“Theory is essential in order to cultivate a practice capable of dealing with the complexity of reality.”
“[Since] the purpose of writing… is a continual process of clarification,… [it should be considered] part of the practice of architecture (something that happens alongside drawing, building, or teaching).”

Introduction: Practice versus Project

Two persistent themes appear [in my writings]:
1. Architecture as technique… (the materials and procedures of architecture itself constitute a rich cultural matrix, capable of sustaining dense intellectual argument without recourse to concepts and language borrowed from other fields)…
2. A preoccupation with the mediated techniques of representation with which architects conceive and realize their work…

The practice of architecture tends to be messy and inconsistent, precisely because it has to negotiate a reality that is itself messy and inconsistent… Against this landscape of contingency, architectural theory has been called upon to serve a unifying function. “Without a larger ideological framework,” it is argued, “the architect runs the risk of reacting passively to the multiple and often-contradictory demands of context, clients, regulating agencies, media, or economics”… [At its most basic, the architectural] project is an overarching theoretical construct, defined from ‘someplace else’, and expressed in language other than practice’s everyday discourse… The appearance of the architectural treatise in the Renaissance, for example, where normative codes were, for the first time in the post-classical era, set down in written form, marked a shift from the ‘ambulant science’ of the medieval builder… A place for abstract thought about architecture, governed by the codes and conventions of discourse, was delineated apart from the building site… Theory’s promise is to make up for what practice lacks: to confer unity on the disparate procedures of design and construction… [But what actually occurs is that] the possibility of cumulative or incremental change from within is held in check… Theory tends to protect practice, while practice excuses theory from the obligation to engage reality. Design is reduced to the implementation of rules set down elsewhere… But the abstraction of theory from practice is a fiction… Theories and practices are continuously produced in definable spaces, by active, conscious subjects…

Practice needs to become more structured, and at the same time more tractable… [It needs to become] a rigorous forward movement, capable of producing new [theory] out of the hard logic of architecture’s working procedures… (ironically, practice… will discover new uses for theory only as it moves closer to the complex and problematic character of the real itself)… There is no theory, there is no practice. There are only practices (agency and action)… Hermeneutic practices (devoted to interpretation and the analysis of representations [pointing towards the past]), and material practices (which transform reality by producing new objects or new organizations of matter [analyzing the present and projecting to the future])…

Conceived as a material practice, architecture achieves a practical… unity inferred on the basis of its ensemble of procedures… It does not necessarily respect precedent, but simply bypasses outmoded working strategies… Such a notion of practice maintains a deep respect for history, and for architecture’s past,… but is never satisfied to simply repeat… a system of rules defined elsewhere… Under the pragmatics of practice, the fixed structure of the discipline is neither rejected nor affirmed. It is subject, not to critical ‘interrogations’, but to an ‘erotics of doubt’… To claim that architecture is a material practice, working in and among the world of things,… is not to lose sight of architecture’s complicated compromise with techniques of representation. Architects… necessarily work through the mediation of systems of representation… (a promiscuous mixture of the real and the abstract: at once a collection of activities characterized by a high degree of abstraction, and at the same time directed toward the production of materials and products that are undeniably real)… To understand representation as technique,… [we must pay active] attention to the… ‘translations’ between drawing and building… [One must also embrace the] larger flow of images that circulate in complex and uncontrollable ways… [Beyond their representation as] ‘treatises’, ‘catalogs’, ‘journals’, ‘conferences’, ‘articles’…

Michel de Certeau employs the figure of the walker in the city to describe the errant trajectories of everyday practices among the systematic space of the ‘proper’… The long poem of walking [always involves] spatial organizations, no matter panoptic they may be… (it can only take place within them;… it does not receive its identity from them)… [And,] just as the active citizen might manipulate and reconfigure the space of the city,… so too creative intellectual operators can put into play the rigid codes of inherited ideological systems. [Practices should be performative]…
Constructing with Lines: On Projection

