

Blurred lines:

Reinvestigating the design possibilities of architecturalized furniture and furniturized architecture in modern housing

Excerpted from an M.Arch thesis by Allen Pierce

In his grand chronology of the rise of the industrial, Siegfried Giedion traces the history of furniture from a time when the term referred only to light benches and stools, through the eighteenth and nineteenth centuries wherein it increased in significance, heft, and immobility to a high-water mark in the two decades after the fin-de-siècle. During this period, the idea that furniture would be not only built-in but fully of the architecture became a tenant of many early-modern design philosophies — those of Frank Lloyd Wright, Rudolf Schindler, and Adolf Loos, to name a few. The fact that “built-ins” were also a common part of retrospective English-Morrisite and common developer housing from c. 1890-1920 should be unsurprising — to designers of every stripe the concept of integrative holism was as uncontroversial as it was self-evidently positive.

Giedion attributes this shift — from light, mobile furniture (the French categorical is, in fact, *meubles*, the German, *Möbel*) towards something emplaced (indeed quite *immeuble*) — to a radical increase in societal stability and the security of personal property. According to his history, the development of increasingly large, elaborate built-in furniture goes hand-in-hand with such modern “improvements” as the rule of law, the lock and socio-economic egalitarianism. Indeed, we now feel as little need to tote our worldly possessions around with us lest they be stolen as we do to make out a will and testament every time we set out looking for fresh food. Chairs, beds, and cabinets can be, and were becoming, part and parcel of our architecture, our real-estate (*immobilier*, *Immobilien*). For many of the high modernists, the line between architecture and furniture — like the line between architecture and landscape — was on its way to disappearing.

And yet, in the years since the second world war, integrated furniture-architecture has all but disappeared in common practice. In its place we have the dual concepts of the “installed” casework system and the freestanding object, both placed into the separate, blank boxes we now occupy. Why this sudden shift? This (if Giedion is to be believed) backpedaling into the light and the mobile? Why, just when our personal spaces were reaching a zenith of concreteness, immobility and unity, do we encounter this sea change towards the ephemeral, impermanent and bricolaged? And, what is the status of “built-in”, today? Is it a viable, even desirable model?

I hope to answer these questions and more first by looking back at issues in the recent history of design and design theory, and second by examining the issues faced by, and strategies available to contemporary designers who are once again seeking to erase the line.

1. CRITICAL READINGS & LESSONS FROM THE PAST

DIVISION & REPRODUCTION: SEEDS OF DISUNITY

Since at least the middle of the last century, the built environment has been understood to break down into distinct, nested “levels”. The idea is that each scalar level of building (and hence design) responds to a different set of conditions and is carried out by a different set of agents, bracketed in by the level above. This thinking is so pervasive that it has become a self-fulfilling prophecy. Any suggestion that levels might elide into one another and come under one design, one point of control, is often seen as idealistic at best; totalitarian at worst.

Arguing against the tradition best expressed by Walter Gropius that everything from the “teaspoon to the city” could be designed simultaneously, such that “the same poem speaks at every level”, NJ Habraken writes, “built environment, in all of its complexity, is created by people. Yet it is simply far too complex, too large and too self-evident to be perceived as a single entity, an artifact like a chair, a car, a painting.”¹ Indeed, Habraken’s book, *The Structure of the Ordinary*, attempts to codify this principle, extending it as an explanation for the propagation of distinct professions – the urban designer, the architect, the interior designer, the industrial designer – and the erasure of the general “designer” envisioned by those at the Dessau Bauhaus and other visionary schools of the early 20th century.

What is implicit in Habraken’s understanding of the built environment – its whispered co-requisite – is industrial production. Indeed industrial production, serial reproduction, necessitates his world view. In order for a structural element, or a modular screen system, or a stand-alone chair to function in its environment, there must first exist a separate, higher order into which it can fit. Habraken uses chess as a metaphor: the game, played with pieces, depends upon the preexistence and prearrangement of the board, but anyone can play the same game with functionally identical pieces on an identical board². Chess cannot, however, be adjusted to its surroundings; it cannot modify its game play as it transitions from the picnic blanket to the kitchen table. The game board – the very condition that allows chess’ transportability – disallows its ever relating to “levels” above the board, its perpetual intermediary.

