

# The Architecture of Use

Aesthetics and Function in Architectural Design



Stephen Grabow and Kent Spreckelmeyer  
Foreword by Juhani Pallasmaa

ROUTLEDGE

# THE ARCHITECTURE OF USE

Aesthetics and Function  
in Architectural Design

*Stephen Grabow and  
Kent Spreckelmeyer*



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## PREFACE: THE ART OF USE

This book is about the significance of ideas of human use in architectural design and a way to think about function in architecture from an aesthetic as well as a pragmatic point of view.<sup>1</sup>

In the classical definition of good architecture by the Roman writer and builder Marcus Vitruvius Pollio, three properties were singled out: *utilitas*, *firmitas*, and *venustas*.<sup>2</sup> These were translated and paraphrased in the seventeenth century by the English humanist Sir Henry Wotton as “commodity, firmness and delight” and later re-phrased by Geoffrey Scott.<sup>3</sup> Today we understand these terms to refer to the functional, structural, and formal aspects of buildings, and they still determine, individually or collectively, the basis of any critique or evaluation of architecture.<sup>4</sup>

Although Louis Sullivan, Frank Lloyd Wright, and the early European modernists tried to emphasize the importance of utility or human use as the organizing force behind a building’s form—later abbreviated as “form follows function”—today we tend to be more impressed by tectonics or spatial effects. In fact, the Finnish architect and scholar Juhani Pallasmaa, in a recent critique of architecture’s current drift toward self-centeredness, goes so far as to say that “not a single building has entered the history of architecture on its functional merits alone.”<sup>5</sup> It would perhaps be more accurate to say that the vast majority of architectural historians and critics tend to focus on structural achievements and technical details, on one hand, and spatial effects and formal composition, on the other. And yet the amount of time an architect spends on the functional requirements of a building is vastly greater than on almost any other aspect; and even the inhabitants or users of the building are primarily concerned with its utility.

Part of the problem lies in a narrowing of the definition of function in architecture since its emphasis by the early modernists.<sup>6</sup> At the end of the nineteenth century, when the effects of the Industrial Revolution caused many buildings to become obsolete, functional considerations emerged as a theoretically significant topic in the development of modern architecture—although they tended to be articulated from a mechanistic point of view. Right up to the Second World War, functionalist thought was associated with industrial development, scientific progress, and the utopian vision of a better world for tomorrow. After the war,

that vision became absorbed by economic development and corporate efficiency so that, today, the word “function” or “human use” conjures up rather mundane concerns like seating capacities, shelf heights, and counter widths.<sup>7</sup> Even a recent text on functionalism is presented from a theoretical and behaviorist perspective that not only discourages one’s interest in the subject but, in the end, tells us very little about the role of function in architectural design.<sup>8</sup> Such a narrow view of utility makes it very easy to dismiss the role of function in determining architectural form. By such a straw-man argument, it is indeed possible to understand the reason behind Pallasmaa’s assertion that no building has entered the canon of architectural history solely on its functional merit. In contrast to the passion with which aesthetic or structural analysis is frequently discussed, human use has gotten a bad rap.

Part of the problem also lies in the absence of a stimulating descriptive vocabulary for human use, especially when compared to aesthetic discourse. The clarity of structure and the beauty of form are obviously visible attributes: they are perceived directly through some gestalt formation in the cognitive processes of the brain. The appreciation of utility—and of human use in general—appears to be more of an intellectual experience, like reading literature, although we argue in this book that a much deeper and more nuanced definition of function than is commonly used today results in a wider and more stimulating level of discourse, analysis, and appreciation. Just as the abridgement of language by the use of acronyms results in a certain abridgement of thought, so the abridgement of function results in a certain and deadening abridgement of human experience in buildings.