Many discussions of drawing begin with the classical legend of the origin of drawing... Diboutades, daughter of a Corinthian potter, traces with charcoal the outline of the shadow cast by the head of her departing lover... The fullness and physicality of the body is reduced to a 2-dimensional linear abstraction. The tracing works as a substitute, an incomplete image to recall something lost...
The drawing records in abstracted form something that already exists... In architectural drawing [, however,] its object is not prior, but immanent (not something that once was and is no longer present, but something not yet present). Buildings are both imagined and constructed from accumulated partial representations... It is important to pay close attention to the 'transactions' between the culture of drawing and discipline of building... [as pointed out since Vitruvius] the architect must simultaneously inhabit both worlds... [In architecture,] geometrical constructions... only indirectly concern the visual,... [but allow] space itself to be measured and precisely represented... Design is not visualization,... but rather the manipulation of highly abstract devices... that serve to describe and construct the space... That which a practicing architect might reasonably ask for in representation is not a perfect match between the object and its representation, but rather to accept the impossibility of an accurate transcription of vision as a fundamental starting point... [Thus,] the work of representation can be understood as a series of provisional strategies... to negotiate difference... It follows that the exercise of representation in architecture always necessitates an active effort of geometrical imagination... to synthesize these always-multiple and always-incomplete representations (the complex process imperfectly referred to as 'reading' drawings)...

Within the logic of the system of perspectival projection, there exists the possibility of reversal... The appearance in the 17th century of 'aberrations' within projective systems marks an important shift in the understanding of perspective... [In projections,] simply tilting or wrapping the screen... [has] the effect of introducing distortion into the image. This exaggerated distortion of 'anamorphosis'. makes the construction visible (the artifice is no longer hidden, and perspective can no longer be understood as the natural outcome of vision)... No projection is [thus]... natural, scientific, and objective, [but is rather] the product of active subjectivity and the construction of illusion through 'irrational' means...

"Suprematism... has extended the apex of the finite visual cone of perspective into infinity." [El Lissitzky; 1925] [In axonometric projection, an] infinite extension in depth coincides with the subject's privileges of self-location (the viewing subject and the object of representation both inhabit the same extended field)... By extending the vanishing point to infinity, constructions are rendered at one and the same time flexible (instrumental point of view) and universal (philosophic point of view)... Axonometric... was the ideal tool to delineate the avant-garde's vision of a new world... Yet in the approach of... early-20th-century abstract painters... ('non-objective' artists)... a curious contradiction emerges... [While they wanted] the objectivity of science to counter the traditional concept of the artist,... [they] preserved for art its traditional capacity to make the infinite and the unmeasurable visible and concrete... [Here], instrumentality works against the symbolic, and a new metaphysics of infinite space works against the instrumental...

Parallel projection [(which encompasses the 'axonometric')] appears whenever questions of measurability, prediction, and verifiability arise... In the 18th and 19th centuries, axonometric drawing was taught in engineering schools, and its development was closely related to mechanization and industrialization... In architecture, axonometric representation [was a logical subsequent step to] descriptive geometry... [since its origins,] axonometric projection... does not pretend to 'map vision'. It is concerned instead with construction and consistency of measurement. The technical difference between perspective and axonometric is the absence of a vanishing point. The projectors do not converge, but, rather,... they are parallel... (the vanishing point is located at 'infinity'... [Axonometry seems] to render space more open, and extensive,... [and this is what led to the possibility of mapping] a new condition of vision)... Because the axonometric object is distanced from the viewer,... it can be freely rotated, dismantled, or reconstructed. [Thus,] axonometric drawings lend themselves to the multiplication of views in an effort to describe the complex totality of the object... (geometry's ideal objectivity)...

Writing in 1936, Husserl signaled the special capacity of geometric concepts to exist independent of any particular representation... (geometry exists prior to history, circumstance, or any particular instance of its expression)... As opposed to the multiplication of languages and the splintering of signs,... Husserl looks for a notion of language grounded in universal geometries and ideal formations (geometry as a model for language, and not language as a model to describe geometry)... The abstraction of geometry [(deep meaning)] makes it [available to everyone]... Architecture tends, in theory, towards Husserl's ideal objectivity. Yet in practice this perfect smoothness proves unattainable. The abstraction of architectural drawing is as much a product of its instrumentality as a result of contact with the origins of geometry... [Even axonometric representations are] an 'ultimate illusion' in the 3d space... [Traditionally, in axonometric design,] the classical symbolism of measurable figurative space is simply exchanged for new symbolism of infinite abstract space... The privilege of the viewing subject [remains]... [Even in] recent practice (the projections of Daniel Libeskind or the axonometric models of Peter Eisenman, for example)... [we are left with] representations that... only refer to other representations... [Architecture cannot ignore its] instrumental capacity... to engage the 'social'...