Built-in furniture, as it began to appear in early modernism was synonymously extant and simultaneously manifest with the conditions in which it existed – this meant that it could readily elide directly into the “building” which would later be characterized as a distinct super-level. We might imagine, as counterpoint to Habraken’s chess story, the way that a child plays: inventing different but each entirely more appropriate games for the picnic blanket and for the table and for the beach, and doing so with what is on hand, creatively integrating the game – both its rules and its materials – into each new “site”. Industrially produced furniture, the very best of which can only ever stand separately and will almost always be ubiquitous, overcame built in furniture because of its cost and its production efficiency – causes only marginally related to long-term human need or good design. The means of production – the division of labor – inevitably translated into the mode of production – the division of levels. The out-production of the old means by the new in the marketplace translated to the success of the new mode of thought over the old. Our failure to realize and control the bounds of industrial production has allowed industrial thinking to propagate into fields where it is not necessarily useful or appropriate. And so the baby went: out with the bathwater.

¹Habraken, NJ. *The Structure of the Ordinary*. p. 6.

² *Ibid.* p. 22.

Giedion says it best:

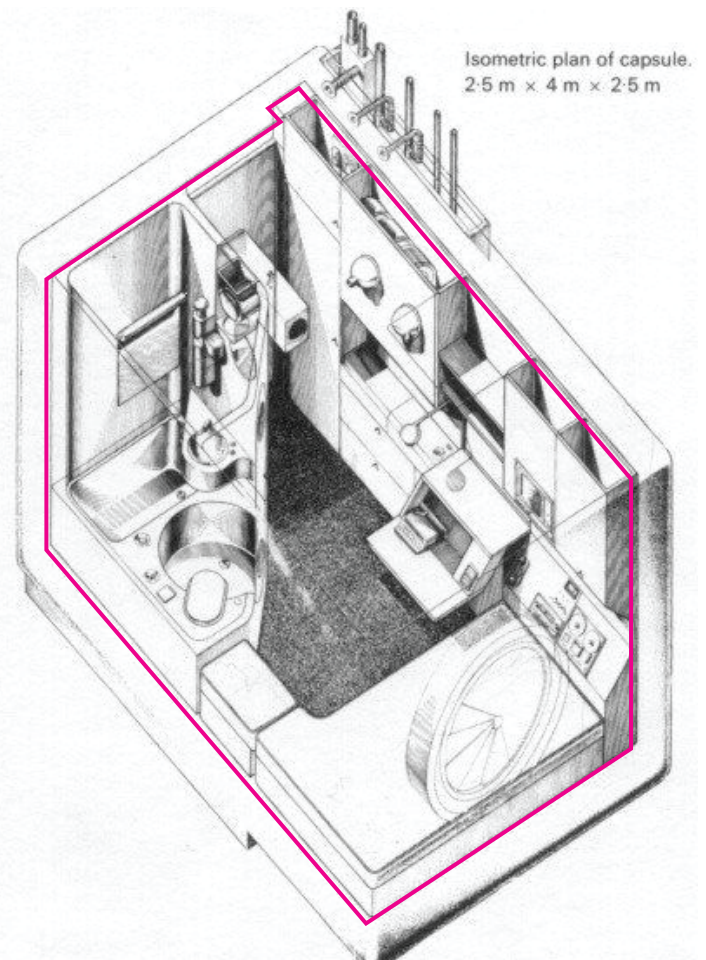
To control mechanization demands an unprecedented superiority over the instruments of production. It requires that everything be subordinated to human needs... Today, man is overpowered by means.³

The resultant condition was the one described by Habraken; one in which the utter separateness of the layer we perceive haptically, the layer that bounds our visual world and the architectonic core of our buildings has led to the modern bricolage home and workplace. After all, how can a seat correspond dimensionally or materially with a partition, with a window, and onwards with the exterior condition when all are designed and paid for separately, often with no intelligent coordination; no common agency? Is it any wonder that those at the height of recent interior design – practices like Philippe Starck and Roman & Williams – succeed only by intelligently trading in historicist collage, forced, as they are, to collate disparate pieces and remain within their narrow scalar box?

