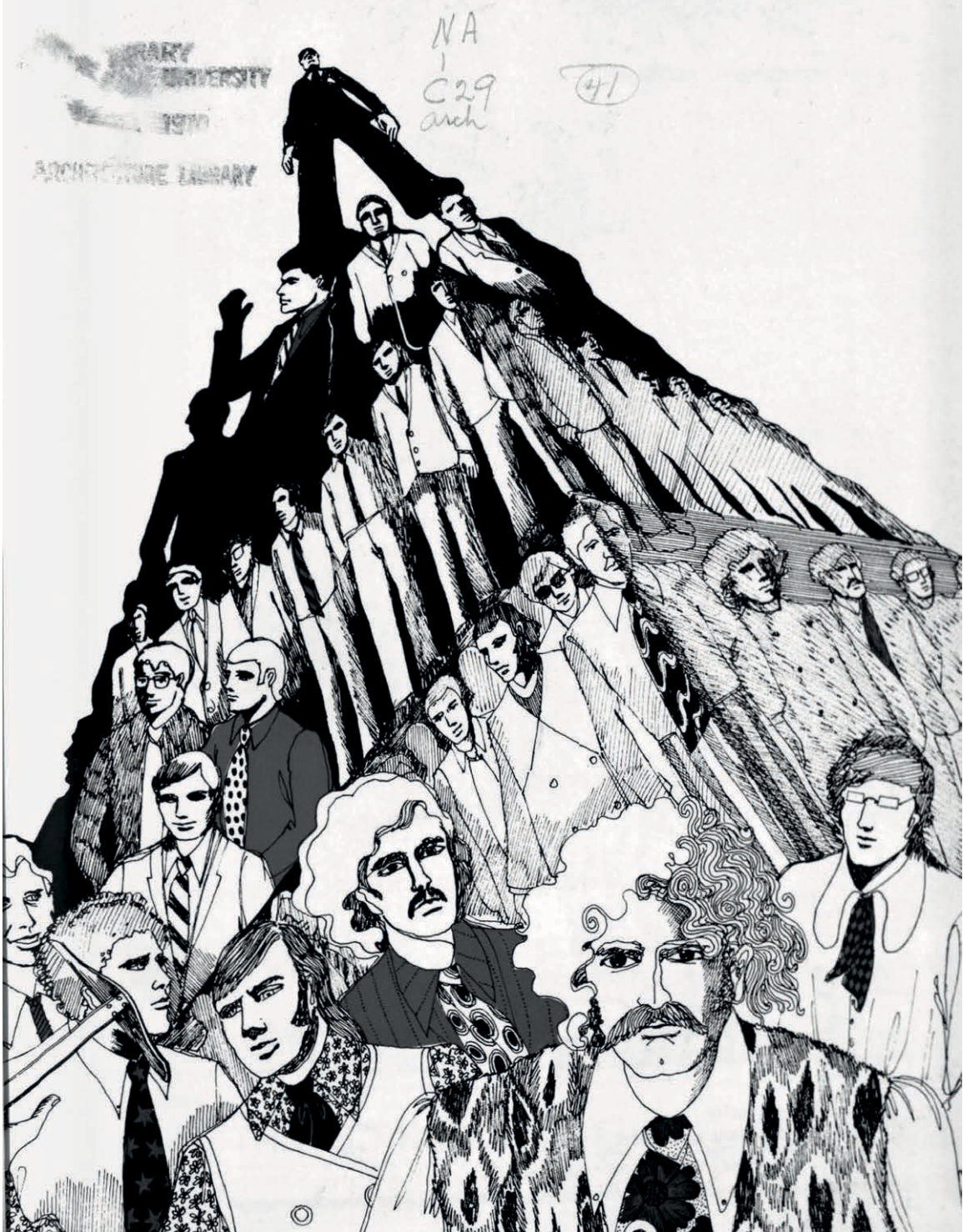# A Pyramid of Paperwork: Labors of Imagination and Interpretation in Late Twentieth Century Architectural Practice
Michael Abrahamson

A fundamental shift in employment patterns among architects in North America during the 1960s and 1970s impacted how particular kinds of tasks were either monopolized or delegated within firms. This article uses the archive of the U.S.-based architectural firm Gunnar Birkerts and Associates to show evidence of a growing gulf between executive architects and employee architects (particularly women assigned to work on interiors), as well as the persistence of chauvinistic ideals of practice under changed circumstances. The design for the Federal Reserve Bank of Minneapolis building (1967-73) is shown to be illustrative of this gulf between imaginative and interpretive labor.

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In the late twentieth century, increasing specialization in the construction field decreased the influence that North American architects had over the realization of their designs, even as claims to individual authorship became ever more important for their firms' market competitiveness. At the same time, the emergence of new specializations and new roles within firms showed that changes were nascent in the then-conventional definition of the architect as a generalist in the art of building.

In 1970, this situation was dramatized on the cover of *The Canadian Architect*, a trade magazine pitched at practicing professionals **(fig. 01)**. In the drawing by the Japanese-Canadian graphic artist Miiko

Fig. 01
Miiko Nishimura, "Pyramid of Architects," cover illustration for *The Canadian Architect*, January 1970, 15, 1.

