

**BY THEIR  
OWN DESIGN**

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**EDITED BY ABBY SUCKLE**

**WHITNEY LIBRARY OF DESIGN**  
an imprint of Watson-Guption Publications/New York

Norman Foster: The description of the Willis Faber Building is based on an article that appeared in *Architectural Design*, September-October 1978.

Herman Hertzberger: Appeared originally in Dutch *Forum*, vol. XXIV-3 (1973).

Cesar Pelli: Based on an interview and adapted with permission from *Architectural Record*, mid-August 1979.

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First Printing, 1980

Edited by Sharon Lee Ryder and Susan Davis  
Designed by Bob Fillie

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*A building being built is not yet in servitude. It is so anxious to be that no grass can grow under its feet, so high is the spirit of wanting to be. When it is in service and finished, the building wants to say, "look, I want to tell you about the way I was made." Nobody listens. Everybody is busy going from room to room.*

*But when the building is a ruin and free of servitude, the spirit emerges telling of the great marvel that a building was made.*

LOUIS I. KAHN

quoted in *Architecture + Urbanism*  
January 1973

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## Acknowledgments

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Normally in a first book, the fledgling writer composes a rhapsody in prose which heralds the praises of everyone who has had anything to do with the *magnum opus*. Mine is short in part because this is a short book and in part because not very many people were present throughout the two (or more) years that comprise the chronicle that is the history of this book. Mostly they took part in hand-holding and mostly they are former classmates of mine who know absolutely nothing more about architecture (or even sentence structure) than I do and were perfectly willing to have a learning experience. Which made them quite agreeable companions and critics.

The lion's share of the acknowledgments are due to Misako Sammye Akutsu. She has several unique attributes which surpass her "boy scout" virtues of being organized, trustworthy, neat, and prepared that turned out to be very valuable. She possesses two Master of Architecture degrees from Harvard (her second is in urban design) as opposed to my one. She is completely fluent in Japanese which is her native language. And most importantly, I was able to cajole her in addition to Franziska Amacher, Jim Treichler, and Chuck Lauster into reading some of the articles at one point or another and making intelligent remarks about them; Peter Arendt provided moral support.

The people who really helped the book evolve from its initial fuzzy conception to its final materialization and taught me more about architecture than I ever learned in school were the contributors. They were uniformly encouraging and patient with me. Some of them devoted so much time to their essays that I secretly wondered how they ever managed to get their own work done. To them I dedicate this book.

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# INTRODUCTION

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*A building has to start in the unmeasurable aura and go through the measurable to be accomplished. It is the only way you can build, the only way that you can get it into being is through the measurable. You must follow the laws, but in the end, when the building becomes part of living it evokes unmeasurable qualities. The design involving quantities of brick, methods of construction and engineering is finished and the spirit of its existence takes over.*

Louis I. Kahn

Picture the poor contemporary architect slaving away at his (or her) drawing board, caught between the esoteric *pensees* of *Oppositions* proudly displayed on one side of him and the weighty reality of *Sweet's Catalog* anchoring the other as he struggles to produce the quintessence of post-modern design. All the while he is wondering whether he is Don Quixote jousting at windmills or foreshadowing the artistic trends of the eighties.

Since it tends to be infinitely easier to criticize what other people have designed than to do it yourself, most of the treatises published to date on architectural design are rarely as useful as they could or should be when it comes time for the architect to sit down at his drawing board and actually design. For then he must consciously decide what to communicate to whom, how to do it in the clearest possible way so that it can be read by the intended audience, and how to keep that message from being drowned by the torrent of constraints that inevitably accompany the building process.

Concerned with questions of design, construction, and architecture, this book reveals the various ways in which ten architects synthesize the first and the second into the third. It is a book about values that architects hold about how people should live and interact, about community and privacy, about art and technology. It is a book about the many things that inspire a design, which

range from the pragmatic conditions of a program to idealized prototypical solutions that can be built anywhere at anytime; from sociological notions about how people should use their surroundings to sculptural compositions that present abstracted spatial concepts. It is a book about meaning and what sort of messages can and cannot be conveyed in a building. It is a book about the process of design, about the marriage of aesthetic concerns with structural ones. It is a book about where the architect chooses to lavish his finite amount of tender loving care as well as where the money is spent. And mostly it is a book about the architect as master builder, the person who coordinates all the many people involved in the building process and makes all the critical decisions.