The primary purpose of this book is not to rewrite modern architectural history from the standpoint of function or utility. It is, rather, to clarify the role of function in architectural design by focusing on ten examples of buildings that, because of their extraordinary functionality, contradict the canon of architectural history. Although anyone familiar with twentieth-century architecture will know many of the buildings we analyze—indeed, half of them are among the most famous—they have not generally been presented from the standpoint of how they are used. Our goal is to expand the definition of human use by re-evaluating these buildings from the perspective of a *dialectic* and *aesthetic* functionalism. In the concluding chapter, we include more recent, contemporary examples of successors to these ten buildings.

We believe that good architecture—indeed, great architecture—derives from a deep and profound sense of human use—one that encompasses the full spectrum of meaning, from expediency to timelessness, from economy of means to individual expression, and from efficiency to transcendental human experience.

We understand that modern buildings have evolved from the necessities of complex and constantly changing economic, social, and technical demands. In that sense, these examples represent a range of building uses, each with its own specific functional requirements and limitations. The examples are of buildings

that support activities as diverse as health care, office work, institutional housing, commerce, recreation, scholarship, worship, performance, art, and residential life. At the same time, however, this is not a book about “building types.” Rather, each building is presented as an exemplar of architecture that reaches beyond the pragmatic concerns of a narrow program and demonstrates how functional concepts can inspire great design.

We look not only at the degree to which the desired activity is facilitated by the building’s design but at the quality of that facility in terms of sensory experience and the extent to which it enhances, illuminates, or celebrates the activity. We look at the degree to which the design has the capacity to evoke some fundamental, archetypal human experience that the building re-creates in the user and thus transcends mere utility. Just as great art creates new needs, great buildings create new experiences. Writing of the Brooklyn Bridge, for example, Walt Whitman said it was so much more than a way of uniting two pieces of land, and David McCullough, on walking across the bridge, said “it makes one feel good about being alive and part of the human race.”<sup>9</sup> Thus, we ultimately seek here to understand how architecture embodies the deeper purposes and meaning of the life world.

Finally, we hope that this book can serve as a reference for, a guide to, and an inspiration in the design process. We anticipate that it will be useful to all those concerned about how buildings evolve from an understanding of the complexities of human experience. This book is also directed to the many practitioners of architecture who are attuned to the thousands of details that are necessary to make a building work well, only to read about some new, highly publicized avant-garde building that leaks before it has even opened or that looks better empty than with people in it; to the many students of architecture who find functional analysis to be the boring part of design rather than the most challenging and creative; to the critics and historians of architecture in the hope that they will have a richer vocabulary with which to focus more on human use in analyzing buildings; to the clients of architects, who are too easily influenced by the eye candy of the avant-garde; and finally, to the memory of the great architects who designed the ten buildings that we analyze—as well as to their contemporary successors. Without their efforts, there would be no point to make.

Stephen Grabow and Kent Spreckelmeyer  
Lawrence, Kansas  
February 2014

Notes

- 1 For a lucid introduction to the parallel idea that function and aesthetics are complementary rather than mutually exclusive, see Robert Geddes, *Fit: An Architect's Manifesto* (Princeton: Princeton University Press, 2013).
- 2 Vitruvius, *The Ten Books on Architecture* (Cambridge: Cambridge University Press, 1999).
- 3 Sir Henry Wotton, *The Elements of Architecture* (London: John Bill, 1624; reprint, Charlottesville: University of Virginia Press, 1968); Geoffrey Scott, *The Architecture of Humanism* (London: Architectural Press, 1980).
- 4 See Leland M. Roth, *Understanding Architecture* (Boulder: Westwood Press, 2007), 11–102.
- 5 Juhani Pallasmaa, “From Metaphorical to Ecological Functionalism,” *Architectural Review* 193, no. 1156 (June 1993): 77.
- 6 Larry Ligo, in his *Concept of Function in Twentieth-Century Architectural Criticism* (Ann Arbor: UMI Research Press, 1984), 8, says that “the literature of functionalism before the twentieth century generally dealt with the relation between function and beauty in form; beginning in the twentieth century, aesthetic criteria have been abandoned and functionalist writing tends to deal rather with value or worth of buildings ... with function as an end in its own right rather than a means to an end.”
- 7 Although Ligo argues that the early mechanistic view of function has largely been replaced by such esoteric concerns as social, psychological, and cultural representation and meaning in built form—but primarily for architectural critics—as opposed to what we are calling “human use.”
- 8 See Jon Lang and Walter Moleski, *Functionalism Revisited: Architectural Theory and Practice and the Behavioral Sciences* (Aldershot: Ashgate, 2010).
- 9 Ken Burns, dir. *Brooklyn Bridge* (PBS Video, 1981).

