

marble fairbanks

Bootstrapping

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A. Alfred Taubman College of Architecture + Urban Planning

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A. Alfred Taubman College of Architecture + Urban Planning

The University of Michigan

2000 Bonisteel Boulevard

Ann Arbor, Michigan 48109-2069 United States of America

Telephone 734 764 1300 / Fax 734 763 2322

<http://www.tcaup.umich.edu>

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Foreword

Luke Bulman

In addition to the hothouse environment of Cranbrook in the late 1930s, Charles Eames also worked in Eiel Saarinen's architectural office. Eames recalled Saarinen's search for a project's widest implications, from its finest technical requirements to its furthest global impact, that were discovered through a series of scalar analyses. As Eames later simplified, "One can't look at a project without thinking of the next larger or smaller thing." This systematic analysis extended the reach of the office by uncovering potentials that might have been otherwise overlooked. This telescopic worldview became a hallmark of the Charles & Ray Eames approach, most memorably illustrated in the 1977 film *Powers of Ten*, but also in virtually every effort of their office where the variables of communication, material, and space converged in such a unique way.

As an interest in "operational thoroughness" persists, research into how the world works, which is essentially what Saarinen advocated, remains a central activity for contemporary practice. Indeed, it is no less true today that a project's broadest potential can be found by casting a wide net and seeing what comes back. The seemingly linear methods advocated by the Eameses and Saarinen were just two approaches; those techniques may seem vaguely antiquated as the ability to gather and process information increases daily. Still, their optimism for, and openness to, complexities continues to inspire.

Like many practices balancing academic and professional roles, Marble Fairbanks have found the combination of research and design a natural fit with their approach to practice. The projects presented in this volume respond to contingencies that have been mined for potentials whether they be educational models, manufacturing techniques, or the economics of housing. For this book an array of essays, interviews, and photographic documents have been set around these projects to reflect not only those particular instances of the office's production, but also to imagine their trajectory. This, the twelfth in the Michigan Architecture Papers series, presents an opportunity to reflect on modernism not only as a formal paradigm but also as a set of ideas and techniques related to design's participation in the world.

Bootstrapping: a brief introduction

Marble Fairbanks

Bootstrapping is about generative growth. It is a process that utilizes a small amount of energy, or input, to trigger larger, successively more complex processes. In colloquial *social* terms, bootstrapping refers to the ability of the disenfranchised to rise up despite dominant power structures. In its more recent use as a *technological* term, it refers to hardwired circuits that enable organic *generative* growth (i.e., the small amount of software hardwired into computers that allows the installation of further software). For an architecture practice, bootstrapping suggests an approach that places renewed significance on the discrete and specific material and organizational decisions that are made within an expansive and increasingly connected global context – a globalism in which the dominant tendencies of large institutions overshadow the effect of the individual actions that collectively make up those institutions. Bootstrapping is the identification of strategic connections to the vast network of surrounding potentialities that allow an architectural project to be generative – for endpoints of a design process to continually evolve from, or completely transcend, their origins. Bootstrapping requires looking intensely at how architecture operates in the world after design (after the architect) so as to identify patterns of performance that then feed back into subsequent designs.

The work in this publication was presented as a series of lectures, given at several universities and conferences, that culminated in the Charles & Ray Eames Lecture at the University of Michigan. It represents the structure of

our practice, which has evolved by continually shifting between larger urban projects and smaller interior work where we can operate as a laboratory, testing specific themes and ideas that then inform the urban-scaled work. Our interest in bootstrapping began with the Chicago School Competition, where we were faced with a new building type – schools within schools – that demanded a strategy that addressed physical growth and the relationship among increasing scales of use, combined with a program of intricate needs specific to an economically marginalized neighborhood possessing a significant population of disabled children on the south side of Chicago. This coincided with research we were doing on contemporary learning theories, on the codification of human knowledge in the field of artificial intelligence, and on learning organizations that look at ways in which collaborative work can yield greater results than hierarchically structured relationships. A consistent theme in this research was the identification of techniques to create generative patterns of growth, ones that can sustain themselves over time and in multiple contexts. Knowledge (both human and artificial) is more robust when it is learned and not taught, and when it is collective and not individual. Architecture is most effective when it transcends solving given programs and instead suggests alternative patterns of use. Two areas where we have focused on implementing principles of bootstrapping have been in the rethinking of program and in the use of digital communication to restructure practice.