Limited as this condition is, furniture “within its level” either takes the form of stock-assembled case goods and spatial dividers or of the industrially designed object that floats as an entity in the space of the room. The object condition necessarily cannot bind to the architecture in any real way, seeing as it is separately designed and produced with an eye towards working OK in a variety of spaces but never intended for a specific one. As a consequence, furniture of this type tends to float into the room without actually engaging it by scale or material association, first becoming a stumbling block, then a kind of object-of-display. In 1923, as industrialization began to fuel the transition of furniture from accommodations for living to the center of the culte de l’objet, Schindler identified the oncoming difficulty,

The furniture, originally conceived to adapt the house to a more comfortable use has usurped our place in it. Our homes have become storage places for all kinds of “things” instead of affording us a sheltered space for living.⁴

What is perhaps of greater interest to us than the “object” is the aesthetic development of the industrially produced kit-of parts system. Over time these non-integral interventions – whether shop-built plywood boxes or advanced modular steel systems – have taken on many features of built-in furniture, trying where they can to appear integral or non-modular. Nowhere is this more obviously manifest than in the drawings of such “pod” buildings as Tokyo’s Nakagin Capsule Tower, wherein the rhetoric of the fully-integrated spacecraft-like living space is entirely broken by the quickly obvious line – Habraken’s line – between the inserted spacecraft-white cabinetry, bathroom-unit and bed (made by a cabinet-maker and installed) and the normative steel-and-concrete box that forms the structure and enclosure (the work of the welder, the concrete-pourer) [Fig. 1.1]. Finding the limits of industrial reproduction, designers are now reaching back for integrality only to stumble on institutionalized divisions.



1.1 Drawings of the Nakagin pods reinforce the very line that their rhetoric seeks to erase.

“Nakagin Capsule Tower” 15 May 2013. ArchDaily. Accessed 1 April 2014.

³ Giedion, S. *Mechanization Takes Command*. p. 714.

⁴ Schindler, R. “Care of the Body”. *Los Angeles Times*. April, 1926.

UNITY AND THE TOTALIZING INSTINCT

Latter day philosophers of design have been quick to point out the often-to-totalizing instincts of many of the early-modern giants — Gropius, Mies, Wright, Corbusier, etc. Gropius' "teaspoon to city" comments are often trotted out by today's socially conscious academicians to demonstrate a kind of egotism; a desire for total control. Wright, for one, unabashedly considered himself the only agent capable of realizing his "total" design vision. The integration of furniture into architecture — the elision of multiple levels of design-control — is often bundled into this criticism. In some cases, this may be for good reason; certainly Wright's designs for "prairie-like" couches and footstools to continue his landscape metaphors played out uncomfortably and with little appreciation for the human scale.

Reflecting on the gesamtkunstwerke of CR Mackintosh and Josef Olbrich, Adolf Loos tells a story of the "poor little rich man" who has hired an architect to design every aspect of his material life, only to find, upon being presented with a gift, that there is no longer room in the design for living — that without room to improve, add to, or grow into the design, the architect has left him to live "with his own corpse".⁵ Indeed, Mark Wigley has identified the "explosive" total design of Gropius as identical to the "implosive" totality of Mackintosh — both rendering the whole world a single interior to be designed in toto. The impulse to elide — to combine levels or extend control outward — represents, to Wigley, a totalizing tendency; a desire to control more aspects of occupant's lives than is called for and thereby implicitly deny them agency.⁶

It is notable, in light of these criticisms, that Loos himself was a master of the use and design of integrated furniture. He, along with Schindler realized a condition in which unity could be maintained without its becoming totality. Schindler described it thusly:

It must be the basic principle of all interior decoration that nothing which is permanent in appearance should be chosen for its individual charm or sentimental associations, but only for its possible contribution to the room conceived as an organic entity, and as a background for organic activity.⁷

In this way, a principle of "unified but neutral" design is manifested. Both architects understood that unification — "spatial assemblies [which] are not stitched together but woven", as David Leatherbarrow described Schindler's work⁸ — was possible while still allowing a place for a collection, or a personal touch, or a favorite chair, or a birthday present from a friend, as Loos' poor little rich man had wanted. In a sense, this is architecture that accommodates a life without dictating it. It is neither the white box, which accommodates little and begs for much, nor the total design, which, like the over-strict parent, provides only in return for conformity.

OPENNESS WITH SCALE, SPACE WITH PLACE: LESSONS FROM LOOS

The mode in which we occupy the built environment has been a major topic of debate over the later half of the twentieth century. The idea that furniture — direct accommodation for the body — could become an integral part of structure and enclosure, or even grow to the scale of the building itself stakes a clear position in these debates. In many ways, the notion runs counter to concepts of universality, infinite extension and perpetual motion that were advanced by 20th century architectural thinkers as diverse as Mies van der Rohe, Le Corbusier and Superstudio. The title of the book *Raumplan* versus *Plan Libre* is correct in its oppositional positioning insofar as Loos presents a

⁵ Leatherbarrow, D. "Sitting in the City, or the Body in the World." *Body and Building. Essays on the Changing Relation of Body and Architecture*. p. 273.

⁶ Wigley, M. "What Ever Happened to Total Design?" *Harvard Design Magazine*, Summer 1998. p. 6.

⁷ Schindler. "Care of the Body".

⁸ Leatherbarrow. p. 283

configuration of distinct spaces — distinct in their dimensions, materiality, program and relationship to the whole — while Corbusier seeks to create a more open, undifferentiated and extended space.

It makes sense, then that Loos would make such significant use of integrated furniture as a means of shaping and defining spaces while Corbu would rely more heavily on light steel meubles. What Loos is able to maintain by differentiation and specialization is a human scale and sense of place-ness (not just space-ness) that is often lost in the “infinity” of free— and open-plan projects. And, he is able to do this while retaining the openness and holism sought by both sides.



In a certain sense, the Raumplan sees the entire building as a single entity with many functions — a great piece of furniture which has been carved out according to need — something less *machine*— and more *mobilier-à-habiter*. It, “proposes the differentiation of volumes and their combination into one ‘unified’ configuration”.⁹ One volume might correspond to a certain use and position in the larger piece and two might functionally interrelate, not unlike a chair and a desk within a room. Unlike the traditional chamber plan, in Loos’ houses, each volume (room) and sub-volume (bench, nook, desk, bed) captures more space than it actually occupies by projecting into and overlapping with the space of others, resulting in incredibly dynamic interpenetrations in which no open space is unaccounted for by some element of the perimeter condition. In this way each element operates at a variety of scales — at times furniture is alternately subsumed into room, synonymous with it, or even engulfs the space. Sometimes it is not clear which.

Loos’ fully integrated Raumplan also anticipates the fact that we are not, as so many early-modern diagrams would have us believe, perpetually in motion but are often static for long periods of time. His design offers a variety of vantages and opportunities for many kinds of intercorporeal relationships — distance and closeness, cover and exposure. In many cases, he plays up the safety of removal and solitude present in the dead-end chamber Robin Evans highlights in “Figures, Doors, Passages” while maintaining visual and auditory connection to other spaces, even playful intrigue. In this way, the “unbridgeable gap” between “architecture to look through and architecture to hide in”¹⁰ is, in fact, bridged.

From Loos we can glean strategies for maintaining openness and freedom of movement — almost unquestionably good values that have come down to us from modernism — without giving up scale and specificity. Loos also demonstrates how one or two built elements can capture a space much larger than their actual footprint and operate at a series of spatial scales simultaneously, depending upon their occupation. In effect, a significant proposition of the Raumplan is the possible simultaneity of furniture, room and building and the ability of the designer to hold all three in ambiguous interrelation, allowing each to shift according to occupation.