Nishimura, a pyramidal stack of architects (seemingly all white and male) represents the strict conventional hierarchy of practice, while younger architects –recognizable by their less-traditional clothing and facial hair– avoid this hierarchy by simply walking away from architecture altogether. Nishimura's drawing accompanied a cover story that argued for restructuring the business of architecture to avert the generational crisis she depicted. Its author diagnosed that the traditional hierarchy of architectural practice "automatically rewards age and experience out of all proportion to ability," and prescribed a more horizontal structure through which all members of a firm would have a greater say in both managerial and aesthetic decisions.[1]

Debates about business structure were spurred by a contemporaneous trend in architects' career paths away from independent proprietorship and toward salaried employment in private firms. As the sociologist Robert Gutman observed at the time, this trend followed "the 'dequalification of labor.'"[2] Gutman characterized this process as:

> "[The] historical tendency of work to be broken down into smaller and more limited tasks requiring less sophisticated training and expertise, at the same time elevating the responsibility of a tiny segment of the professional labor force that has the task of coordinating and managing."

He went on to suggest that despite the growing responsibility borne by project managers and production teams, a great deal of authority was nevertheless still vested in the "qualified" labor of principals in firms. This meant that architectural firms became more hierarchical: firm figureheads, who we might call "*executive architects*," pushed to consolidate their traditional territories of authorship and design signature for the benefit of their firm's marketing efforts, while ever more mundane work by "*employee architects*" was required to ensure the accurate realization of their vision. This was the norm of the collective efforts underwriting authorship that employees tacitly agreed to when signing on with such firms.

One might extend Gutman's observations to arrive at a more general proposition about the nature of architectural work: because of its being positioned between the intellectual and the material, the imaginative and the mundane, certain classes of architectural workers are doubly disadvantaged by their position within the labor hierarchy of firms. The social theorist David Graeber described such situations as "lopsided structures of imagination,"[3] suggesting that:

> "In the sphere of industry, it is generally those on top that relegate to themselves the more imaginative tasks (i.e., they design the products and organize production), whereas when inequalities emerge in the sphere of social production, it is those on the bottom who end up expected to do the major imaginative work –notably, the bulk of. . . the "labor of interpretation" that keeps life running."

Together, the concepts offered by Gutman and Graeber might outline an alternative methodology for understanding how architectural authorship is produced through work based on a distinction between imaginative labor and interpretive labor. The distribution of such labor within a firm or practice is the organizational signature –as

opposed to an individual's authorial signature– which outlines how work is delegated, how tasks are distributed, and how expertise and experience are mobilized within a project. An organizational signature dictates how the chain of authorial intention is maintained, while an imaginative design is interpreted so as to be extrapolated into a set of construction documents and subsequently a completed building. Organizational signature describes not so much the formal similarity that ties a firm's projects together to form a body of work, but rather the structures of imagination, lopsided or otherwise, that govern its day-to-day working methods.[4]

        In this article, I apply the methodology proposed to the extensive archive documenting a key building designed by Gunnar Birkerts and Associates (GBA): the Federal Reserve Bank of Minneapolis (FRBM) building in Minneapolis, Minnesota, on which the firm worked from 1967 until the building's completion in 1973.[5] GBA produced 1676 drawings, 1009 pages of construction specifications, 163 bulletins, 702 memos, and 63 change orders, in addition to several linear feet of correspondence and transmissions relating to the project. As *The Architect's Handbook* (the flagship publication of the American Institute of Architects, the primary professional body in the United States) advised, "the technical and esthetic quality" of documents like these has "nearly as much to do with illustrating an architect's competence and integrity as do his [*sic*] completed projects."[6] By foregrounding the role of paperwork in maintaining a firm's reputation in this way, the *Handbook* gave primacy not to adherence to an executive architect's design intent, but instead to the interpretation and coordination work done by their employees.[7] This resonated with the shifting landscape of the profession during these years: evermore architects were serving as employees rather than executives, and the *Handbook's* authors dignified and centered the work that these employee architects actually did. In effect, this shook up what were formerly understood to be the very foundations of architecture.

        Because of this imbalance, in writing the history of this period we must adjust our conception of "the architect" to include not only those remaining generalists at the top of the professional hierarchy satirized by Nishimura, but also those within firms who translate designs into instruments of service –project managers, spec writers, draftspersons, and interior designers. We must write of an architecture that is undecided beyond the schematic design phase, an object that evolves from start to finish. Instead of a design signature, historians should aim for an organizational one, asking how a particular firm responded to challenges posed by specialization and administration rather than to a site or building type.

SQUEEZING AUTHORSHIP THROUGH BUREAUCRACY

Gunnar Birkerts, the founder and figurehead of GBA, reflected thoughtfully on the challenges of hierarchy and complexity with which the profession was confronted in the 1960s and 1970s. In doing so, he imagined a diagram whose form echoes Nishimura's satirical pyramid:

"I have tried to establish the relationship and proportion of these "other" or artistic realms to the broader base of the building design process. The base is large and what I am calling "me" is small, or can only emerge out of the external complexities of the base or can only be squeezed through them."