Montage works with surfaces and images. Its construction [does not try] to model depth... Place is created out of fragments distant in time and space. Montage, unlike abstract painting, does not turn its back on the world, but instead immerses itself in the experiences and products of modernity (mass-media images, the disjunctive experiences of the city, the anonymity of the crowd, the impersonal products of the machine)... The 'montage eye' [, produced by the early modern metropolis, constructs] a new reality out of the barrage of fragmentary, contradictory, and obsolete information that characterizes the modern city... [It is assisted
by the machine [, but also threatened [by it]]... Technology extends and supplements the inadequacies of body... In montage practices,... it is not elements that are significant (it is the space in-between that defines a potential depth)... Montage works with visuality, on the surface of things,... on a 'screen of signs'... (between retina and world is inserted a screen consisting of all the multiple social discourses)... [It is possible for] geometries to become thematic to [architectural] work... But in order to carry the project to its logical conclusion, architecture must give up its ability to intervene in the world... (the scope of architecture would be drastically reduced)... [Such approaches also] ignore the tactical mobility of drawing practice (projection is an active condition, bound up with the agency of the creative subject on the one hand, and the complex history of architecture's techniques on the other)... [Even] postmodern practice [has not managed to negate] geometry's authority... Its visual paradigms... often recapitulate obsolete, 'exhausted' visual practices... [Contemporary representations must be] willing to bring projects and proposals into direct confrontation with the complexity of the real...

Mapping the Unmappable; On Notation
There are those who claim that the sense of work in architecture... resides in the design rather than in the realized building... In this view, architecture can only be diminished by the exigencies of construction, compromised by the complexity of realization... Others have argued that only the realized work has meaning... [Both of these views] share a notion of drawing as pure abstraction, disconnected from reality... I would argue instead that architectural drawing is in some basic way impure, and unclassifiable. Its link to the reality it designates is complex and changeable... Drawings are, to some degree, scaled-down pictures of buildings. But to think of drawings as pictures cannot account either for the instrumentality of architectural representation nor for its capacity to render abstract ideas concrete. Architectural drawings work notionally [, beyond representation] (like musical scores, texts, or scripts)... The drawing as artifact is unimportant. It is rather a set of instructions for realizing another artifact... The products of notation do not necessarily resemble the notation itself. Notations are 'abstract machines' capable of producing new configurations of given materials. They work across gaps of time and space, but they are not 'universal' (transposition, rather than translation)...
[Also, consider that the total] experience of architecture can never be effectively simulated or predicted by representational drawing...(consider the effects of light and shadow, reflections, shifting atmospheres, the movement of the spectator, or the intricacies of peripheral vision)... Paradoxically, [the less representational the drawings, the]... better they are to anticipate the complexity and unpredictability of the real...

In his extensive discussion of the question of notation, philosopher Nelson Goodman distinguishes broadly between 2 types of art forms. He calls 'autographic' those arts, like painting and sculpture, that depend for their authenticity upon the direct contact of the author... [Those arts, however,] where the work exists in many copies and can be produced without the direct intervention of the author, he calls 'allographic' [(music, theater)]... [In allographic works, authenticity is provided, not by] contact with the original author, but by the internal structure of the work... Functionally, allographic arts depend upon notational practices [, since the works are ephemeral or intricate]... Goodman emphasizes that architectural plans function as notation to the extent that they combine graphic information with measurements and specifications (drawings become notations, diagrams, precisely at the moment at which numerical and textual information is added to the exclusively visual)... But architecture is neither clearly allographic or autographic... [In architecture,] notational language was developed in response to participation of many hands in construction... [In architecture,] drawings... [are not] simply transparent technical instruments. [A unique characteristic of] the architectural drawing is [that it is] transitive in nature... ([it produces] something new from something else [, as opposed to something independently new])... [A related issue is that] architectural drawings are marked by their contact with a messy and inconsistent reality... The continual shuttle between the abstraction of architecture's graphic instruments and the unyielding concreteness of the building [is what] defines the work of the architect...