FLEXIBILITY

One of the most famous early Modern examples of the “building as furniture” is the Schröder house by Gerrit Rietveld. At the time the house was built, Rietveld had primarily worked on conventional mobile furniture, usually using sheet materials like plywood. He had the idea that the logic of his furniture

1.2 The Raumplan’s separations and interpenetrations place the body in an “architecture to look through and to hide in.” Furniture is independently occupiable, like small rooms, and also captures and activates stretches of surrounding space when inhabited.

⁹ Ibid. p. 276.

¹⁰ Evans, R. “Figures, Doors and Passages.” *Translations from Drawing to Building and Other Essays*. p. 74.

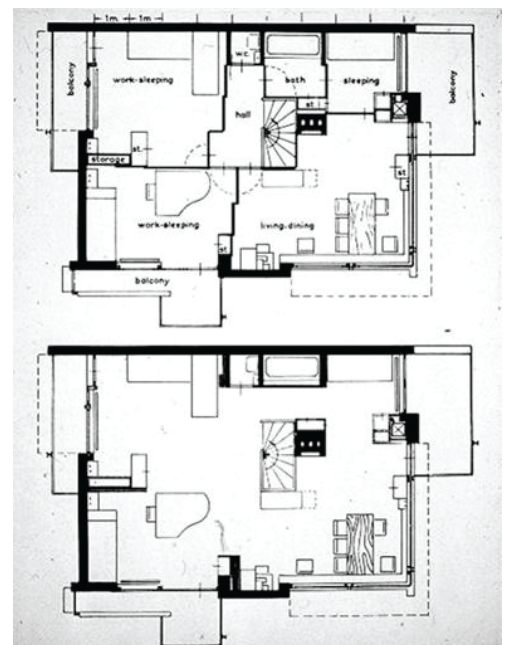
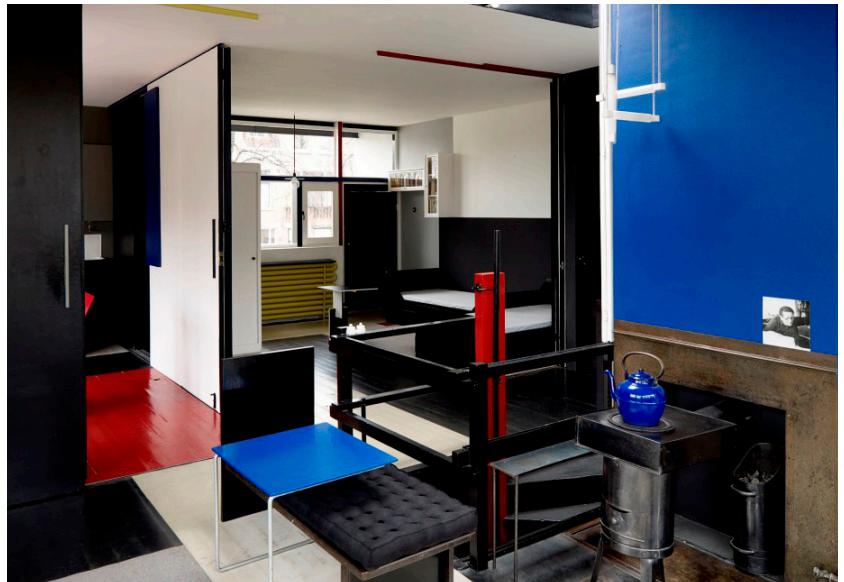
could be scaled up to something fully occupiable that, like a cabinet, he could create a house-sized piece of furniture that could convert to different occupancies (like a drop-leaf table) and different uses (like a secretary) becoming, in effect, a swiss-army-knife of a dwelling: compact but multifaceted.

On the surface, he seems to have accomplished just that. His major move is to develop a plywood screen system that allows for the rapid reshaping of space along pre-planned lines. During the night, these screens, along with a couple of other pieces of plywood furniture, cordon off the upstairs space into three distinct bedrooms and a dining/living space. During the day, the whole space opens up to accommodate group activities, guests, cooking, piano playing, etc.