Each of the ten architects who contributed an essay is very much a master builder. Each has a strong design philosophy. Each cares a lot about how his buildings are resolved technically. Each has a philosophy of construction, a framework of interlocking values and viewpoints which form a coherent set of principles involved in directing the formal properties of build, of materials, and of their connections to each other.

Some of the architects, for example, narrowly define the scope of architecture as construction and choose to express the actual making of the building as Richard Rogers does in Plateau Beauborg, where every part is differentiated, defined, and assembled as an erector set in such a way that the process of construction is easily perceived and understood. Others, such as John Johansen, also split buildings into their component parts; those which are more temporary are clipped onto those which are more permanent in an attempt to deal with growth and change. Both architects also prefer to build in steel. But Johansen's work, such as the Mummens Theater, is characterized more by its ad hoc approach to detailing, overlaid with an electrical circuit imagery and a sculptural sensitivity, than by a highly rational approach to construction.

Some architects, like Harry Seidler, believe in

using the building's structure as the primary ordering device and express it as such; they weave the other elements through that in a logical way. A building such as the Australian Embassy in Paris shares with Arthur Erickson's Museum of Ethnology in Vancouver a concrete construction and expression, where the structure defines highly sculptural spaces. Both architects view construction as architecture with a capital A, and both like to generate forms in a primarily sculptural fashion. The difference is that Erickson even candidly admits to giving structure a back seat to consideration of other issues, from siting and aesthetics to user response, while Seidler lets structure predominate over these other concerns.

Another approach is the one that Norman Foster takes; he chooses to minimize visual clutter and refine away the redundant, unnecessary, inefficient parts of the building. This involves searching for the most appropriate technology and rethinking the way that we commonly approach construction. It is also interwoven with a brand of sociological utopianism that Herman Hertzberger might be sympathetic to. One need only compare the virtually identical programs of Foster's Willis Faber Building and Hertzberger's Centraal Beheer: both insurance companies relocating in a suburban town about two hours away from their capital cities, both plagued with employee attrition, and both desiring to make life in the suburbs attractive for their 1,500 workers. While Foster refines away all the extraneous elements, Hertzberger goes to considerable trouble to incorporate as many as he can conceive of into his scheme. By constructing small-scale forms, concrete block nooks and crannies that double as storage units and space dividers, handrails that are also benches, he provides the users of his buildings with elements they can appropriate as their own.

Both Kisho Kurokawa and Fumihiko Maki are seeking ways to combine a cultural tradition with the vocabulary of modern architecture. While they have both been Metabolists and both been

interested in growth and change, Kurokawa is much more interested in the meanings of architecture which are not restricted to rationality, which can relate to Buddhist philosophy, and which are much more difficult to build and infinitely more complicated to read. His architecture veers in the direction of systemized building—of plugging capsules into a supporting core, as in the Nakagin Capsule Tower. Maki's work is much more pragmatic, much more straightforward. He is looking for an appropriate scale for industrialized construction so that it can be an identifiable building module for design at the same time that the module can vary slightly in design to reflect the programmatic variations of the building.

Another way of looking at architecture is as a strictly pragmatic endeavor where the architect tries to synthesize the programmatic requirements into a whole which, as the cliché goes, is more than the sum of the parts. Both Gerald McCue and Cesar Pelli exemplify this almost traditional view of the architect. Both have done many buildings for large corporate clients. Here again, there are fundamental differences, for McCue is interested in a logical conceptual model for his approach to construction so that it is conceptually consistent within each building. Pelli is more concerned with aesthetics. He believes in ready-made, available materials, and his artistic expression is derived from the constraints of the program. McCue's IBM Headquarters is like much of Pelli's work in many respects. It has a slick panelized skin which is painted bright colors. But it is not nearly as molded a form or as instantly imageable as the extruded blue section of the Pacific Design Center.