Traditionally, as the city grows more complex, the novelist is still able to give a coherent account of the incoherent city... But in more recent fiction, the city ceases to be readable. The modern city has gone out of control... The text of the city... can no longer be read in any coherent or predictable manner... In order to see the contemporary urban world clearly,... we must be able to see past the fiction of continuity, of cause and effect, of humanized history endowed with 'reason'. Structural categories are meaningless deceptions themselves... Today the technologies of communication, information exchange, and war, along with the economies of multinational capitalism and global commodity exchange, have produced a condition in which the urban site is no longer simply geographic... As Paul Virilio has pointed out, "the representation of the contemporary city is no longer determined by a ceremonial opening of gates, by a ritual of processions and parades, nor by a succession of streets and avenues. From now on architecture must deal with the advent of technological space-time." One consequence of this has been the marginalization of the discipline of architecture itself... [the] "architects are not the engineers of the 3 great variables: territory, communication, and speed." [Michael Foucault] Architects seem condemned to work on the surface of the city and not its structure... [But this does not mean that] architects are left to work exclusively with images. It is possible to accept the reality of this new condition, and to creatively reinvent the tools of the discipline in order to meet new challenges... New urban phenomena... [are reflected] only in the most indirect and mediated form. In order to map this unmappable territory, the conventions of representation itself need to be rethought... New tools [must be developed] to work more effectively within the new immaterial networks... Architects need representational techniques that engage time and change, shifting scales, mobile points of view, and multiple programs. [They must also be aware that] in order to map this complexity, some measure of control may have to be relinquished... [In a notational activity, one might include] the score, the map, the diagram, and the script... (the score allows for the simultaneous presentation and interplay of information, the script allows the designer to engage program event and time,... new maps and diagrams might begin to suggest new ways of working with complex dynamics)... [these strategies might allow us] not only to take the measure of
the already existing complexity of the new urban field, but also to intervene productively… Notations always describe a work that is yet to be realized ([optimistic and anticipatory]). Even if already performed, the work it describes is open to interpretation and change in the course of future performance… ‘critical’ practices [typically] utilize notation’s discursive capacities only in retrospect (pointing out what is wrong with existing reality), whereas notation’s more radical possibility lies in the possibility of proposing alternative realities. Notation… [when] exploited,… can produce a kind of ‘directed indeterminacy’ (proposals that are robust and specific enough to sustain change over time, yet open enough to support multiple interpretations)…

Invisible: Notations go beyond the visible to engage the invisible aspects of architecture… (phenomenological effect;… program, event, and social space)… The use of notation marks a shift from demarcated object to extended field.

Time: Notations include time as a variable… [This is specially important, since] the life of the city and its experience today belongs more to time than to space,… (interval, duration, and tempo, acceleration and accumulation)…

Collective: Notations presume a social context, and shared conventions of interpretation… [They are meant to be communicated, and thus] cannot be a private language… They could function to map the complex and indeterminate theater of everyday life in the city…

Digital diagrams: Notations work digitally… [The digital, as opposed to the analog, is discontinuous. This allows notations to be understood as tools in the] shift from machines of production to machines of reproduction…

It is important to[note that this is not merely a text about] techniques of representation… Architecture itself operates as a representational system… Deconstructionist theory has merely been able to register the instability of the system through representations of instability (this is inadequate)… The dream of a perfect fit between object and its representation needs to be given up… Accepting the impossibility of a diaphanous communication between architect and public, a turn to the somewhat crude instrumentality of notation may in fact be reasonable…

Plotting Traces; On Process
An Index is a sign which refers to the object that it denotes by virtue of being “really affected by that object”… (animal tracks, fingerprints, handwriting, and medical symptoms)… The index is doubly marked: by the definiteness of physical contact and by the uncertainty of interpretation… [Indices require] a reconstruction of causes from effects… [They are linked] to the invention of elementary writing systems… (which also designate one thing from another)… “A photograph,” Susan Sontag writes, “is not only an image (an interpretation of the real); it is also a trace”.… [In photographs,] the object [is connected] to the chemical surface of the photographic negative, through the optics of the lens… The diverse production of [the 1970s], Rosalind Krauss suggests,… shared the notion of the index… In [most works from this time,] the immediacy of indexical operations takes the place of art’s traditional reliance on more mediated systems of representation. Like the minimalists of the preceding decade, these artists wanted [more than the mere] appeal to phenomenological presence… Indexical operations offered a model of signification that was at once highly specific but did not rely on given symbolic structures; (also, the work is connected back to the process of its making; [following minimalist refinement,] the index initiates a narrative of process)… [In architecture, drawings and buildings can be thought of as indices of each other]… A drawing is… the index of the complex/dynamic [architectural] process, through the mediation of complex representational conventions. And a building functions as an index of the drawing, through the further mediation of complex social and technical operations… [But a building] is unable to take full advantage of the radical uncertainty of the index… (its physical representation… tends to stabilize meaning;…. here] the index [is unable to move] from thing to thing without sanction of the Idea)… [In architecture, indexical] operations work very effectively to interrogate the means of representation (which are foregrounded), but they are powerless to engage any material not already implicated in the hermetic procedures of design. The result is a self-referential architecture, locked in the examination of its own history… [Since they are unable to truly engage the index,] we should question the persistence of indexical procedures in design operations…