# FOREWORD: THE USE OF ART

*by Juhani Pallasmaa*

During the last couple of decades, architecture has frequently been regarded as another form of visual art, a kind of sculpture on a grand scale. Today's computer-aided formalism is at the service of the visual image, and it suppresses the functional, tectonic, and existential dimensions of architecture. Yet, all art forms have their specific essences and ontologies that constitute their philosophical and experiential backbones.

In his book, *The ABC of Reading*, Ezra Pound emphasizes the significance of origins for the arts: "Music begins to atrophy when it departs too far from the dance ... poetry begins to atrophy when it gets too far from music."<sup>1</sup> The poet's remark focuses on two simultaneous matters: the primordial connections between art forms, on the one hand, and the importance of specific ontological ground for each art, on the other. Each art form has its own beginning as well as internal motivation and logic: that is to say, every art form arises from a particular human act or manifestation or set of experiences, and if the art in question loses its connection—its umbilical cord, as it were, with its own beginning and essence—it loses its life force and impact.

Human use and specific purposefulness is constitutive of the art of building. Architecture arises from purpose, not from a desire to make an aesthetic object. Architecture has fundamentally a multiple essence in being utility and expression, technique and metaphysics, reason and poetics, aesthetics and existential concerns, all at the same time. In fact, architecture is an "impure" category of art due to these conflicting and irreconcilable aspects. Besides, it is both an end and a means at the same time: an end in terms of being an autonomous existential metaphor and proposition of human existence, and a means in being a vehicle for various human purposes, both practical and mental. This very duality produces a curious paradox: architecture is an art form at the same time

that it is not, depending on which side of the phenomenon we are looking at—the existential or the instrumental.

Owing to the inherent multiplicity of the architectural phenomenon, any reductive view of the art of building flattens it into a spiritless practicality, a crude economic activity and technological practice, or shallow visual titillation. In short, in our consumerist age, the feasibility of architecture as an authentic expression of culture and mental human reality is threatened by two opposite tendencies: instrumentalization and aestheticization. The former turns architecture into a vulgar utility, the latter into a formal game that seeks an effect through unforeseen visual imagery and novelty. In both cases, the essential ontological echo of its origins, purposes, cultural and mental meanings, as well as its traditions, is lost. In order to touch the human soul, architecture needs to speak of its human purpose, cultural motives, and structural and material essences, as well as of human destiny. Every profound piece of building has a deep, epic echo.

During its first decades, functionalism was also called “rationalism,” “neo-rationalism,” and the “new objectivity”; Alvar Aalto also used the terms “new realism” and “functional architecture.”<sup>2</sup> All these alternative concepts emphasized the importance of reason over convention and emotion, practicality over style, and clear judgment over preconception. In its most extreme materialist form, functionalism turned into an equation of pure reason, as in Hannes Meyer’s ultra-materialist formulation “Architecture = Function × Economics.”<sup>3</sup> In fact, here reason turns into irrationality and doctrine. Even the young Aalto regarded architecture as a “non-synthetic” practice arising from functional and physical facts through reason, and he called the architect “a social administrator.”<sup>4</sup> However, only a decade later, he already saw architecture as a synthesizing activity: “Architecture is a synthetic phenomenon,” he said, “covering practically all fields of human activity.”<sup>5</sup>