Birkerts saw the primary question of contemporary prac-
tice as how to balance the proportion between the "base" of material
labor and the "superstructure," so to speak, of authorship.[8] Because his
role in the process may have seemed more elusive than the very real
and material output of his employees, he prioritized artistic synthe-
sis –that which only a generalist architect could "squeeze through" the
mundanities and bureaucracy of architectural work. In projects of the
FRBM's scale, the goal of firm figureheads like Birkerts was not purely
to reduce their personal workload by delegating tasks to subordi-
nates –quite the contrary in Birkerts's case, as he, like many architects,
valorized the long hours he worked– but instead to reserve for them-
selves particular categories of tasks, often related to business develop-
ment, client relations, and schematic design.[9] This executive attitude
buttressed the ideology of singular creative artistry and the economic
structure of entrepreneurial enterprise.

In the late 1960s, Birkerts's ideas about the design process
mutated as the FRBM and other projects necessitated a swift leap into
unfamiliar territory. Prior to 1967, GBA's office protocols seem to have
been quite different from the way Birkerts later explained them. Impor-
tantly, early in the firm's existence, Birkerts's schematic sketches were not
treated with the same deference that they later commanded. Sketches for
early projects were either discarded or in some cases misfiled, suggesting
that they were not perceived as valuable records of the creative process
leading to a building design. The value that ultimately accrued to process
and presentation drawings with the rise of Postmodernism gave sketches
a new importance for Birkerts.[10] He later came to see them as the key doc-
uments of a gestation process understood as taking place largely within
his own mind, and kept them close at hand to explain his buildings and
projects. For the FRBM project, by contrast, few sketches were retained.

As with many firms of its size and age, new projects at
GBA in the mid-1960s often brought together a team of employees, some
experienced and some untested, who learned to work together on the
fly. The ad-hoc nature of these groupings did not, however, mean that
existing power relationships between executive architects and employee
architects could be disrupted.[11] GBA's relatively informal structure was ul-
timately solidified as the scale of their projects increased, with the FRBM
as a key turning point due to the demands made by the project's bureau-
cratic client. Despite inheriting deeply ingrained professional knowledge
through the contracts and document formats they used, GBA employees
had to make sense of unfamiliar management and scheduling protocols,
as well as an unfamiliar project delivery method that introduced new roles
like construction manager and interior designer. The project reveals how,
over time, the dequalification of architectural work produced stricter divi-
sions of labor and a bevy of new job titles or descriptions.

GBA did their best to limit the FRBM team's complex-
ity, but some decisions they made instead increased it, even as Birkerts
hoped to maintain the kind of control to which he and the project manag-
er Charles Fleckenstein had become accustomed in smaller projects. In
the end, more than two dozen GBA employees had a hand in the project,[12]
and GBA chose to work with experienced consultants to reinforce their
supervisory authority, namely, the engineers behind Minoru Yamasaki
and Associates' World Trade Center in Manhattan, the construction
of which had begun a year earlier, in the summer of 1966.[13] But GBA's

02
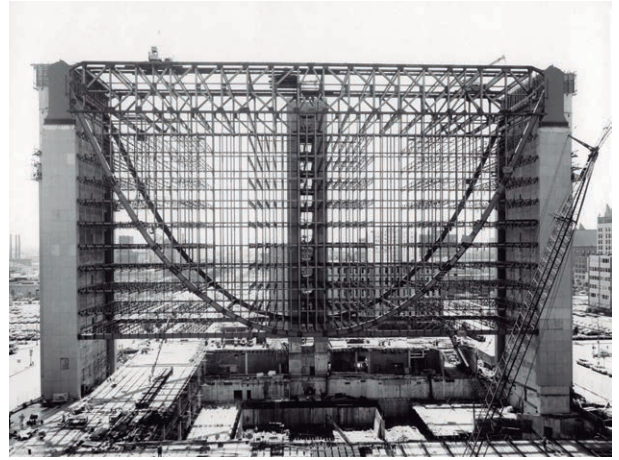
03

relative inexperience and unusual design presented challenges for their
consultants: the structural engineering firm Skilling, Helle, Christiansen,
Robertson (SHCR) were tasked with designing a suspension-style office
tower, for which, as partner Leslie Robertson stated in a project descrip-
tion, "there [was] no precedent in building construction" [14]; the systems
engineers Jaros, Baum & Bolles were faced not only with intricately
coordinating the usual building systems, but also with detailed security
concerns that added further complexity to the project. The distance
between the consultants' offices in New York, Chicago, and Seattle, GBA
near Detroit, and the construction site in Minneapolis resulted in thou-
sands of phone calls and communiqués.