The plan seems to have worked for Truus Schröder and her three children (and for Rietveld, once he moved in with them), but it is difficult to imagine a family, differently composed or disposed, moving in and having success living there. The “flexibility” of Rietveld’s great cabinet plays out over short cycles. It is designed to work perfectly over a cycle of days, weeks. It falls apart over longer cycles – seasons, years, decades. Its flexibility depends, like Habraken’s chess pieces, on an underlying layer of static conditions, which renders it, ultimately, inflexible.

This is an important thought to take forward into the design of architectural furniture. Often, when the topic of built-ins is breached, it turns towards Murphy beds, pullout tables and the like. What this turn fails to recognize is that the longevity of architecture – and hence of architecturalized furniture – depends on its not wearing out. Wearing out can mean, here, the failure of physical-mechanical parts which are taxed by repeated motion, but it can also mean the cessation of a piece’s ability to bear change, in the abstract sense. Those pieces of furniture that seem most “flexible” actually bear the greatest number of impinging assumptions and are thusly, as occupants press these assumptions, at a higher risk of stress-failure.

One solution for long- and short-cycle flexibility may lie, again, in the idea (borrowed from the Raumplan) that space unoccupied by built material can be colonized by those things, those functions which surround it. In this way, a static built environment is activated in different ways depending on how it is occupied and does not have to be, itself, animated. In the short-term, this meets Rietveld’s goals – the accomplishment of more functions and accommodations for more program in less space, while in the long term it leaves room for different occupants and different occupations. Indeed, new occupants might activate a well-designed space in radically different ways than their predecessors without changing a thing; the Schröder house, like the common Murphy bed will only ever do the one thing it was designed to do and will dictate that action to all future occupants, regardless of their preference or instinct.



1.3 The Schröder house’s “flexibility” is upheld by the rigidity of the Schröder’s daily patterns and relationships; in fact, it reinforces them.

1.4 The Schröder house has but two distinct configurations - two modes of occupation which dictate spatial function and use.

van Zijl, Ida. Rietveld Schröder House. New York, NY: Princeton Architectural Press, 1999.

2. CONSTRUCTIONAL POSSIBILITIES

THE SHIP AND THE CASTLE

From an examination of architecturally integrated furniture in the western world, we might derive two simultaneous origin stories — one of a shipwright and one of a stonemason — both out to build their own homes.

The shipwright deals in sticks and sheets; bones and skin. When he sets out to build his house, he does so by framing it, then skinning it. When he wants to make a bench or a bed, he works their frames into the frame of the larger building. The most primitive example of this might be the traditional Finnish sauna with its cascading benches, derived from and participating in the building frame, (indeed, many of the best examples of “ship” construction come from early Scandinavian architecture). Within this paradigm, spatial definition and weight are largely dependent upon the thickness of the framing member and the thinness of the sheathing. Framing members define clear bays and spaces seem to meet one another at zero-points where only thin skin divides them. More often than not, the assembly of parts is obvious — the building is clearly agglomerative.

Louis Kahn often engaged the idea of integrating furniture with the frame. Where he needed a frame for a window or a railing or a portal, that frame could also become a seat or a cabinet or a shelf. In his houses for the Eschericks and the Fishers and at Exeter library, brick is treated as the structural material while wood fulfills all other tasks, beginning with enclosure but extending to the admission and control of light & air, the facilitation of corporeal comfort, the storage of tools and books and the specification or specialization of distinct spaces. Agglomerative as the process is, each piece seems to extend out independently from its rooted frame, articulating in its own way.

The stonemason, by contrast must deal in great thicknesses — without significant depth her structures will deflect and fall. She begins her home by stacking or pouring mass into form. When she wants to make a bench or bed, she does so by leaving material out — by making an exception within the upward growth of the mass. We see such spaces in medieval castles and in bunker-like constructions of early concrete. Here, spatial definition is freer, in one sense, than for the shipwright. The even loading of the heavy wall or vault allows for more specific and varied removals or exceptions. Scale is achieved not by relation of the body to the building material but of the body to the void.