Program

Critical discourse continually reveals that architecture is, at best, a detail in the operation of urban life, while architectural practice persists as a

delirious passion forced to navigate endless legal, economic, and political obstacles to arrive at something material in the world. The work presented here has resulted from observing and reflecting on not so much what architecture is as what architecture does, how it performs. More specifically, it focuses on patterns of human use under the myriad influences of political, social, and economic pressures, and the correspondingly thin line between architecture that reinforces organizational control and architecture that empowers growth. Bootstrapping is most useful in extending the definition of the architectural program. These projects are motivated by an effort to broaden conventional building program in relationship to the expansiveness of urban contexts increasing architecture's connection to the city. Caught historically between competing definitions – the literal inscription of function into form (functionalism), the free play of activities within a field (event), and the contemporary demand for maximum flexibility in a world driven by the logics of speed and liquidity (generic) – program, in its reduced architectural definition, has been stretched to its limit. It has lost its ability to effectively organize space. Bootstrapping redefines program as generative relationships between discrete human use patterns and the continually expanding network of influences that propel them into new relationships, succumbing neither to control, subversion, nor the vacuousness of generic flexibility. Housing Ecologies uses a specific yet supplemental program – the generative void – to intensify relationships among separate units and to direct a flexibility of unit growth over time: units can be combined or divided around the void to change the intensity of the relationships. Similarly, the generative spaces of each of the four small schools within the Chicago School introduced a space beyond the strictly defined program to allow students and teachers

to form a unique identity for their own school (a crucial aspect for the success of small schools). In the campus extension for the Fashion Institute of Technology in New York, the entrance from the street is surrounded by formal and informal program defined by the street façade wrapping under the building and turning outside-in. The matrix of relationships around the entry area create a perceptual knot between the building and the city constituting an expanded learning environment. Program is precise again, not as a problem to be solved, but rather it is an initiator of growth, of expanded relationships, renewed to *generate more program...* beyond design.

Communication

Sciuscia, the final project in the book, is one of several projects we have recently completed that explore the potential of digital technology to construct patterns of *communication* that lead from an immaterial concept to a material reality. From the outset of the digital transformation of architectural techniques, our primary interests have focused on the opportunities to reposition design as an integral part of the industries it relies on, from media to construction. The future significance of digital technology in architecture is first and foremost one of communication, not form. The opportunity for unprecedented forms of collaboration through ubiquitous communication systems allows architects to reorganize the very hierarchies of power that structure the relationship of design to society. Although this affects architecture most directly, by merging the representation of buildings (drawings) with their actual production through the common language of digital information, the broader implications of this new connectivity go beyond any specific industry. That Sciuscia

was designed and built in two months was primarily due to the close collaboration among owner, architect, fabricator, and contractor, as well as the ability to efficiently communicate ideas, instructions, questions, and changes in real time with instant response.

More than ever, design originates in actually organizing these new forms of collaboration before architecture even begins and continues long after architecture has ended. Bootstrapping is not a theory or a mode of production, but a practice that is intensely engaged with the contemporary milieu to analyze and structure what comes before, and to project what comes after, architecture.

