying beauty, which was also its marketing power. Jobs took great pride in the fact that to make the larger panels for a cleaner cube, he would have to build completely new autoclaves in China—just as the company had done for the original, eighteen-panel design.

Similarly, new adhesive connections had to be invented for the Broadfield House. Whereas the Broadfield House failed on the part of its staff, architects and consultants routinely struggle to make sure all Apple stores are pleasant shopping environments. In the case of the Fifth Avenue store, the merchandise and customers are placed underground so that the box is only an entry vestibule, shielded from the hot sun by the canyon of midtown Manhattan skyscrapers. Of course, the great irony of the Fifth Avenue store is that the design meets none of Korn’s formalist concerns about transparency, since there is nothing to see across the glass, although we are still able to recognize the project as being a part of the same legacy.

SANAA’s Toledo Glass Museum offers yet another way to rethink the relation between minimalism and transparency in architecture. A major precedent for contemporary glass architecture, the project has also been described as assuming a Miesian “skin and bones” minimalism.¹² But, comparisons to Mies’ New Berlin National Gallery, built in 1968, would be deceiving. Both buildings are single-story square plans that aim to exploit glass for its pure, optical transparency in order to foster a new relationship between viewers and art. However, the Berlin Gallery uses glass to make the walls invisible—that is, as irrelevant as possible—so that the building is defined purely by its steel skeleton. The

connection details focus on defying gravity. The glass is not independent from the steel framer. It is actually what enables the massive roof to seem to hover above the gallery. While the glass walls in the National Gallery are physical barriers and visual connectors that highlight the steel structure of the building, the curved form of the glass at the Toledo Glass Museum make the dynamics of light present. In the design of the Toledo Glass Museum, glass does not only complement the structure, instead, the detailed concrete sets off the glass, which dissolves the slender, steel columns with a frenzy of reflections and overlapping planes. It is a glass museum, after all, and so the structure highlights the glass, rather than the other way around. While the optical manipulation of glass by SANAA in Toledo could be described as a more “sensual” approach à la the *Detail Magazine*’s editorial, ultimately, this comparison demonstrates the importance of looking past narrow, theoretical frameworks when exploring the material’s expressive potential. The factors that allow glass to succeed in achieving a certain perceptual effect do not come from the glass itself, but from a series of contextual factors and material decisions.

Within the last decade, the desire to develop and use glass for its versatile performance—structural efficiency, bioclimatic control and visibility all in one material—has become a central interest for architects,¹³ and it has been subsumed within the market for glass buildings, among them icons such as Foster + Partners’ 2004 Swiss Re Headquarters in London, SOM’s Pearl River Tower in Guangzhou, Manitoba Hydro Place in Winnipeg, and countless others. Again, even though these buildings may appear to exemplify a more sophisticated and integrated material sensitivity to glass, it also contains a new kind of utopic, collective dream of the ultimate building. The danger of the infatuation with glass as a “universal” or “high-achieving” material is that it lends itself to the idea that it is a good choice in most situations.

However, just like the notion of visual transparency, it is much easier to claim experiential benefits than to verify them. That glass can have changing surface and structural properties evokes the sense of design freedom and flexibility, even if the design process is prescribed by any number of factors.

In summary, I have come to understand the promise of the glass box on two basic levels. The first is purely semiotic and aesthetic, with roots in modernist notions about a minimal, essential architecture equated with innovation and modern transformation. A search through iconic imagery and modern theory and criticism shows that the “modern look” has numerous resonances, both pragmatic and romantic, and is capable of redefining itself according to the limits of technology. Central to the symbolic power of glass is its ability to unsettle human expectations of mass and gravity that are based on our reliance on vision. The second, the way to understand the seduction of glass, relates to the human benefits of dissolving boundary conditions that are often used to justify the use of glass, including: seamless spatial continuities with the outside while staying protected; a phenomenal relationship between spaces or to light; unencumbered views; and access to daylight and the sense of time, weather and orientation that comes with it. The dilemma of the glass box—why it remains seductive despite recurring failures—is the ease with which we are able to conflate the experiential claims with the visionary ones. The challenge, then, is to stay critical and aware, and commit to glass whenever its experiential achievements are specifically and deliberately unveiled.

[Endnotes]

1. Although the complete competition submissions have been removed, images and an editorial can be found at: Lydia Lee, “Emeryville Keeps it Local – Center for emerging artists taps an emerging firm, Jensen Architects, for its new home,” *The Architect’s Newspaper*, December 15, 2010, accessed December 15, 2010. http://www.emeryvillecenterforthearts.org/articles/TAN_121510.pdf

2. Lewis Mumford, "The Sky Line: Magic with Mirrors—I," *New Yorker* 17 (September 15, 1951): 84-93 and Lewis Mumford, "The Sky Line: Magic with Mirrors—II," *New Yorker* 17 (September, 1951): 99-106.
3. Christian Schittich, "Taking a Second Look: Glass Pavilion at Broadfield House in Kingsinford," *Detail* 2011 (2), 118-121.
4. *Ibid.*, 121.
5. Arthur Korn, *Glass in Modern Architecture of the Bauhaus Period* (1926), New York: George Brazillier, 1968.
6. See Ufuk Ersoy, "Seeing through glass: The fictive role of glass in shaping architecture from Joseph Paxton's 'Crystal Palace' to Bruno Taut's 'Glashaus'" (PhD diss., University of Pennsylvania, 2008); Dennis Sharp, "Introduction," in *Glass Architecture and Alpine Architecture*, ed. Dennis Sharp, London: November Books, 1972; Brandon Sundberg, "Glass and the Landscape of History," (MArch Thesis, UC Berkeley, 1995); Michael Wigginton, *Glass in Architecture*, London: Phaidon Press, 1996.
7. Reyner Banham, "The Glass Paradise," in *A Critic Writes: Essays by Reyner Banham*, ed. Mary Banham et al., Berkeley: University of California Press, 1996, 32-38.
8. Le Corbusier, in Reyner Banham, *Architecture of the Well-Tempered Environment*, Chicago: University of Chicago Press, 1969, 154.
9. Colin Rowe and Robert Slutsky, "Transparency, Literal and Phenomenal," *Perspecta*, Vol. 8, 1963.
10. Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media*, Cambridge, MA: MIT Press, 1994.
- Sarah Goldhagen, "Monumentality in the Pictorial Still," in *Architecture between Spectacle and Use* (2005), ed. Anthony Vidler, New Haven: Yale University Press, 2008.
11. Walter Isaacson, *Steve Jobs*, New York: Simon and Schuster, 2011, 377.
12. See Michael Bell and Jeannie Kim, *Engineered Transparency: The Technical, Visual, and Spatial Effects of Glass*, New York: Princeton Architectural Press, 2009.
13. Krampen, Martin and Dieter Schempp, *Glaserarchitekten: Konzepte, Bauten, Perspektiven* (*Glass Architects: Concepts, Buildings, Perspectives*), Stuttgart: AV Edition, 1999.