Divided Responsibilities: Minoru Yamasaki, Architectural Authorship, and the World Trade Center

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Who is responsible for the World Trade Center? Before September 11, 2001, this question seemed noteworthy if only for its potential to illuminate the increasingly ambiguous and fragmented role of architects and architecture in the 1960s. After "the eleventh" the very same question produced military and political responses that were not only dismissive of ambiguity, but seemingly unlimited in their reach. However, what remained the same, both before and after that horrific day, was the consistent and often obfuscating practice of assigning authorship and/or responsibility to a single person, a practice that in the case of the World Trade Center has always been difficult to do.

Few things are as central to modernism's mythology as the image of the heroic architect creating revolutionary designs that overturn both aesthetic and technical norms. Yet, in his prescient text of 1947, "The Architecture of Bureaucracy and the Architecture of Genius," Henry Russell Hitchcock noticed that the days of the architect as master builder had already past. Instead, he accurately predicted that architectural labor would be divided along pragmatic and symbolic lines. The ever pressing practical programs that made up the majority of architectural work would be left in the efficient hands of larger multidivisional offices, while projects that carried important social and cultural weight would be entrusted only to the mind of an individual "genius."[1]

However, in the early 1960s, when faced with the task of hiring an architect to design the World Trade Center, the Port Authority of New York and New Jersey encountered a dilemma that Hitchcock's logic did not account for. On the one hand, its enormous scale—which originally called for over 10 million square feet of office, retail, and other commercial space, to be distributed over an irregular and watery sixteen-acre, fourteen-block site—required the organizational and technical skills of a large bureaucratic firm. On the other hand, the lofty symbolic and operational goals of the project—which were nothing less than to solidify the United States's global position in international trade, reinvigorate the local real estate market in lower

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Top: Minoru Yamasaki.

Bottom: Julian and Richard Roth, Emery Roth & Sons.

Manhattan by establishing a new physical and economic center, and produce an icon that would represent the increasing interdependence of international commerce and world peace—needed a one-of-a-kind design.[2] In other words, it required the skill sets on either side of Hitchcock's divided profession.

At first glance it would appear that the Port Authority's decision, in October of 1962, to hire the iconoclastic and controversial architect Minoru Yamasaki revealed that their architectural needs were primarily symbolic. However, this only tells half the story, for Yamasaki wasn't the only architect who would be retained by the Port Authority. After selecting Yamasaki's Detroit-based firm, the Port Authority hired the New York firm of Emery Roth & Sons. In addition to these two outside sources, the Port Authority also had at its disposal its own internal architectural and engineering staffs. Finally, the Port Authority would also engage the services of a number of construction and real estate experts to pretest the logic and feasibility of the advice given to them by their architectural experts.[3]

In part, the size of the design team assembled by the Port Authority was a function of the Center's scale and unique function. Neither a cultural nor governmental institution, it was established as a unique, speculative real estate development. Like the agency entrusted to bring it to fruition, it was to be a quasi-public entity, whose goal was to consolidate in one place any and all public and private companies and agencies that participated in New York City's role in the acceleration of international trade.[4]

The Port Authority had been asked to develop, own, and operate the Center by the project's original sponsor—the David Rockefeller-led Downtown-Lower Manhattan Association—for a number of reasons. A bistate, semiautonomous, semipublic, and highly controversial agency founded in 1921, the Port Authority was, and still is, an entrepreneurial institution responsible for maximizing the revenue-generating flow of goods, vehicles, and people that pass within and through New York's harbor, bridges, tunnels, and airports. Its experience in designing, building, and operating these various pieces of urban infrastructure, along with its power of eminent domain, made it the only existing agency qualified to take on, and to pay for, a project that advertised itself as being both profit driven and in the public interest.[5]

After testing and fleshing out the program it had inherited from the Downtown-Lower Manhattan Association, the Port Authority negotiated for and assembled the site,[6] and, with the aid of New York's governor (and David Rockefeller's brother) Nelson Rockefeller, politically pushed the project to the point of no return, and then set about finding an architect who could manage the enormous technical and organizational difficulties and, in turn, produce an image New York could literally sell to the world.[7]

Just which architect, or even what kind of architect was best able to handle

such a complex task was not immediately clear.[8] Within a self-described chaotic architectural culture, there were no obvious choices. To begin, the Port Authority dismissed the so-called "genius committee" of Gordon Bunshaft, Wallace Harrison, and Edward Durrell Stone, who along with the lesser known Richard Adler had been working with the Port Authority between 1960 and 1962 on a number of feasibility studies. Then, from an initial pool of over forty architectural firms, the Port's selection committee narrowed the field to a list of seven finalists. This group included an array of architectural practices, from the large multidivisional organization at Welton Becket and Associates, the team-oriented approach of Walter Gropius and The Architects Collaborative (TAC), the individualism of Philip Johnson, and the relatively balanced approach of Minoru Yamasaki, as well as a few local firms with big-building experience.