**LABORS OF
IMAGINATION:
SKETCHES
AND "TALKING
PAPERS"**

The result of all this paperwork was a building
design consisting of opposites: heavy, secure,
and rough below, weightless, open, and reflec-
tive above (fig. 02). Its most distinctive element
is a catenary structure that allows the office
block to be suspended gracefully above the
granite-paved plaza below. This unusual structural solution became the
building's primary visual expression on the exterior in what seemed to be
a flouting of Birkerts's once-fundamental principle of "suppressing the
structure" –which until this project applied to both the architectural form
and the organization of his firm.[15] The top level of the tower is occupied
by a 30-foot-deep truss that resists the inward tug of the catenary on the
building's piers, and the bronzed-glass curtain wall further emphasized
the presence of its suspension structure (fig. 03). Below the catenary arch,
the glass is set flush with the arch, while above it, it is set back with struc-
tural fins that shade the space and stabilize the column-free wall.

The Federal Reserve Bank's office tower was nestled
onto the southwest edge of the site so as to block as little as possible of
the view from downtown Minneapolis to the Mississippi River, just three
blocks to the north. This resulted in a very slender office tower with
unusually proportioned floors of about 60 x 200 feet –highly efficient
from a daylighting perspective, but necessitating elongated circulation
paths. Core functions such as restrooms and stairwells were pushed
to piers at the tower's ends, and primary access to the office floors was

Fig. 02
**Oblique view, northeast facade of the
FRBM, ca. 1970s. Black and white print,
8 x 10 inches. Photograph by Balthazar
Korab. hs18280, Box 13, Gunnar Birkerts
papers (GBP), Bentley Historical Library,
University of Michigan (BHL). Courtesy
the Library of Congress, Prints &
Photographs Division, Balthazar Korab
Collection.**

Fig. 03
**Photograph of the FRBM construction
progress showing the preparation of the
steel suspension structure, July 13, 1971.
Black and white print, 8.75 x 10.75 inches.
Photograph by Schwang Studio. hs18298,
Box 21, Gunnar Birkerts and Associates
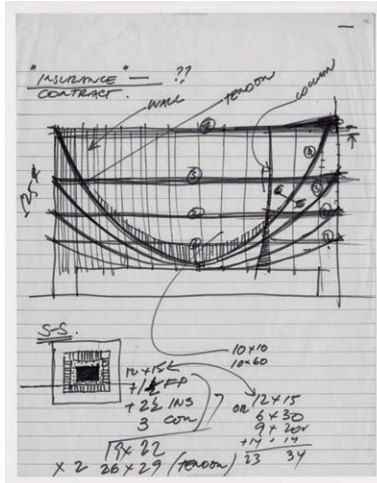(GBA) records, BHL.**

04

05
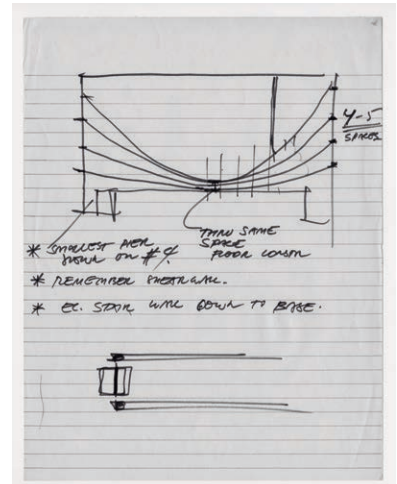
06

provided via a nearly freestanding elevator lobby at the center of the southeast facade. This left the tower's floors free of interruptions, able to accommodate the variety of business functions that the Federal Reserve Bank required **(fig. 04)**. The tower's signature structural gymnastics arose as a way to both enable this column-free office space (a common client request at the time) and provide a strict separation from secure functions below. The main entrance to both the office tower and the secure volume was from Marquette Avenue, underneath the plaza **(see fig. 02)**. The walls of the lobby were clad in the same warm gray granite as the plaza and piers. Its floor transitioned smoothly with concave granite baseboards, lending the space a cave-like quality akin to "a granite mountain that has been shaved down."[16] The catenary served as the link between these opposites and gave the project an enduring, distinctive image.

The origins of that enduring image are uncertain at best. What few sketches remain were done on ruled paper annotated with numerical calculations and other notes that suggest they were working documents rather than sacred artistic "embryos"[17] (figs. 05, 06). The fact that these sketches are façade studies rather than capturing the general massing of the building or its plan also suggests that they may have been produced rather late in the design process. Birkerts himself characterized them not as sketches but as "talking papers," collaborative documents in which "[Leslie] Robertson and I discussed the structural concept possibilities."[18] In fact, it is likely that the FRBM design concept of a suspension bridge-as-office building –undeniably the project's most defining gesture– did not develop from an individual moment of inspiration but instead through the negotiating of the conflicting programmatic requirements and in conversation with the structural engineers Leslie Robertson and John V. Christiansen of SHCR.[19] Because of the process through which it was imagined, skepticism persists about whose "authorship" the building design truly embodies.