Organizations, Program, Topology, and Pattern

Reinhold Martin, Karen Fairbanks, Scott Marble, and Luke Bulman

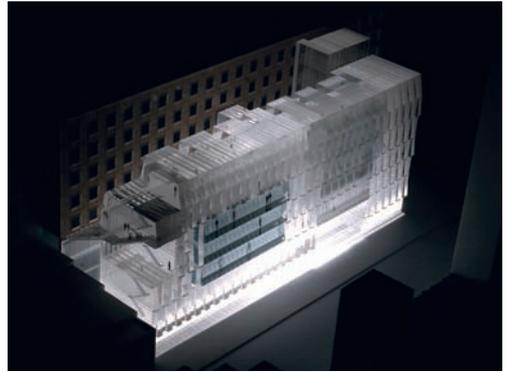
Held in August 2004, this conversation explores those interests and activities of Marble Fairbanks that resonate with the ideas presented in *The Organizational Complex* (2003, MIT Press) by Reinhold Martin. An examination of the post-World War II interplay of the military-industrial complex, cybernetics, and corporate aesthetics, this book draws on the work of Eero Saarinen, Georgy Kepes, Skidmore, Owings, and Merrill (SOM), and others to describe the then rapidly growing role of pattern, image, and the operational in spatial practices. Emerging from this period, architects increasingly recognized that a contemporary experience of space, be it material or otherwise, would be driven by soft techniques as much as by physical embodiment. Practices like Marble Fairbanks have chosen to adopt this expanded definition of architecture, while maintaining a commitment to the demands of its assembly. –LB

Organizations

Scott Marble: We continue to be fascinated with the many definitions of *organization* that, for us, productively fluctuate between its distinctly architectural use in terms like *plan organization*, *spatial organization*, and *material organization*, and its use to describe social, political, and cultural relationships that operate within and condition architecture. In much of our recent work, our efforts have focused on understanding these underlying relationships in order to design more strategically within this expanded context.

Reinhold Martin: Organization can refer to logistics as well. For me, this kind of ambiguity is what's interesting about the constellation of issues around a word like *organization*. The resonances in this case are between spatial organization and logistics – which in your own work seems often to translate into diagrams of activity – and organization as a noun, usually referring to an entity or an institution. I think it is also important to consider the kind of institutions that one is working for and their interests, as a virtual context for what architects do. Your Fashion Institute of Technology (FIT) project literally participates in institution-building. Not just in the sense of building for institutions, but in renovating their image and reorganizing the way they teach as well as responding to their own fantasies about themselves. In a way, from the internal, architectural point of view vis-à-vis the spatial layout, the FIT project indexes these various forces. But of course anyone designing a project like this is challenged to interpret these forces and to respond to them critically and imaginatively, never taking anything for granted. Still, both spatial and institutional organizations are habitually reproduced in architecture. For example, one thing that's often taken for granted is that organizational systems or modes or logics simply are – they simply exist – and the architect's job is to respond to them, reproduce them, represent them, mobilize them. Such assumptions need, in a sense, to be deconstructed and denaturalized.

Inside the word *organization* of course is also the word *organism*, which implies that there's something natural going on. One of the main arguments in my book is that the organizational systems used in curtain walls and modular buildings in the 1950s and 1960s had a kind of "organicism" agenda even though the buildings themselves didn't look organic.



FIT Campus Extension aerial view

This agenda also operated in ideas about the corporation as a family; it made an organizational form like a corporate office seem inevitable, *natural*. There is a strategic opportunity for architects here if we do not take this as a given, but more as a field in which we operate. The nature of any given organization, be it the institution or its spatial patterns or the materials from which it's made, is always at stake – it's always contestable. And by implication the architect has more to say even than the client about the future of that aspect of the project. Of course we're also talking about clients such as developers; what you're proposing with your Housing Ecologies project, for example, is not just a building that looks different to a developer. You're proposing to reorganize, in a logistical sense, the way a developer builds.

Karen Fairbanks: Yes. Not only the way we form the envelope, but the way we want to allow the user subsequently to inhabit it. Housing Ecologies was designed to exploit a developer's interest in flexibility, but in a way that constructed an active and participatory form of living. Among other things, this was in response to the realization that the site would probably be developed under a New Urbanist agenda, with a lack of diversity in housing options, and most likely operate as a gated or homogeneous community. We were trying to question that, not only with the site organization but also with the housing unit distribution over time.