Shortly after his brief, orthodox functionalist phase, Aalto saw that it was not rationalization of the functional and technical aspects of architecture that was wrong with rationalism but the fact that rationalization had not been taken far enough to include the experiential, psychological, emotional, and mental spheres of architecture and life. He introduced the notion of “extended rationalism” in reference to a rational approach to design that includes the usually hidden dimensions of subtle human behavior, ergonomics, and psychological reactions. Aalto’s notion extended the methodical idea of functionalism into the mental realm, and we could also call this approach a mental or psychological functionalism.

In his 1940 essay, “The Humanizing of Architecture,” Aalto explains his newly formulated philosophy of humanist functionalism as follows:

An object in the architectural field may be functional from one point of view and unfunctional from another. ... If there were a way to develop architecture step by step, beginning with the economic and technical aspects and later covering the other more complicated functions, then the purely technical functionalism would be acceptable; but no such

possibility exists. ... It is not the rationalization itself that was wrong in the first and now past period of modern architecture. The wrongness lies in the fact that the rationalization has not gone deep enough. Instead of fighting rational mentality, the newest phase of modern architecture tries to project rational methods from the technical field out to human and psychological fields. ... Technical functionalism is correct only if enlarged to cover even the psychophysical field. That is the only way to humanize architecture.<sup>6</sup>

Another decade and a half later, Aalto comments again on the logically impossible task of architectural design that arises from a contradictory ground and on the role of synthesizing a poetic response in resolving the dilemma: "In every case [of design]," he said:

[O]ne must achieve a simultaneous resolution of opposites. ... Nearly every design task involves tens, often hundreds, sometimes thousands of different contradictory elements, which are forced into a functional harmony only by man's will. This harmony cannot be achieved by any other means than those of art.<sup>7</sup>

Architectural functions and purposes can be viewed and defined in various ways, from the strictly practical and measurable studies of functions, such as movement patterns in kitchen work, to the ergonomic, sensory, and experiential effects and qualities, and, finally, to the emotive, symbolic and existential characteristics and tasks of architecture. We do not only design and build for practical purposes; we also construct our mental world and give it a specific sense of order. As Amos Rapoport argues, for example, material and physical determinants have never in human history defined architectural forms, as they are always primarily cultural products and consequences of beliefs and desires more than knowledge.<sup>8</sup> Gaston Bachelard argues wisely: "Our house ... is an instrument with which to confront the cosmos."<sup>9</sup>

In fact, it is possible to expand the concept of function to cover all purposes and intentions. However, for the sake of clarity of thought, it is advisable to separate practicalities of use from the mental motives and impacts that frequently take place beyond the threshold of our conscious observation and awareness. Profound architecture always achieves more than it is set to accomplish.

Nevertheless, humane architecture—architecture that possesses the capacity to dignify life and give it specific existential and mental meanings—arises from a seamless synthesis of the material and mental, practical and symbolic, purposeful and experiential, conceptual and lived. As Aalto suggests, it is the artistic aspiration and poetic sensibility that can bring this unexpected and logically impossible synthesis about. Profound architecture is always a miracle and a gift.

Our culture seems to regard itself as a rational age, and yet we are driven by aspirations and beliefs that are highly irrational, such as the ideologies of perpetual

growth, consumerism, and the hegemony of global business hiding in the disguise of the concept of freedom and democratic decision making. Contemporary architecture is usually presented as a search for unprejudiced solutions liberated from style and convention. Yet the dominance of style, aestheticization, and arbitrariness of the architectural logic today is as evident as ever in history.