Even today, the most familiar narrative of interpretive labor in architectural practice remains the translation from sketch into building. This was the way Birkerts preferred to explain the working method within his eponymous firm –the process would begin with imaginative, "embryonic" sketches, which acquired greater interpretive depth throughout the process until the completion of construction. Narratives such as this have always obfuscated the detours and dead ends of the design process as well as the labor of subordinates, and have also served to delimit the "proper" extents of architectural services. Executive architects like Birkerts, for example, could have committed –as principals of some large firms did– to providing a more comprehensive array of services through internal specialization.[20] But this would have required setting aside the established definition of the architect as an independent generalist in the art of building. Architects like Birkerts would never have done so, because they believed specialization and hierarchy would undermine their authorial claims.

LABORS OF INTERPRETATION: DELEGATION OR CHAUVINISM?

Notwithstanding architects' ideological aversion to hierarchy, certain tasks were habitually delegated. One of the most common, at least in the design of office buildings, was interior design. This less heroic mode of design was all too often delegated to women architects. Interior design's influence over the perceived success of a building can of course be sizable. Nevertheless, some architects' chauvinistic attitude toward accommodating the desires of occupant groups in their designs made them ill-equipped to be involved in such work. This was particularly true of executive architects like Birkerts, who dismissively wrote of such desires: "Most of the time it really boils down to a few short sentences. They like warmth. They like to feel cozy. They want a good view to the outside, but they want to feel protected at the same time."[21] Because designers of interiors (whether or not they adopt the title "interior designer") are concerned with designing and selecting the materials, furnishings, and objects that building occupants will interact with on a daily basis, and because they are often involved in extended negotiations relating human needs, they cannot avoid engaging with users' desires.

BANK WORK WITH GB&A AS CONSULTANTS
ITEM NO. A1: SPACE PLANNING

DEMOUNTABLE PARTITION GUIDELINES:

1) <u>Avoid Placing Demountable Partition at the Exterior Glass Wall.</u> Maintain an unobstructed 5'-0" corridor on both the east and west sides of the building.

2) <u>Avoid Scattering Individual Demountable Offices Across the Floor.</u> Group the spaces and share walls.

3) <u>Avoid Grouping Demountable Offices in a North-South Direction.</u> Maintain the 15'0" module and group spaces in an east-west "core".

A1
Page 3 of 29

4) <u>Avoid Using Demountable Partition as a Screen or Divider.</u> Use demountable partition to fully enclose a space. Use the landscape system as the screen or divider.

5) <u>Avoid Placing Demountable Partition Directly in Front of the Elevator Bridge.</u>

6) <u>Avoid Placing Entrances to Demountable Office on the Main East and West Corridors.</u>

7) <u>Avoid an over Extensive Use of Demountable Partition.</u> Use only where the function requires audio and visual privacy.

07

08

FURNISHINGS GUIDELINES

1) <u>Avoid Placing Landscape or Furniture Along the Elevator Glass Wall.</u> Maintain an ubobstructed 5'-0" corridor on both the east and west sides of the building.

2) <u>Avoid Placing Landscape or Furniture Directly in Front of the Elevator Bridge.</u> Create as much openess as possible.

3) <u>Avoid Placing Landscape or Furniture Against Demountable Partition.</u> Maintain an unobstructed 3'0" to 4'0" corridor around demountable partition.

4) <u>Avoid Placing Entrances to Landscape Units on the Main East and West Corridors.</u>

09

In many cases, women had little choice but to specialize in interiors. As Gwendolyn Wright has put it, women "have had to resort to their own, less conspicuous roles in order to secure a place" in architectural practice.[22] The GBA associate Barbara J. Bos may have faced this kind of choice in the early 1970s. Having trained as an architect in the undergraduate program at the University of California Los Angeles in the late 1960s, Bos was fully qualified to practice in other capacities, but perhaps found that taking charge of GBA's work on interiors was her most readily accessible path to design autonomy. No matter the motivation, by taking on this role, she eventually became the first female partner in Birkerts's firm.

A second "opposite" in the FRBM design was between the distinctive, highly specific design of the building's massing, exterior, and services and the ostensibly flexible, adaptable office interiors. In contradistinction to the client's stated desire for flexibility, GBA tried to exert considerable control over the interiors of the building over the long term. To address concerns that the clear organizational systems that guided GBA's interiors would be lost or compromised as furniture was replaced or supplemented, Bos developed a "ruleset" to guide the client. Elements at play included full-height demountable walls, panelized office dividers, and a furniture system custom designed by GBA for production by the General Fireproofing Company of Youngstown, Ohio. Among other instructions, those installing furniture were to "maintain an unobstructed 5'–0 corridor" along the curtain walls, group demountable offices together to share walls, keep these offices away from the elevator lobby, place entrances to offices and workstations away from the main corridors, and, generally, avoid overusing demountable partitions to divide up the office floors. Bos's concise instruction manual guided inexperienced Federal Reserve Bank bureaucrats through the murky process of interior design (figs. 07, 08, 09). This was a thankless task; documentation of the results is scant, and almost no mention is made in press coverage of GBA's extensive work on the office interiors.