RM: So the typical organizational imperatives of the market as imagined by the developer are challenged by that assembly drawing. I should add that even though it may sound sometimes as if there is this big "organizational" conspiracy, of which the



Housing Ecologies, Arverne, component drawing

architect is merely a symptom, my view is quite the opposite. Calling the givenness or predetermination of organization and organizational effects into question allows them to remain contestable, to remain historical. The reason for writing a history of this is that it didn't just happen. It was produced.

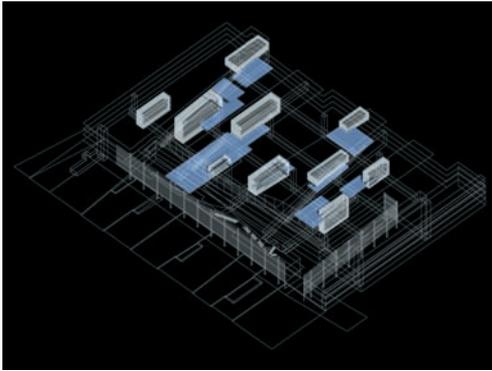
Luke Bulman: We assume that *organization* is an objective term, when it's also to some degree, subjective, a construction.

RM: Though I wouldn't quite say "subjective." Yes, it is an old story in architecture that goes by different names, returning in contemporary discourse with other terminology. In the 1920s spatial organization, in the work of Walter Gropius and Hannes Meyer, for example, tended to have a more recognizably functionalist cast, in the sense that architects were attempting to make a one-to-one connection between what a building was expected to do and how it was made. Later developments – which I think in many ways your work builds on – were interested in allowing that to emerge over time and to change: modular buildings in the 1950s were more flexible, et cetera. One of the twists in this thinking – which might be an interesting question to ask *vis-à-vis*, let's say, your Kansai library project – was that in many contexts spatial open-endedness and flexibility wasn't mobilized *against* the system; it was the system. I mention this since it is a mistake I think many architects make today by simply embracing flexibility. This of course does have historical precedents. There's a sense in a lot of architecture of the 1960s, for example, that to construct a technologically open-ended matrix is to allow a certain degree of freedom that the rigidities of a more functionalist or market-oriented approach don't allow.

LB: Isn't this sometimes seen as a behaviorist approach?

RM: Yes, it is often implicitly or explicitly behaviorist. But I also think that one of the inadvertent effects of such flexibility, in a historical sense, is that it often winds up backing into a new kind of status quo, rather than achieving the liberation from conformity and rigidity that it seeks. For example, the Chase Manhattan Bank was designed as a highly flexible building – no interior columns, open plan – because that's what the system needed to do: it needed to be able to grow. So rather than resist this new form of power wielded by, say, a bank with expansionist ambitions, even a highly experimental architecture might wind up playing right into it, precisely by offering that spatial "freedom." It is worth noting, however, that the spirit of an open-ended flexibility, to different degrees, has also been effective in challenging various forms of symbolic monumentality. We can think here of postmodernist monumentality, which often attempted to fix symbolic meaning and to restore historical stability. But if what things look like is always in flux, if their image is never fully "organized," this effect might be modified somewhat. I don't know what the actual project at Arverne is going to look like when it gets built, but I can imagine that it's going to have a symbolic dimension that will be oriented towards stable, recognizable meaning. That's why I was asking earlier about the patterned surfaces on the façade of your own design.