In the fully realized bourgeois interior,… living meant leaving traces… (coverings and antimacassars, boxes and casings, moldings, etc.)… A radical modernity would erase all those traces… Glass and steel have… created spaces in which it is difficult to leave traces… Faced with the apparent loss of meaning, some architects have attempted to recover an idea of the trace in the form of an architecture that takes writing as a model [(deconstruction is exemplary of this)]… However, deconstruction reveals [too much of its traces]… “There is no trace itself, no proper trace… the trace of the trace, which is difference above all, could not appear or be named as such,” writes Jacques Derrida (‘Margins of Philosophy’)… The trace is pure difference, never to be resolved in presence… The trace is always the trace of absence, manifest through erasure… Only a figure as fragile as the cinder could be an adequate image for the radical disembodiment required by such a concept… [But architecture depends upon] accurate systems of projection… Architectural drawings are freighted with… burdens of linearity. They enforce divisions of inside and outside, and they refigure the trace as bounding line… The trace here acts as an idealized scaffold that maintains form in its proper place, but disappears in construction… Architecture’s assertive physicality would seem to override the delicate subtleties of deconstruction’s texts… But simple dismissal gives too little credit to architecture’s capacity to make the invisible visible. I would suggest that to locate the trace in architecture means, not turning away from building’s concreteness, but precisely getting closer to it… Buildings do not simply embody the abstract concepts that enable them, but erase them (incompletely) in the messy physicality of construction… The trace persists in an excess that is unaccountable according to simple logic… Between architecture’s instruments… and the complex, contingent reality they enable, there exists a curious and shifting distance… Inevitably, the means of realization… leave their mark on the building… The complex interplay of concave and convex form in Borromini’s St. Ivo Church, for example, seems to have been imagined not only as the overlay of geometric systems, but also out of an intuition that the fabric of the construction is something tangible… In [Le Corbusier’s use of] the ruled surface, the
pragmatics of construction (ruled surfaces can be formed with straight members) and the abstraction of mathematical description coincide… The result [of Gaudi's suspended-weight assemblage for the Guell chapel] is a structure that, while appearing to be highly personal and irrational, exactly translates the structural forces into built form… In each of these works, the trace functions out of the difference between delineation, projection, and construction…

Architecture is uncomfortable in the world of illusion. The discipline retains a Ruskinian concept of morality that holds the trick under suspicion. In film studies, on the other hand, there exist various theories that make illusion thematic… The ‘image track’ of the film contains many elements that are not, properly speaking, images… (all of the optical effects)… to which Christian Metz assigns the term ‘trucage’… Film thus diverges from photography (and the truth-value of index)… Some trucages are ‘profilmic’ (they take place before the camera; the use of stuntmen, for example). Some are ‘cinematographic’ (achieved by the manipulation of the film or camera; such as blurred focus, slow motion,…)… Some are invisible (the stuntman)… Some trucage must be made visible,] to signal psychological or narrative intent (slow motion to heighten suspense, blurred focus to indicate a dream sequence),… and some are imperceptible… (impossible to localize, yet intrude upon the senses and contribute to the affective power of the film; cuts, transitions, color shifts, and lighting)… There is always something hidden inside trucages… They must surprise the spectator)… and, at the same time, something which flaunts itself… (cinema must astonish the senses)… It might be interesting to speculate on the possibilities of trucage in architecture… the effectiveness of architecture would then be located, not in the ability of the building to operate as an index in its own procedures, but in the specificity of architectural effects in the realm of the constructed… Trucage in architecture might be all of the effects obtained by appropriate manipulations, the sum of which constitute spatial but not architectonic material...

**Mies’s Theater of Effects: The New National Gallery, Berlin**

No architect has been more strongly identified with the finality of the built work than Mies van der Rohe… [But] Mies’s buildings [have also been described] as contingent constructions dependent on the viewer's mobile perception… The fixity of architectural form dissolves in fragmented perception and collage practices… Mies [himself has begun to be seen] as a “master of equivocation”, devoted above all to thye production of effects… Affiliations with minimalist art, collage, publicity, and postwar consumer culture [have also been] developed…