In a two-hundred-plus page document, the committee responsible for recommending an architect to the Port Authority's directors evaluated the pluses and minus of each firm. Although Johnson was perhaps the most famous and the most radical of the finalists, and his form-making abilities the most daring, his lack of experience on large projects and his failure to make fiscal responsibility a priority disqualified him. On the opposite end of the spectrum was Becket's office. Although highly efficient and attentive to the client's administrative concerns, the architecture they had previously produced did not suggest that they could create an inspired or significant work.

The committee was apparently intrigued by Gropius, who clearly recognized the symbolic importance of the project. His international reputation and name recognition was highly valued by the Port Authority as well. Further, his firm had completed a number of large projects, including the Pan Am building in New York a few years before. However, the committee was less enamored with Gropius's emphasis on TAC's team approach. While the Port Authority understood that such a large project would require a diverse team, they did not share Gropius's belief that the team should be internalized within one firm, let alone an architectural one. Even more disturbing was Gropius's failure to reassure the Port Authority that he personally would be responsible for the design. This shared design responsibility was most disturbing for the Port Authority, and they concluded that the multiheaded design methods employed by TAC could not produce the singular object they wanted.

Thus, Yamasaki emerged as the clear, if not surprising, choice. Although his and modernism's reputation was badly, if not irrevocably, damaged by the infamous 1972 implosion of his Pruitt-Igoe housing project in St. Louis, in the years following its completion, Yamasaki emerged as one of the more successful architects who openly questioned modernism's dogmatic formal

and ideological restrictions.[9] This questioning began after a 1954 trip through the Far East, India, and Europe. Inspired by this exposure to both historical and vernacular traditions, upon returning to the United States he began to actively incorporate historical and ornamental forms into his work in an attempt to produce what he called more "serene" and "humanist" spaces.[10] The buildings that earned him a reputation large enough to be considered for the World Trade Center job were a series of relatively small, simple, box-like buildings that were often placed adjacent to, if not surrounded by, shallow pools of water and were augmented with an individual interpretation of Gothic ornament made from aluminum and/or precast concrete.[11]

Against the prevailing architectural norms that emphasized hyperrationality and efficient performance, the appearance of an architecture that attempted to express "enjoyment" and "delight," was greeted by many as a welcome relief.[12] Although many disdained his personalized, pseudo-Gothic forms, committed modernists had to admire his commitment to and experimentation with technologically advanced methods and materials to produce these forms. He was particularly interested in the use of prefabricated building components and precast concrete. As a result, with this combination of formal audacity and technological rigor he positioned himself as a slightly reformed version of the modernist master—a singular figure who challenged the aesthetic and technical status quo in an attempt to produce a new architectural idiom.

Minoru Yamasaki and Emery Roth & Sons. World Trade Center, model, 1964. Photo: Balthazar Korab.

As Eric Darton notes in his penetrating "biography" of the World Trade Center, a different aspect of Yamasaki's credentials would have appealed to the Port Authority's own ethic of efficiency and service. According to Darton, Yamasaki's commission is attributable in large measure to the fact that he was a kindred spirit of the Port Authority's director Austin Tobin, who, with Yamasaki, are described as an "ambitious climbers with the souls of engineers." Likewise, Tobin also would have appreciated the fact that Yamasaki was not, in Darton's words, "a modernist prima donna. His track record showed that he was capable of putting his client's needs ahead of his ego."[13]

However, it is more likely that other members of the building team reassured Tobin that the Center would not be an exercise in aesthetics but would perform as a piece of physical and economic infrastructure, just like any other work of "diligently planned and effectively engineered" Port Authority project.[14] Chief among Yamasaki's short-term partners was Emery Roth & Sons. The Roths' qualifications were well established and included the design and construction of numerous, if not indistinguishable, curtain-wall-clad office towers in New York after World War II. Their role would be to produce the working drawings, to check and tweak the feasibility and economic viability of Yamasaki's designs against the stringent standards they had established over the previous fifteen years, and to work through the day-to-day problems and details that would crop up as design and construction progressed.[15] In addition, the Port Authority's own sophisticated engineering and "construction management" staff would be able to troubleshoot any logistical or construction problems encountered during the design and construction of the project.