Despite positive responses to the building in the press and among critics, a nagging feeling that Birkerts had not maintained his usual level of control over the FRBM's design seems to have persisted. As the unabashed face of his firm, Birkerts was more than happy to take full credit for the building in the press. Yet it was precisely because of his detachment from the more pragmatic day-to-day work of interpreting his intentions and satisfying the desires of its users that Birkerts was able to see the building as an aesthetic statement, autonomous in its imaginative abstraction. In the years that followed, Birkerts became ever more chauvinistic about reserving authorship within the early stages of the process for himself. He asserted his preeminence by funneling design through "embryo" sketches that could be produced only by him. Though FRBM was his best-known building, it also proved the most difficult to replicate, perhaps because staff burnout and turnover prevented the lessons from it from being carried over to other projects.

**A MONGREL
PRACTICE**

In a study of how firms weathered the economic uncertainty of the 1970s, the sociologist Judith R. Blau found that a wider distribution of authority and "voice" among employees was highly correlated to a firm's "effectiveness as a professional organization" (as measured by several

Fig. 07
Drawings by GBA's Barbara J. Bos, page 3, guidelines for the deployment of demountable partitions in the FRBM interiors, 1974. Box 19, GBA, BHL.

Fig. 08
Drawings by GBA's Barbara J. Bos, page 4, guidelines for the deployment of demountable partitions in the FRBM interiors, 1974. Box 19, GBA, BHL.

Fig. 09
Drawings by Barbara J. Bos of GBA, page 5, guidelines for the deployment of workstations and other furniture in the FRBM interiors, 1974. Box 19, GBA, BHL.

10

factors including design awards, expert evaluations, repeat clients and referrals, profitability, productivity, and the commitment of its staff).[23] But her caveat was that, "[t]he more individuals who share responsibility for a project, the more likely is the firm to receive few awards."[24] It seems that a collective voice, despite the managerial advantage of motivating employees through distributed responsibility, did not necessarily yield building designs of high merit. To a certain extent, this conclusion confirms the view held by Birkerts that individual authors create great architecture, but Blau instead used it to highlight an equally foundational dilemma for architectural practice: creating great architecture does not necessarily lead to employee satisfaction or a sustainable business. Many architects intuitively perceived this, and saw it as an inevitable contradiction between success in business and success in design.

As a result of this conundrum, what evolved in many, if not most architecture firms in the United States was, therefore, neither an "architecture of genius" nor an "architecture of bureaucracy," but a

mongrel practice that incorporated the most alienating elements of both.[25]
Studying architectural firms' piecemeal adoption of bureaucratic "best
practices," guided by organizations like the AIA and publications like *The
Architect's Handbook*, can reveal the extent to which they were subject
to "isomorphism," a term used by organizational theorists to describe the
adoption of similar structures and practices within a field.[26] The factors
outlined above led to a scenario in which executive architects, on the one
hand, monopolized the creative, design-oriented tasks for which all archi-
tects are primarily trained. Employee architects, on the other hand, were
left with immense amounts of what Graeber called "interpretive labor"
so as to maintain a chain of authorial intention over which they had little
influence and in which they may have had little investment. This mode of
organization (whether viewed as rational or irrational) had been passed on
through the institutional structuring of architectural practice as well as by
example, resulting in relative homogeneity across the market sector.[27]

To a great extent, the working methods of GBA were mold-
ed in response to Birkerts's experiences while employed in the office of
Eero Saarinen in the 1950s. By contrast to Birkerts, Saarinen approached
design in an evolutionary way, where associates generated seemingly
infinite variations of aspects of a building design, from which Saarinen
himself would then select the most successful iterations with which to
move forward. This meant that Saarinen delegated aspects of the pro-
cess that Birkerts felt should belong to the executive architect alone. In
reflections on his apprenticeship, Birkerts indicted Saarinen for what he
perceived to be a lack of decisiveness or creative bravery.[28] Yet, viewed
differently, Saarinen's working method empowered employee architects
and thereby nurtured the development of a host of independent voices.
Despite the seeming redundancy of the organizational signature of his
office, Saarinen created an environment that fostered more of the "right"
kind of imagination (creative exploration), while minimizing the "wrong"
kind (interpretive labor).[29]

The methods established at GBA created almost the
opposite scenario. Because Birkerts monopolized decisions on many
aspects of building design, he created bottlenecks during certain parts
of the process, when others simply had to wait for him to produce a new
sketch. Instead of fostering the kind of creative competitiveness that
launched numerous Saarinen employees into independent success,
Birkerts instilled loyalty in some, while frustrating others. GBA employ-
ees found themselves with limited access to the originary moments of
architectural imagination, and spent most of their effort interpreting or
expounding the authorial intentions outlined by Birkerts himself.

This has had considerable impact on the historiography of
the Birkerts firm, which has to date focused overwhelmingly on his biog-
raphy and personality. Considerable consequence has been attributed
to Birkerts's own "talking papers," while little weight has been attributed
to ostensibly less beguiling paperwork like Bos's furniture guidelines. The
wrongheaded gendering of particular design tasks further reinforced this
tendency. However, given the critical importance of the post-occupancy
phase in the long-term judgment of architectural success, we might today
rightly question which had more impact on the architecture (fig. 10).