Drawing, in one form or another, is a constant presence in Mies’s work, yet in the early photo-collages, in his iconoclastic personal sketches, or in the limpid pencil renderings ([1940s-50s]), the architecture as represented in the drawings appears to exhibit the exact opposite character of the built work… What appears to be a paradox or an internal contradiction in Mies’s work, in fact tells us something very fundamental about the nature of architectural representation. Mies… never made the conceptual mistake of confusing materiality, as represented in the drawing, with the specific capacities and potentials of building itself… In Mies’s work of the 1920s,… [the use] of glass as a building material achieves both apparent and actual dematerialization… (light, shadows, transparency, and reflection)... Mies… made use of the paradox of architecture as something present ‘in the world’, to make the invisible visible… Mies’s urban architecture is simultaneously bound up with the production of complex effects in the realm of the visible, and at the same time capable of refiguring the landscape around it...

In the 1800s, the emerging artificial culture of the image [already had] potential effects on architecture… New forms of production gave rise to a complete nature that conveyed upon both nature and history artificial status… the panorama was one manifestation of this ‘second nature’… Panoramas were constructed as popular entertainment,… beginning in the 1970s. They were laid out according to conventional codes of vision… But unlike the fixed viewpoint of classical perspective, the panorama allowed (necessitated) the movement of the observer… Insistently spatial and 3-dimensional, a painted panorama cannot be accurately reproduced in 2 dimensions. Either the continuous surface is arbitrarily cut and flattened, or the circular continuity is maintained and the view is represented anamorphically (the upper boundary being elongated along its entire perimeter)… In a series of projects for central Berlin, realized between 1816 and 1832, Karl Friedrich Schinkel [applied the idea of the panorama to] the actual scale of the city. Instead of planning single buildings in isolation, the whole is conceived as an integrated visual and functional ensemble… [Beyond] shallow scenographic follies, [these are] fully realized urban fragments, [including] functional as well as visual [concerns]… The notion of a unified urban ensemble is not in itself new in the history of architecture. In Renaissance and Baroque city planning, similar relationships between representational conventions and urban building programs could be outlined. What is significant here are the specific visual attributes of the panorama, its particular modern way of representing the city. [Here,] the panorama implies a form of vision that unfolds with the movement of the spectator, and in which order is not imposed from the outside, but is continuously reformed from within… [Here,] the structures offer an ‘explore view’ in which distance is as much part of the composition as is mass. The motion of the viewer is anticipated as a working element in the composition...

[Schinkel was definitely influential on the work of Mies van der Rohje, and thus the panorama extends] from Schinkel to Mies… But Mies faced a much more difficult task than Schinkel. How to construct a convincing architectural space for a cultural institution in the late 20th century? ([in a city scarred and fragmented from WWII and its Cold War aftermath])… There is an understandable temptation to propose an autonomous object, encoding the ambivalence of the century in a silent, monumental object. In the opinion of an unsympathetic critic such as Alan Balfour,… this is precisely what Mies has done [in Berlin’s New National Gallery]… Coming from the opposite perspective, Fritz Neumayer underlines: a ‘higher unity’ between man, building, and surroundings… But I think the visual evidence will show that Mies avoided the temptation either to construct an aloof, autonomous object that
turns its back on an all-too-imperfect context, or to impose that order universally beyond the limits of the site… In order to make this case, it is necessary… to pay close attention to the performative and experiential realities of the building on site...
The New National Gallery [can thus be seen as] a subtle and paradoxical building that keeps its distance from the city around it only to reframe it in more complex ways… The classical certainty of Schinkel is unavailable, [so] architecture, of necessity, works with more uncertain materials.

The base of the New National Gallery is usually understood in classical terms as a plinth functioning to isolate the building from its surroundings… Mies placed all of the services and functional accommodation into the base… (and so, the solidity of the base dissolves into a floating plane at the back of the building)... [The base, which at first glance seems to be] artificial ground, solid and resistant, is instead a hollow, occupiable space that conceals the apparatus necessary to preserve the ideal form of the pavilion… [Also,] the stage-like form of the plaza is an integral part of the building… Far from isolating the experience of the building from the city, the architecture of the plaza establishes complex continuities with the disjointed city… The placement of the columns at mid-quarter points… reinforces the horizontality and floating effect, freeing the cantilevered corners to direct the gaze to the distance beyond. The paving grid and the egg-crate effect of the ceiling [also break]... axiality, [creating]... a universal field open to multiple directional and functional accommodation… Together, [ceiling and platform]... reproduce the effect of the panorama, turning the city into a continuous band… This panoramic vista cannot be taken in all at once, and the spectator is forced into motion,… [whereupon arise] the experiential aspects of Mies’s architecture (the ephemeral play of reflection and transparency on the massive plate glass walls,... opposed to materiality,… [while,] the softness of the matte surface absorbs light, [allowing the structure to disappear... and enhancing the reflective sensation]…