This book by Stephen Grabow and Kent Spreckelmeyer on the centrality of use in architecture and its generative role in form making is a highly welcome antidote to the over-intellectualized or mystified theories and self-centered form making that frequently characterize architectural education and journalism today. In contrast to the recent pretentious theorizing, there is “a natural approach to architecture,” a view of design that arises directly from its very task and timeless traditions. As Jean-Paul Sartre argues, “Understanding does not enter human reality from the outside, it is its very mode of being.” Similarly, architectural form and meaning arise from the very reason and purpose of building and its internal disciplinary wisdom.<sup>10</sup> Architectural meaning is not invented; it is lived, and it arises from a sense of life.

### Notes

- 1 Ezra Pound, *ABC of Reading* (New York: New Directions Paperback, 1987), 14.
- 2 See Juhani Pallasmaa, “Alvar Aalto: Toward a Synthetic Functionalism,” in *Alvar Aalto: Between Humanism and Materialism*, ed. Peter Reed (New York: Museum of Modern Art, 1998), 40, n4.
- 3 Hannes Meyer, “Building” (1928), in *Hannes Meyer, Buildings, Projects and Writings*, ed. Claude Schnaidt (Teufen, Appenzell Ausserrhoden, Switzerland: Arthur Niggli, 1965), 94.
- 4 Alvar Aalto, interview in *Nidaros* (June 28, 1930, Trondheim, Norway), quoted in *Alvar Aalto: The Decisive Years* by Göran Schildt (New York: Rizzoli, 1986), 195–196.
- 5 Alvar Aalto, “The Humanizing of Architecture,” *Technology Review* 43, no. 1 (November 1940): 14–16, reproduced in *Alvar Aalto: Luonnoksia* [Sketches], ed. Göran Schildt (Helsinki: Otava Publishing, 1972), 75.
- 6 Ibid., in Schildt, *Alvar Aalto: Luonnoksia*, 75–78.
- 7 Alvar Aalto, “Art and Technology,” lecture at the Academy of Finland, 1955, in Schildt, *Decisive Years*, 87–88; translation by Juhani Pallasmaa.
- 8 Amos Rapoport, *House Form and Culture* (Englewood Cliffs: Prentice Hall, 1969).
- 9 Gaston Bachelard, *The Poetics of Space* (Boston: Beacon Press, 1969), 4, 46.
- 10 I am referring here to Milan Kundera’s notion “the wisdom of the novel,” which all good writers listen to, as Kundera wisely argues in his book, *The Art of the Novel* (New York: Harper Collins, 2000).

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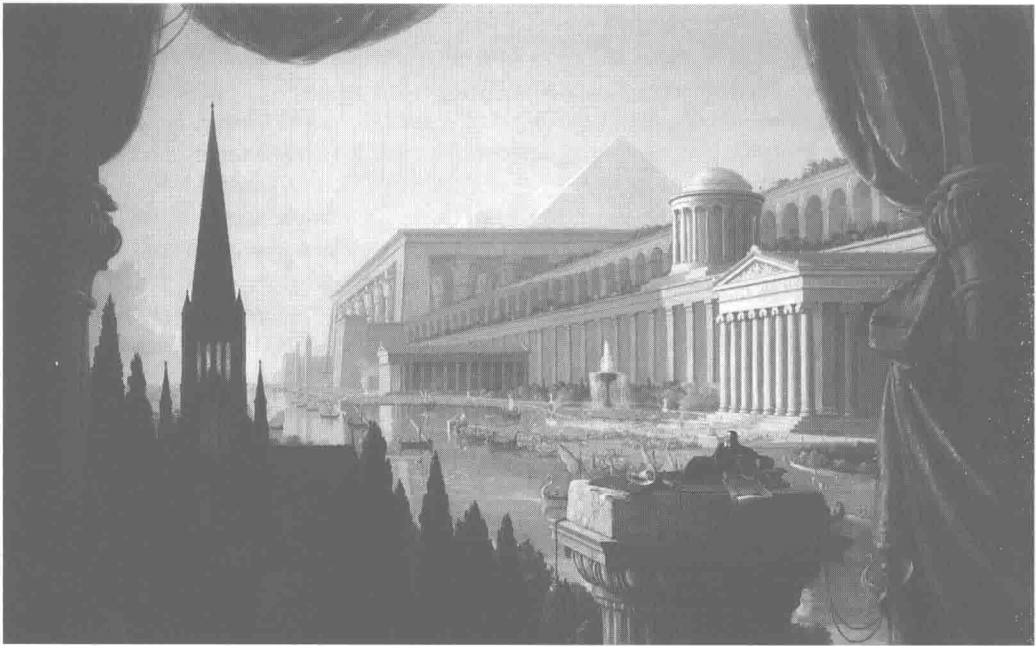
# THE ARCHITECTURE OF USE