What characterizes these ten viewpoints is that they run the gamut of design stances. What each architect does is present his own design philosophy and show how it is resolved in one or more recent buildings. This book shows only how divergent the possibilities for shaping buildings are. It does not and cannot offer any definitive conclusions for how design is to be done.





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# ARTHUR ERIKSON

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*Arthur Erickson received his Bachelor of Architecture from McGill University in 1950. He also won a traveling scholarship which enabled him to tour the continent, particularly Greece, Italy, and northern Europe. On his return he taught first at the University of Oregon and then at the University of British Columbia, where he became an associate professor in 1961. During this time he maintained a small private practice building mostly houses. He then received a fellowship to go to Japan and made the first of many trips to the Orient. In 1963, in partnership with Geoffrey Massey, he received the first prize in the competition for Simon Fraser University for an innovative scheme featuring a quarter-mile-long, glass-covered central mall surrounded by low-profile concrete classroom and laboratory buildings. When completed two years and \$20 million later, it was considered by many to be one of the best of the new campuses of the sixties.*

*Since then Erickson has built widely. His work varies from an egg crate-like shelter built out of laminated recycled newspapers by the schoolchildren of Vancouver for the UN Habitat Conference, to the Canadian pavilion at Expo '70, an intricate play of mirrored surfaces, to the recent courthouse/redevelopment scheme for the center of Vancouver, which is now completed. He has received numerous awards, including the Tau Sigma Delta Gold Medal of the American Institute of Architects and the Auguste Perret Award of the International Union of Architects. He has also been the recipient of several honorary degrees from such institutions as the University of Manitoba and McGill. Since his approach to architecture is primarily a sculptural one, it will be interesting to see finished the new concert hall he is working on in Toronto, which sports a steel net roof supporting panels of mirror glass.*

*Inside the great hall of the Museum of Anthropology at the University of British Columbia are the magnificently carved totem poles of the Northwest Coast Indians. The roof is supported by the small beams running across the space, not by the deep beams.*

**T**he structural specialist meets the demands of pure structure alone. His art has progressed through the interaction of the strength of materials and the physics of forces to produce bridges of lissome beauty, crystalline domes, majestic dams, and brave structures of awesome spans. It is a discipline whose parameters are clear: how, with the least material and minimum effort, the heroic feats of force and span can be accomplished.

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## *Structural Expression in Architecture: An Historical Overview*

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But that was never the choice of architecture. In recent years, the role of structure has become more confused since architects themselves, intimidated by the bravura of the structural specialists and under pressure from the public gallery to do equally spectacular tricks, have tried to justify their work in structural terms. Techtonics, in fact, have so dominated our priorities and overwhelmed less tangible values, such as the traditional desire to bring a building into harmony with the cosmos by means of geometric proportion and orientation and to implant it with anthropomorphic symbolism, that in the last century we have reevaluated history as man's progress in materials and techtonics. Examples abound. They range from Viollet le Duc's attempt to redefine Gothic architecture in terms of medieval rationalism to the scientific rational approach of some of the most avant garde schools in the early part of the century, which scarcely bothered to teach history at all. We overlooked or conveniently forgot the fact that concrete had been around for several thousand years, that the arch and vault were in use long before the Romans, just as gunpowder and electricity had been known in ancient China, but used only as a source of amusement.

Looking at the historical record, it seems that innovation in itself was not as significant in human progress as the use to which that innovation is put. Thus our historians have mistakenly argued that the Gothic arch was an innovation in technique that brought forth a new exploration of the enclosure of spaces—but it was not. Instead it was a fashion brought back from the Crusades: the returning Normans introduced the already-ancient Saracenic arch into Europe as a decorative motif. It was taste, fashion, and the suitability of the form to the aspirations of the time that decreed its influence. Only incidental to that and much later was its structural potential realized. Structurally,

in fact, the Gothic arch was an afterthought in that its structural possibilities were thought about subsequent to its aesthetic ones. As an unbiased look at history will prove, not until this last century was there much concern at all for structural technique in the development of the styles. Before this, it was not an isolated discipline with its own intellectual terms of reference as it is now. Rather it was an unconscious tradition in building method that evolved through decades, even centuries, of collective experience. Techtonics were merely a means to achieve far more important goals in the interest of architecture as a whole.