The codes of popular entertainment [in the 19th century] required that illusion be sustained by every possible trick. Mies, on the other hand, strips away the mask… is this the opposite of the 19th-century strategy for the production of illusion, or its inverted double?… [Mies actually] realizes that it is not necessary and not effective [to provide contrived illusions] (not necessary under conditions of reception in a state of distraction, and not effective because of the impossibility of the perceiving subject ever standing outside the web of illusions constructed by the architectural). [In the case of the New National Gallery, architecture is reduced to its illusory core].

The Guggenheim Refigured: The Solomon R. Guggenheim Museum, New York, NY
[At New York's Gugenheim museum, Frank Lloyd Wright's vision of a perfectly] folded structure proved impractical… Wright sanctioned many compromises in order to realize the spiral ramp of the Guggenheim (he allowed conventional reinforcing rods to be substituted for the expanded steel mesh originally proposed; he made concessions to allow for the reuse of form work;... he sanctioned the elimination of compound curves;... and... introduced... a series of radial ‘webs’... to provide support in place of a continuous folded structure). But all of these changes, while they may undermine the literal continuity of the structure, in no way detract from the sensation of smoothness, continuity, and the integration of space and structure… Frank Lloyd Wright was more concerned with effective and realistic means to realize the building than with the expression of intrinsic properties… He was committed to structural rationality as ‘practice’, not as ‘project’… [In the project, Wright is able to] maintain contact with the horizontal movement of the city, at the same time that he consolidates that movement into the extensive vertical space within (from street to museum, from horizontal to vertical, from open to closed, at once seamless and extended)...

Le Corbusier and Modernist Movement; The Carpenter Center for Visual Arts; Cambridge, MA
At the Carpenter Center for the Visual Arts (Harvard University),... the ramp... [acts as a] line that does not go from one point to another, but runs between points… In this movement, 2 conventional expectations are contravened. The first is the building's frontality… Instead of producing a façade that separates itself from the surroundings, Le Corbusier brings the negative space of the context into the spatial force-field of his own building. The second is the possibility of entering the building at all. The ramp does not so much penetrate the building, as slip in between its parts... [As one enters], one looks from an 'inside' through outside to inside again. Big chunks of exterior space seem to be lodged inside the building... [Beyond this, what] at first appears to be a device limited to the entry sequence, in fact conditions the entire spatial organization... The ramp allows the observer to enter the building... at the center of its spatial field, as opposed to the hierarchical stacking of a classical façade... [And] just as there is no façade as a stable vertical datum against which horizontal movement is registered, there is no fixed ground plane as horizontal datum ([the ground drops away and back])... Simultaneity in architecture, as in film, consists not only in the superposition of views, but in the recall and comparison of the parts experienced along the way... [This is expressed in] Le Corbusier’s idea of movement,... [which] goes beyond... cubist simultaneity... Instead of Juan Gris, a more significant point of reference would perhaps be Etienne-Jules Marey,... (Marey worked with fixed and regular sections, in an effort... to make visible the invisible interval of motion)... As Gilles Deleuze [has explained],... movement can be reconstituted [through sections, although not] the simple addition of ‘immobile sections’... Movement will always occur in the interval between [sections]... Cinema [manages this in its particular speed] (24 images per second)... [yielding] not an image to which movement is added, but... a movement-image... [What is needed is] a mobile section,... with measure and duration of its own... [In architectures, this is] the mobile section of the observer in motion... [At] the Carpenter Center,... the movement-image [is not only provided by the viewer’s motion, but by the physical form of the building]... It is generated by the intersection of the fixed interval of the ‘brise-soleil’ with the curving building envelope. The frames... function... like cinematic frames... The curved bodies of the building keep the eye continually in motion, even when the spectator is still...
Terminal Velocities; The Computer in the Design Studio

The computer in the design studio provokes both extravagant claims and high levels of anxiety... If architecture is not to give up its own very specific instrumentality,... it is necessary to look closely at the paradigms and protocols at work in the use of the computer... A skepticism toward both the technocratic drive for efficient production and the vague promise of a utopian future is legitimate. But simply to refuse or resist is not sufficient. A positive program is required (capable of reworking architecture's habits of thought and refiguring its patterns of working... What are its capacities for new types of geometrical description, spatial modeling, simulation of program and use, the generation of formal and organizational systems, or rapid prototyping?)...