At Ronchamp, Corbusier builds a highly articulate concrete church in which the wall thicknesses change considerably depending on their orientation and proximity to use. On the south wall, the deep stained-glass recesses recall private chapels into which individuals can remove themselves. The confessionals occupy sub-niches in the heavy walls north and west in which space is cut for entry and seating but little more. The side chapels themselves feel, on the ground, like great scoops out of the mass of the church — their delicate light reflecting down from somewhere on or above the massive roof. The overall effect is of a unified outer massing that is only articulated by internal carving and shaping.



2.1 Kahn's bench at the Fisher house emerges from the muscular wooden window frame. They are conceived of together and built simultaneously, literally “of” one another.

Reed, Peter S. GA - Louis I Kahn: Escherick House and Fisher House Tokyo, Japan: ADA Edita, 1996.

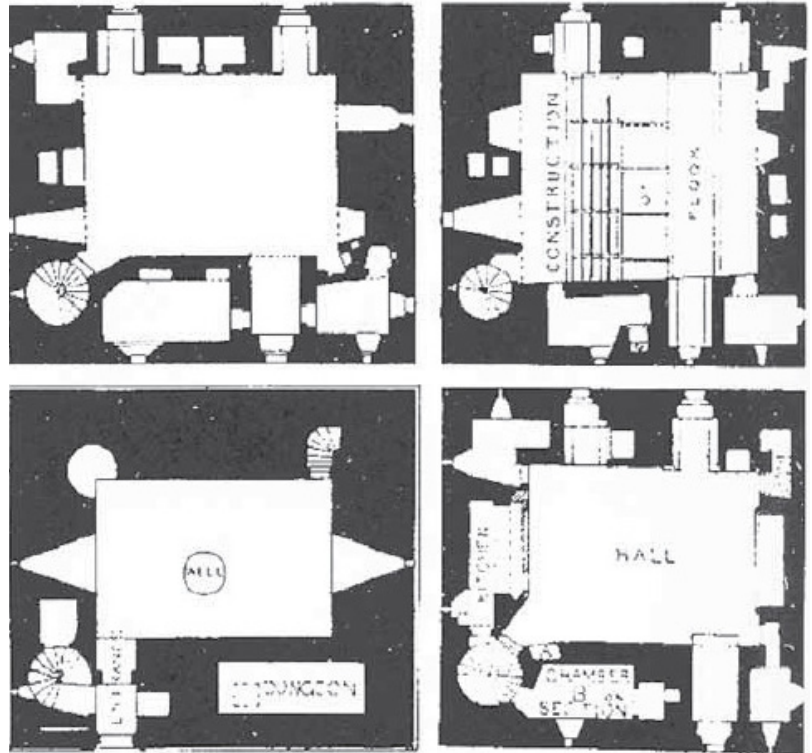
The richest possibilities manifest when the two paradigms appear to be happening simultaneously; when their features blur. In the work of Office dA, we often see this played out. From one vantage, we appear to occupy a niche, and exception in the material that surrounds us. Viewing the situation from another angle, perhaps passing through a door or coming around an edge, we might realize that, in fact, there is a thinness to the material that merely wraps around us. What we believed to be excepted mass is, in fact, skin-on frame. Likewise, we might approach a surface edge-on that appears to be a thin sheet only to find that it is quite thick as the surface moves on.