For the Greeks who were the greatest of artists, structure was wisely of the least importance. Their Doric temples are constructed on a post-and-lintel structural system borrowed from early timber prototypes, a structure which is difficult to build in stone. For the Romans, who were the first real technicians, ingenuity in structure was such a source of embarrassment that they carefully hid masterful brick vaulting under a veneer of Greek trabeation. A Greek portico marks the entry to the Pantheon; its concrete dome spanning 141 feet (43 meters) was the largest clearspan structure for nearly 2,000 years. Much later in the Renaissance and Baroque periods, builders never bothered to surpass by much the structural mastery of the Romans, as they were primarily concerned with the rediscovery and celebration of earthly physicality, an anthropocentric conception of the world which viewed man's body as divine and felt that his proportions and physical attributes should be reflected in architecture. Later builders became caught up in the excitement of shaping new spaces, featuring floodlit interiors topped with illusionistic murals, stately staircases, and highly organized arrangements of rooms. It was only with the subsequent advent of Western industrialism and its consequent division of labor resulting in the specialization of knowledge, experience, and discipline that structure became an end in itself, and a kind of structuralism began to influence our thought.

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## *The Structural Aesthetic*

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Following the influence of the first engineers at the great 19th-century expositions, it was only in our time that a structural aesthetic began to assert itself in architectural style. At the beginning of the century the Russian constructivists with the sculptures, for instance, of Gabo or Tatlin's Monument to the Third International, the Italian futurists with the drawings of Sant'Elia, and the Dutch purists with the work of Rietveld, Oud, and





*The beams and columns supporting the Smith House are of the same width and section and similar in size and scale to the surrounding trees.*

the furniture of Van Doesburg reflected the new preoccupation with the aesthetic of structure. The Bauhaus, which was to move from Weimer and Dessau to America where innovation was a clearly frenetic pursuit, was to institutionalize it for good. The machine aesthetic celebrated by Mies and Corbusier still haunts us to the extent that even today at the very forefront of design the method of doing is more important than what is done. If it had not been for such miscreants as Wright, who wholesomely avoided that whole aesthetic trough, we might have lost the thread of architecture altogether. Today, having nearly reached the sterile end of that mechanistic pursuit, we sense that maybe the threads of architecture in its broadest human sense are about to be picked up again.

If one looks at the catalog of contemporary buildings, it is obvious that those of a predominantly structural bias are not, in the total sense, architecture. By illustration one can observe the buildings of Nervi where the dichotomy is clearest. No one questions the sheer aesthetic beauty of his structures—the bridges, the domes, the hangars—but one would expect that degree of structural taste and refinement from an engineer who is also Italian, because of the long history of Italian aesthetic sensitivity. However, on examination of his buildings, the flaws appear in all those aspects where the functions do not mandate

a large span, the aspects that have to do with the human occupation of these structures. The walls, partitions, doors, windows, handrails are unresolved, awkward, and not integral to the total scheme of the building—and a building falls short of architecture if it is not such a totality. The problem stems from the fact that a structural engineer rightfully thinks only of structure—that is his justification after all. If it is a dome, he is only concerned with the system of spanning that dome, how one enters or partitions or furnishes it is quite secondary, and Fuller's domes bear witness to that. Concentrating exclusively on one aspect of the program such as structure is a simplistic attitude which is not valid since there are a multiplicity of concerns to be answered.

Architecture is so much more complex. Not only must it answer questions of purpose, site, suitable spaces, technical systems, and materials in a totally integrated way, but it must be appropriately significant and meaningful in its physical and social context to those who use or observe it. Therefore, the structure is only one aspect of a more subtle and diverse whole—no more or less significant than the human skeletal frame is to the total of a thinking and feeling person. When all factors are balanced in architecture, no one aspect of a building stands out as unique, more important, or separate from the whole. If on seeing a building the response is “what an interesting