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1.1 Thomas Cole, *The Architect's Dream* (1840)



1.2 Brinkman & Van der Vlugt, *Van Nelle Factory, Rotterdam*

# CHAPTER 1

## INTRODUCTION

At the end of the nineteenth century, the challenges facing the field of architecture were so deep that by the first decade of the next century, a new paradigm had emerged. Although the rise of modern architecture is often attributed to the invention and fascination for new building materials, new structural techniques, and new methods of construction associated with the early machine age, it was actually the changes in *human* activity brought on by industrialization that necessitated those inventions. Many of the buildings in which modern architecture was first expressed—such as large factories and warehouses, train stations and tall office buildings—did not even exist prior to the Industrial Revolution. Likewise, a host of social, economic, and environmental problems gave rise to the profession's need to create a better world for the mass of people crowded into the industrial city.

### The Legacy of Functionalism

Human use—or function—has always been a fundamental determinant of architectural form, but in the first decades of the twentieth century, the truthful adaptation of a building's form to its purpose had become the principal idea with which the early proponents of modern architecture criticized the technical and aesthetic foundations of the prevailing, neoclassical paradigm. Consequently, modern architecture—especially the so-called international style associated with the Bauhaus—became identified with “functionalism.” Edward De Zurko, in his now-classic *Origins of Functionalist Theory*, defines functionalism as those theories of architecture “which make adaptation of form to purpose the basic guiding principle of design and the principal yardstick by which to measure the excellence or the beauty of architecture.”<sup>1</sup> Although this idea is closely associated with the modern movement, De Zurko reveals not only its antique origins (in Plato and Aristotle, philosophically, and in Vitruvius and Alberti, artistically) but its historical persistence as well (in Aquinas, Bacon, Goethe, and Ruskin to Sullivan, Wright, Le Corbusier, Gropius, and the Bauhaus).

Functionalism in the twentieth century, however, because of its attachment to industrialization—and to mechanical analogies—was open to early criticism.

Lewis Mumford, in 1921, criticized early modern buildings for possessing only the “visual illusion of functionalism without achieving a truly functional architecture.”<sup>2</sup> Then, referring to some of the kitchen research done in Frankfurt in the late 1920s, he attacked the narrow, mechanistic definition of function derived from the industrial assembly line. Mumford, however, accepted functionalism as a basic design principle; his complaint was with the narrowness of its concerns. “It means,” he said, “that the time has come to integrate objective functions with subjective functions: to balance off mechanical facilities with biological needs, social commitments, and personal values.”<sup>3</sup>

More recently, Stanford Anderson has argued that the functionalism of modern architecture is perhaps a “myth”—that, at most, modern buildings are only metaphors of functionality; that is, they tell stories about function by using industrial details that allude to mechanical precision and efficiency.<sup>4</sup> In this he agrees with William Curtis, who, in his survey of *Modern Architecture since 1900*, claims that the “myth of functionalism” derives from the fact that functions alone do not generate architectural form; rather, they can only be translated into form and space through the screen of style.<sup>5</sup> In the case of modern architecture, the international style consisted of symbolic forms derived from industrial aesthetics, including mechanical principles of composition such as simple geometrical shapes, perfection of surfaces, and modular proportions.<sup>6</sup> Even Christopher Alexander, who in the 1960s and 1970s probed into the functional origins of a building’s form more deeply than perhaps any theorist, concluded that functional expression alone could not account for the generative power of architectural form—rather, that a building’s functional requirements are only the embodiment of a deeper, more fundamental geometrical order that unites structure and function into an aesthetic whole.<sup>7</sup>