This game has practical, not just perceptual value as it allows one condition to exist inside the other. A framed box might include a “carved” niche, which is in turn backed by a thin wall that abuts a concealed, “excepted” closet. Thick space-shaping walls might, at certain moments, open to reveal their hollowness for storage or occupation. This ambiguous condition is on full display across multiple scales in Office dA’s Fleet Library at RISD. The architects, tasked with developing a huge bank hall into a library for the design school, needed to find a way to adapt the scale of the room down to spaces sometimes small enough for a single person to crawl in and study. In order to do so, they introduced two pavilions — one apparently solid and the other apparently framed — at a scale in keeping with the large space [Fig. 2.3]. Each of these great big furniture pieces, in turn, articulates further. The “solid”, a giant urban-scale staircase-to-nowhere at times peels apart to become stick-and-sheet— pieces: long library tables, seating, etc. [Fig. 2.4]. At other times, it is itself carved out into one- and two- person niches as though it were truly solid (it is, in fact, thin wood, and mostly framed). The other pavilion, which houses the circulation desk and other services, appears to be trellis-like: all frame and no mass [Fig. 2.5]. Upon closer inspection, aspects of the pavilion prove to be great masses of laminated wood that have been carved out for specific purposes. In both cases, the shifts are only manifested as one variably occupies the larger space — on top, next to, below, close to or far from each piece — all without animation or metamorphosis on the part of the building.

UNITY, SIMULTANEITY AND THE POSSIBILITIES OF DIGITAL FUTURES

We have already discussed the role that manufacturing and the radical division of labor had on the conceptual shift towards stratified building levels. Writing in 1998, Habraken had this view of the future of building:

With ongoing industrialization and systematization, building design is increasingly a matter of selecting and combining systems. The range of system components and rules about how they combine are predetermined. Partitioning systems, sanitary and kitchen equipment and cabinetry, and furniture and lighting systems result from long-range product development and marketing, far beyond the reach of any single intervention, or any designer’s desire for innovation. To a great extent, such systems now set the terms of the design game.¹¹

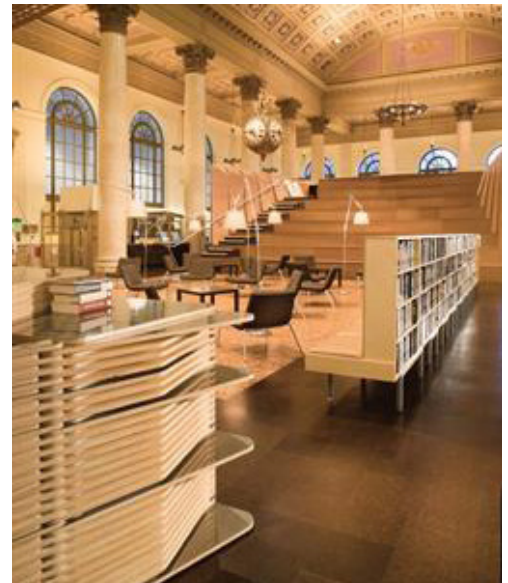


2.2 The thick masonry that makes up the castles of Northern Europe is incidentally carved out or left void to create space for the body without affecting the overall massing.

Brownlee, David, and David DeLong. *Louis I. Kahn: In the Realm of Architecture*. Los Angeles, Ca: Rizzoli, 1991. p. 68

¹¹ Habraken. p. 74.

In answer, from beyond the grave, Giedion would remind us that, of course, “Mechanization is the outcome of a mechanistic conception of the world.”¹² It should be obvious to all observers that we are even now moving out from under the weight of this mechanistic conception. New digital manufacturing technologies are allowing designers to return to what Mario Carpo has called a “pre-Albertian paradigm” in which design and making are simultaneous and synonymous. These very same tools promise to bring unity back to building — to allow for the creative rejoining of the levels Habraken insists must always be. “Tasks that were separated by the mechanical revolution are already being reunited by the digital revolution.”¹³ By reuniting the disparate construction professions and allowing designers to experiment with shifting scale at unprecedented speeds, this reversal will be our friend in pursuit of simultaneity and unity, too.



2.3 The stair pavilion at the heart of Office dA's Fleet Library reads as a shaped mass placed in the larger bank hall.

2.5 Thinness and assembly manifest in dense elements; thickness and carving appear at moments of constructional thinness.

"Fleet Library at RISD." Naaaa.com, Accessed 01 Apr 2014.

¹² Giedion. p. 717

¹³ Carpo, M. "Nonstandard Morality: Digital Technology and its Discontents." *Architecture Between Spectacle and Use*. p. 123.