In contrast to the apparent runner-up, Walter Gropius, Yamasaki's control over his relatively small firm convinced the Port Authority that he could not only cultivate creativity but that he alone would be responsible for it.[16] This responsibility, however, was a limited one, his contractual role having been defined as "designer."[17] Thus, while he certainly participated and contributed to some of the engineering solutions on the project, he did not have any real technical or operational responsibilities, the handling of which the Port Authority had more than adequately planned for.

Despite the breadth of this team, within architectural discourse the authorship of the World Trade Center has been consistently embodied in the figure of Yamasaki. While there is no doubt that Yamasaki was responsible for the overall image of the project, it is unsettling to observe how, in almost every pre-September 11 account of the project, any contributions made by the Roths or any other architect or engineer is repressed, and it is Yamasaki alone who is initially given credit and then later, blame. Even in his own account of the project, revealed in his 1979 memoir, *A Life in Architecture,*

Yamasaki fails to mention the contributions of the Roths or his hand-picked structural engineer, John Skilling (of the Seattle based firm of Worthington, Skilling, Helle & Jackson). In fact, in his summary of the project, he intones that he, either through his direct intervention or through his initial urging, was responsible for many of the aesthetic and technical innovations.

These claims are perplexing, especially considering that Malcolm Levy, their Port Authority client, noticed that the two architectural firms "complemented each other so well that it is hard to pull apart who did what."[18] Even more bewildering is Yamasaki's failure to mention Skilling's contribution. Before receiving the World Trade Center commission, Yamasaki and Skilling had worked on a number of projects together, including a nineteen-story tower for IBM in Seattle. For that design, completed just before the design of the Twin Towers, instead of following the by then eighty-year-old tradition of enclosing a steel frame within an independent enclosure system, their structural/enclosure solution was a self-supporting exterior-bearing wall. This solution, which Yamasaki noted "could not have been done without John Skilling," would be revisited and updated by them at the World Trade Center.[19]

The exterior-bearing walls designed by Yamasaki and Skilling to support the Twin Towers were enormous Vierendeel trusses made up of hundreds of prefabricated sections. As in their IBM tower, the absence of a structural frame allowed the interior spaces to be column-free, providing the maximum flexibility and efficiency for tenants and landlords alike. The extreme height of the Twin Towers required that each exterior column be a fourteen-inch, square steel box column spaced at only three feet four inches on center, a structural design that resulted in twenty-two-inch windows between the columns. Clad in aluminum, the façade differed from the standard and ubiquitous metal-and-glass curtain wall in that it completely integrated the previously separate functions of structural, enclosure, and fenestration systems.

While these restrictions were structurally necessary—and their effects much criticized[20]—they also point to how closely Yamasaki and Skilling worked to create architectural and engineering solutions that reinforced one another. For example, the monolithic façade made up of 1,350-foot-tall, uninterrupted columns reinforced Yamasaki's long-standing preference that tall buildings emphasize their verticality. Similarly, he argued that the close spacing of the large columns provided visual and physical protection for its inhabitants by serving as a physical and psychological barrier between them and the outside. This security was particularly important to Yamasaki because he himself suffered from acrophobia.

Despite the close relationship between the architectural and engineering goals and techniques, when Yamasaki wrote about the relationship, he didn't

emphasize the collaborative effort but instead echoed his modernist forefathers, proclaiming that it is the architect, and the architect alone, who can and ought to give "basic form and concept to the structure," while the engineer is left only to "carry out these ideas."[21] By stressing the architect's dominant role, he again repositioned himself in the mold of the modernist master builder, the true and only author of his buildings.

Yet, to make this claim, especially in 1979, was not enough to rebuild his reputation; nor could it reestablish this vision of the architect within architectural discourse, or stop the increased fragmentation of the profession. By 1979 architecture had, to a great degree, abandoned the goals established by the heroic first generation and then repositioned by Hitchcock and Yamasaki, among others, after World War II. Regardless of how Yamasaki or anyone else framed it, the severe distribution of architectural responsibility evident at the World Trade Center, and the alienating objects it produced, represented to many the epitome of an architectural ideology without merit and a profession without power, direction, or authority.