The critique of functionalism is thus threefold: first, that a building based purely on programmatic requirements—such as that espoused by only the most radical functionalists such as Hannes Meyer of the Bauhaus—is a rather jejune formulation of architectural design; second, that functional expression can easily lapse into symbolism without actually satisfying human needs and requirements; and, third, that even when programmatic requirements are fulfilled, it is often within a narrow, mechanistic view of function.

After the Second World War, this so-called metaphorical functionalism, as Curtis observed, became easily absorbed into the mainstream of mass consumerist values. “Functionalist discipline,” he says, “became confused with the instrumental purposes of real estate ... and what had started as an alternative dream was absorbed by an all too dreary status quo.”<sup>8</sup> In part, this can be attributed to the economic success of modern building technologies and the degree to which these processes served the narrow interests of developers, governmental bureaucracies, and industrialists. Simply put, early modern buildings were cheap to build, easy to regulate, and facile to replicate. This simplicity translated into an aesthetic sterility and monotony that quickly became the symbol of the modern movement. Stripped-down and flimsy versions of Le Corbusier’s vertical neighborhoods

have become blights in every city in the world. Healthcare factories have replaced Alvar Aalto's vision of healing machines, and contemporary architects struggle to convert them into places for human caring and comfort. Ludwig Mies van der Rohe's commercial high-rise has become both a totem of capitalist success as well as a hermetic container for the corporate workforce. And finally, Walter Gropius's vision of rational urban planning and cooperative design processes has become ossified in the language of building codes and zoning ordinances.

### Going after the Avant-Garde

Today, postmodern, deconstructivist, and avant-garde theorists and practitioners reject the functionalist premise of modern architecture—indeed, of modernism itself—on the grounds that it celebrated cold efficiency, rational organization, and an aesthetic of inhuman machinery in the service of a “bland and uniform technocracy” of corporate capitalism.<sup>9</sup> In a wild swing of the pendulum, contemporary architectural thought, as Juhani Pallasmaa has observed, has become predicated on pushing aside the functional and utilitarian dimension of architectural form in favor of a sweeping cultural critique, “rather than a response to a social commission”:

The architecture and art of the closing decade of the second millennium have become so self-referential, so concerned with their own existence and self-definition that today art seems to be about works of art instead of being about the world, and architecture about buildings, not about life. Both deal more with the philosophical issues of representation than with their contents. The functional and utilitarian dimension of architecture has been pushed aside.<sup>10</sup>

Many avant-garde buildings share the visual characteristics of fragmented, fractured, colliding forms that ostensibly reflect society's increasing fragmentation, violence, and disorder. Its proponents disavow the so-called rationalism of early modernism (and its continuing influence on the established order) as obsolete and irrelevant in a world of increasing change, complexity, and uncertainty. In addition, their political gripe with modernism is that its chief practitioners—architects including Gropius, Mies van der Rohe, and the successors of the international style—ended up celebrating corporate capitalism under the guise of functionality and industrial-age hygiene. And whatever the modernists revered in their attempt to reconcile art and industrialization—above all, order, modular coordination, hierarchy, Platonic geometry, unity, and harmony—the avant-garde rejects as an outmoded nineteenth-century ideal that results in dead, white boxes. By contrast, their forms are described by critics and publicists as bold, challenging, provocative, dynamic, and explosive. They evoke uneasiness, impermanence, displacement, and restlessness in the observer, and above all, they are visually arresting. Their stand-out appearance in the urban landscape is