While the dominant "structure of feeling" within architec-
ture firms like GBA may have been a commitment to legitimating the
vision provided by a firm figurehead, this unequal distribution undeniably

resulted in frustration, immiseration, and overwork, while all credit flowed to the figurehead or executive architect.[30] Indeed, employee architects committed themselves to this labor of interpretation when taking jobs in firms of this kind, but such hierarchies were not inevitable and certainly not permanent. Those who are comfortable with the status quo prefer to act as if these hierarchies of clout and monopolies of access do not exist, while others may be structurally unable to see them as anything but a natural result of what it means to do architectural work. Addressing the unequal distribution of imaginative tasks and restructuring architecture's pyramid of paperwork remains necessary in order to build a more inclusive and more fulfilling profession. To continue to ignore the problem would be to perpetuate an exploitative system and to set future architects up for ever-more drudgery and powerlessness. RA

Notes

01. SCOTT, David H., "The Organization of Architects' Offices," *The Canadian Architect*, January 1970, 15, 1, p. 36.

02. GUTMAN, Robert, "The Entrepreneurial Architect," in *Progressive Architecture*, May 1977, 5, pp. 77, 57.

03. GRAEBER, David, *The Utopia of Rules: On Technology, Stupidity, and the Secret Joys of Bureaucracy*, Melville House, Brooklyn, 2015, p. 95.

04. See MEREDITH, Michael, "Toward the Body of Work," in *Log*, 2015, 35, pp. 11–14. At the close of this essay, Meredith uses the phrase "ethos of production" to similarly describe the role of working methods in the construction of a body of work, cultivating relationships "between various buildings and other formats" (p. 14).

05. The records of Gunnar Birkerts and Associates and Gunnar Birkerts papers, which respectively document the professional career and personal life of this architect, are both held by the Bentley Historical Library, University of Michigan, Ann Arbor, Michigan. I am indebted to the Bentley's staff for their assistance in the research for this and many other projects dealing with GBA.

06. AMERICAN INSTITUTE OF ARCHITECTS, "Chapter 8: The Architect and Public Relations" [1971 version], in *The Architect's Handbook of Professional Practice*, American Institute of Architects, Washington, D.C., 1963–1988, three-ring binder edition, p. 3.

07. OSMAN, Michael, *Modernism's Visible Hand: Architecture and Regulation in America*, University of Minnesota Press, Minneapolis, 2018, p. 182. Osman has similarly pointed to the importance of paperwork in the "regulation" of architectural practice. Using the case of Albert Kahn Associates of Detroit, he concludes that it is through paperwork that the "signature" of the architect can be solidified, despite the declining involvement of the firm's figurehead. Osman's lens, like that of the authors of the *Handbook*, focuses on the mechanisms of management rather than on the career path or professional outcomes of these systems for those who work within them, which I will emphasize in what follows.

08. BIRKERTS, Gunnar, "Defining a Design Methodology," in *Architectural Record*, February 1977, 161, 2, p. 94. See LATOUR, Bruno, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford University Press, New York, 2005. Latour echoed Birkerts's premise in this introduction to the analytical method known as actor-network theory. Latour writes, "Cognitive abilities do not reside in 'you' but are distributed throughout the formatted setting, which is not only made of localizers but also of many competence-building propositions, of many small intellectual technologies" (p. 211). These small intellectual technologies –plug-ins, Latour calls them elsewhere (pp. 207–08) –are ever– present in architectural practice, such as in the numerous forms of communication, drawings, and specification genres used by architects.

09. DEAMER, Peggy, "Work," A.A.V.V., in idem, *The Architect as Worker: Immaterial Labor, the Creative Class, and the Politics of Design*, Bloomsbury, London, 2015, pp. 61–81. These are also, we might observe, the practical tasks that are the least burdensome and feel the least like work, which, as Peggy Deamer has observed, is a defining characteristic of how architects view what they do: they do not "work," and they are not workers. This is indicative of an aspirational social status or class positioning, differentiating architects from those who actually make buildings.

10. See KAUFFMAN, Jordan, *Drawing on Architecture: The Object of Lines, 1970–1990*, MIT Press, Cambridge, MA, 2018. His aversion to polished drawing differentiates Birkerts from many of his U.S. contemporaries. Birkerts did not create exhibit-worthy drawings with the same proficiency that a Michael Graves or a Peter Eisenman or even a Cesar Pelli did. Birkerts's presentation materials were delegated to others and understood to have grown organically from the seeds planted by his sketches.

11. FREEMAN, Jo, "The Tyranny of Structurelessness," in *Berkeley Journal of Sociology*, 1972–73, 17, pp. 151–65. The less formalized the structures of work established within a group were –as feminist theorist Jo Freeman argued in an article that was famous at the time– the less power could be wielded by those outside a preexisting "inner circle"; structurelessness

and improvisation can prove to be their own kind of tyranny. Originally delivered as a conference talk in May 1970, this article was published with slight variations in several journals in the early 1970s. Though it focused on Freeman's experiences in the women's liberation movement, the concepts in the article can and have been applied more broadly.