Notes

This essay is part of a larger study of the World Trade Center begun before September 11 for my doctoral dissertation in the Department of Architecture and Urban Design at UCLA.

1. Henry Russell Hitchcock, "The Architecture of Bureaucracy, the Architecture of Genius," *Architectural Review* (January 1947): 3–6.

2. For the original plans and goals of the project, see Downtown-Lower Manhattan Association, *World Trade Center: A Proposal for the Port of New York* (New York: Downtown-Lower Manhattan Association, 1960). Yamasaki was clearly aware of and agreed with these goals, recognizing early on that his task was to create a "living monument to World Peace." Minoru Yamasaki, "New World Trade Center for Manhattan," *Architectural Forum* (February 1964): 5–7.

3. See Angus Gillespie, *Twin Towers: The Life of New York City's World Trade Center* (New Brunswick: Rutgers University Press, 1999), 60; and Leonard I. Ruchelman, *The World Trade Center: Politics and Policies of Skyscraper Development* (Syracuse: Syracuse University Press, 1977).

4. The idea to create a World Trade Center in New York was first raised in 1946. It was picked up in 1958 by David Rockefeller and his Downtown-Lower Manhattan Alliance. Other cities around the country had already established such centers or were planning them, most notably New Orleans and San Francisco.

5. In order to convince the legislators in New York and New Jersey that its mandate should allow for the construction of what was essentially an office-building complex, the Port Authority, in part, maintained that the future of the Port would depend on increasing the flow of more abstract and pure forms of capitalism, i.e., information and money itself.

6. Part of this negotiation included convincing New Jersey that it had something to gain from the Port Authority's involvement in the project. The negotiation ultimately hinged on shifting the World Trade Center site from the east to the west side of Manhattan, a move secured by the Port Authority's agreement to take over the Hudson and Manhattan (now PATH) rail lines, terminal, and buildings, thus making the project directly accessible to New Jersey commuters.

7. See Gillespie, 16–52; Ruchelman; and Abraham Stein, The *Port Authority of New York and New Jersey and the 1962 PATH–World Trade Center Project* (Ph.D. diss., New York University, 1980).

8. For a detailed summary of the process, see Anthony Robins, *The World Trade Center* (Englewood, FL: Pineapple Press, 1987), 19–27.

9. Born, raised, and receiving his architectural education in Seattle, Yamasaki spent the years of World War II in New York. There he worked in a number of large architectural and industrial design firms, including Harrison, Fouilhoux, and Abromowitz and Raymond Loewy; he also formed a brief partnership with George Nelson. His first real notoriety came from his design for the main terminal of the St. Louis airport, and, in the same year, the ill-fated Pruitt-Igoe housing project, both of which he designed while in partnership with Hellmuth and Leinweber.

10. Yamasaki directly addresses this experience and their effects in "Toward an Architecture for Enjoyment," *Architectural Record* (August 1955): 142–149.

11. See Ada Louise Huxtable, "Minoru Yamasaki's Recent Buildings," *Art in America,* No. 4 (1962): 48–55, for a synopsis of his work leading up to the World Trade Center commission,

as well as its critical reception and his own editorial interpretation.

12. See "Conversation with Yamasaki," *Architectural Forum* (July 1959): 110–118; and "Individual Theories of Design," *AIA Journal* (August 1958): 49–59.

13. Eric Darton, *Divided We Stand: A Biography of New York's World Trade Center* (New York: Basic Books, 1999), 116.

14. Darton, 116.

15. Robins, 33; and "Yamasaki and Roths: At Two Ends of the Same Drafting Table," *Engineering News-Record* (9 July 1964): 46–50.

16. Robins, 27.

17. Robins, 33; and "Yamasaki and Roths."

18. Malcolm Levy, quoted in "Yamasaki and the Roths."

19. "Unusual Structural Wall for IBM," *Architectural Record* (December 1963): 104–107.

20. The small module was alternatively described as being either too "dainty" or "repetitive and dull." The tall, thin windows were criticized for obscuring the sweeping views possible in such a tall building. See, Ada Louise Huxtable, "Big but Not So Bold," *New York Times,* 5 April 1973: 34.

21. Yamasaki, *A Life in Architecture,* 33.