One of the curious aspects of digital technology is the valorization of a new realism... The premise here is that, if computer technology can create more and more realistic simulations,... design mistakes will be avoided. What is left unaccounted for here is the fact that the reality simulated is entirely mediated... (cinema and photography)... The trajectory is not from image to reality, but from image to image... In as much as they are concerned exclusively with what things look like, visualization techniques can only innovate at the level of form. Time, event, and program cannot be addressed through techniques of visualization... [Also, these visualizations] assume a very narrow range of perceptual mechanisms... (a tunnel-like camera vision)... [In reality, a] building is both imagined and constructed from accumulated and partial representations... If the architectural object is imagined to exist inside a transparent box,... traditionally, the architect works on the 2-dimensional surfaces of this box... The architectural project is a virtual construction, created from the abstract surfaces, interpreted and combined according to conventions of projection and representation... [With the computer,] the architect works directly on a 3-d representation of the object itself... It is possible to... work simultaneously on the 2-d projection and the 3-d object... Instead of a finite number of representations constructing an object,... there is already an object... capable of generating an infinite number of representations of itself... [Of course, the digital object is made up of many discrete elements]... These parts are not necessarily integral to the whole. Any element can be accessed at any time... Instead of proceeding always from the general to the specific, the designer can move from detail to whole and back again... If the power of the computer lies in its ability to handle large amounts of information, multiple variables, and abstract codes, it is worthwhile to... shift away from the false certainties of visualization, toward generative capacities...

It is worthwhile to think about extending the instrumental capacities of the computer to the world of things... In architecture, the computer gets much more interesting at the moment it is hooked up to any device that allows it to produce something other than an image... Rapid prototyping, as well as the use of computer milling and fabrication in the construction process itself,... open up potentially important possibilities for the revision of practice... If complex, computer-generated forms... are translated into standardized contract documents... realized by conventional means, the impact of the computer remains exclusively formal. If, however, the specific capacities for computer fabrication are integrated into the process of design itself, new possibilities are opened up (the properties of the material become part of the design process)... [These new practices are not necessarily] a proposition of ideal smoothness, [since they deal with] complex and interesting mixture... For a computer milling machine to calculate and cut every member of a curtain-wall system to a different length, for example, is no more time-consuming than to cut every member the same... [It is important to note that, here,] variation is not introduced... as an 'exception'... but as incremental variation... This local difference can accumulate to create variation without destroying overall coherence...

Analog technologies of reproduction work through imprints, traces, or transfers... Iconic form is maintained throughout... A significant shift occurs when an image is converted to digital information, [where the image is evened-out into]... bits of information,... each bit 'being in itself' even as it is part of a system... This evening-out has implications for the traditional concept of figure/field. In the digital image, 'background' information is as densely coded as the foreground information (blank space is not empty space)... If classical composition sought to maintain clear relations of figure on field,... with digital technologies we now have to come to terms with the implications of a field/field relation... [This is a paradigm shift, that necessarily moves us towards the] 'algebraic' (working with numerical units combined one after another) [, as opposed to] the 'geometric' (working with figures organized in space)... [Algebraic] field combinations hold promise in the urban context, thickening and densifying experience at specified moments within the extended field of the city... The diagrams produced by the Christaller model,... [or recent] artificial life [experiments, show that complex configurations emerge out of apparent chaos]... One of modern architecture's most evident failings has been its inability to adequately address the complexities of urban context. Recent debates have alternated between an effort to cover over the difference between old and new... (New Urbanists), or a forceful rejection of context (deconstruction)... [Field simulation models, however,] dissolve the traditional opposition between order and randomness... Can the specific capacities of computer technology help manage the emerging complexity of the urban field today? In part,... this implies a rethinking of questions of control... [Traditionally, architecture and planning... have had a tremendous difficulty thinking their roles apart from the exercise of control (this is all the more true today, when the real power of architecture has been eroded everywhere by a swollen bureaucratic apparatus)... We need to recognize the limits of architecture's ability to order the city, and at the same time, to learn from the complex self-regulating orders already present in the city... New technologies can offer new ways to work within the complex interplay of indeterminacy and order at work within the city... As Michel de Certeau [has observed, urban reality consists of] 'heterologies' that are not arbitrary and uncontrolled, but instead "managed by subtle and compensatory equilibria that silently guarantee complementarities"...