12. Project memoranda mention these GBA employees, listed in their approximate order of appearance: Birkerts, Fleckenstein, William Awodey, John Hilberry, Fred John, Algimantas Bublys, Laverne Greely, Nina Flanders, John Mueller, Anthony Foust, Robert Bodnar, Vytautas Usas, John Schwartz, Richard J. Bos, John Landry, John Sparks, Donald Wenderski, Taher Koita, Bruce Wade, Peter Dobrovolny, Jeffery Crowell, Gunars Ejups, Barbara Bos, Paul Chu Lin, Michael Filipowicz, and Stanley Boles. Also important was Birkerts's personal secretary Mrs. J.E. Heinzerling. Given the propensity of part-time teachers like Birkerts to hire their students on a temporary basis in times of high need, this is likely still not a comprehensive list of those who contributed to the project.

13. FLECKENSTEIN, Charles, "Memorandum #10, Project 6708: Federal Reserve Bank of Minneapolis," Gunnar Birkerts and Associates records, Box 8, Bentley Historical Library, University of Michigan, p. 3. Prior to founding his firm, Birkerts had been an employee of Minoru Yamasaki and Associates, and he maintained friendly relations with members of that firm. Both Yamasaki and GBA had their headquarters on the northern periphery of Detroit, Michigan.

14. SKILLING, HELLE, CHRISTIANSEN, and ROBERTSON, "Structural Description, Federal Reserve Bank, Minneapolis, Minnesota," Gunnar Birkerts and Associates records, Box 14, Bentley Historical Library, University of Michigan, p. 1.

15. ROWAN, Jan C., editor, "A Search for Architectural Principles –Some Thoughts and Works of Gunnar Birkerts," in *Progressive Architecture*, September 1964, 45, 9, pp. 172–91.

16. MARLIN, William, and FUTAGAWA, Yukio (eds.), *GA Architect 2: Gunnar Birkerts and Associates*, A.D.A. Edita, Tokyo, 1982, p. 124.

17. Birkerts later used this term to describe the organic origins of his designs. The use of a biological metaphor here points to the conflation many architects make between their creative output and biological reproduction. Growing and evolving from sketched "embryos," Birkerts's buildings were understood as "offspring" conceived in a moment of creative synthesis. The productive "gestation" and "care work" was delegated to others –solidifying a symbolically if not literally "gendered" division of interpretive labor. See BIRKERTS, Sven, and SCHWARTZ, Martin, *Gunnar Birkerts: Metaphoric Modernist*, Edition Axel Menges, Stuttgart, 2009, p. 8.

18. MARLIN, William, *GA Architect 2: Gunnar Birkerts and Associates*, p. 124.

19. The catenary arch was a subtheme in late modernism from Eero Saarinen's Gateway Arch in St. Louis (designed in the late 1940s and completed in 1965) to Minoru Yamasaki's Temple Beth El in Bloomfield Hills, Michigan (completed 1973). Additionally, both Saarinen and Yamasaki experimented with reinforced concrete catenary barrel vaults during the 1950s, when Birkerts was employed at their offices. He wrote of their exchange of ideas about concrete vaults in MARLIN, *GA Architect 2: Gunnar Birkerts and Associates*, p. 219.

20. See CAYER, Aaron, *Design and Profit: Architectural Practice in the Age of Accumulation*, PhD dissertation, University of California, Los Angeles, 2018.

21. BIRKERTS, Gunnar, *Process and Expression in Architectural Form*, University of Oklahoma Press, Norman, 1994, p. 38.

22. WRIGHT, Gwendolyn, "On the Fringe of the Profession: Women in American Architecture," A.A.V.V., *The Architect: Chapters in the History of the Profession*, Oxford University Press, New York, 1977, p. 306.

23. BLAU, Judith R., *Architects and Firms: A Sociological Perspective on Architectural Practice*, MIT Press, Cambridge, MA, 1984, p. 42.

24. BLAU, *Architects and Firms*, p. 43.

25. See HITCHCOCK, Henry Russell, "The Architecture of Genius and the Architecture of Bureaucracy," in *The Architectural Review*, January 1947, pp. 3–6.

26. DIMAGGIO, Paul J., and POWELL, Walter W., "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields," in *American Sociological Review*, April 1983, 48, 2, pp. 147–60.

27. For a history of the ideals of practice and their implementation in U.S. firms, see BOYLE, Bernard Michael, "Architectural Practice in America, 1865–1965: Ideal and Reality," A.A.V.V., *The Architect: Chapters in the History of the Profession*, Oxford University Press, New York, 1977, pp. 309–44.

28. MARLIN, *GA Architect 2: Gunnar Birkerts and Associates*, pp. 216–19.

29. For a similar perspective on Saarinen's office practice, see KNIGHT, Richard, *Saarinen's Quest: A Memoir*, William Stout Publishers, San Francisco, 2008.

30. For the origins of the concept of a group's "structure of feeling," see WILLIAMS, Raymond, "The Bloomsbury Faction," *Culture and Materialism: Selected Essays*, Verso, New York, 1980, pp. 148–69.

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