KF: One approach we have been developing, related to a large bureaucratic organization's limited ability to address its need for flexibility and to adapt (and here I'm thinking about schools), is to work with what we refer to as the "generative inadequacies"

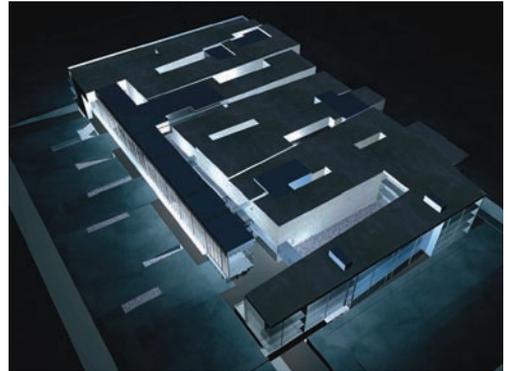


Kansai Library Competition organization diagram

of the system itself. In the Chicago Public Schools project, we strategically inserted spaces beyond those specified so that the building could address evolving needs. These spaces were not simply about flexibility, but were established out of the recognition that the system and the program it provides can't anticipate needs beyond those that can be easily categorized. Those system inadequacies were responded to architecturally, strategically, enabling the building to adjust to different needs and pressures. It is also a question of the scale at which that ability to adjust operates. In CPS you could say flexibility operates at the scale of the building or at the scale of a larger system. So, as the architect, we find those points where there's an inadequacy, a generative inadequacy, and actualize that architecturally.

RM: Right, I agree. Strategic attempts at using flexibility or negotiability are evident in many of your projects. This does not just mean allowing for growth or change for its own sake. It seems that in effect you're reprogramming the program. In the Chicago Schools project, there's an implicit critique of the small schools ideology by saying, yes, you can have small schools, but you also have the option to test out different linkages between them so that they can grow. For example, there are those spaces where the "U" shapes of each school either separate out or connect up. That seems to be one of those situations where, as architects, you're responding to the client by adding something new to the mix.

SM: Historically, schools have fallen into a trap of developing into idealized forms based on specific learning theories. The small schools approach is really no different, yet we saw an opportunity within its own logic (the emphasis on the individual schools'



Kansai Library Competition exterior view

developing their own identity over time) that we could use to keep it from being reduced to another prototype. We used this to challenge the program and to design negotiable boundaries between each small school. In doing this, we tried to suggest that certain characteristics of large so-called factory schools were not all bad. The ambitions and rhetoric of the small school approach can quickly move dangerously close to the utopian ideals of New Urbanism, and we were trying to make this apparent.

Program

RM: The other level at which organization is at work in your projects is as landscape, which is essentially infrastructural. Large-scale connections often organize the massing of the buildings – for example, in the distributed section in *Housing Ecologies*, where the massing is broken down into individual nodes. This also occurs in the infrastructural landscape in the Chicago Schools project, which enables reconnection on a larger scale and an integration of scales across the work, reflecting a shift from the earlier work at Nara, where things were more separate. This relationship between the infrastructural pattern and the particulars of a building also adds one more term to the mix: *program*.

SM: We continue to emphasize plans as an organizational tool partly because they link movement to organization and retain some trace of a body in space. Plans also map program most effectively. And despite its tenuous position in current architectural discourse, program continues to be a link to the economic and political forces that drive architecture. I am thinking in particular about the strict conformance between the funding of public projects

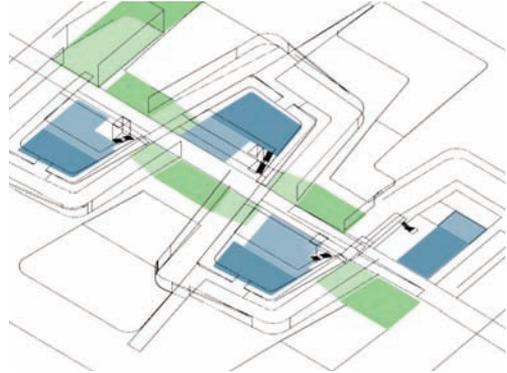


FIT Campus Extension curtain wall

and the quantification of these projects through program and size. Any variation to these established conditions becomes a political threat. This came into play in the Chicago Schools project when we proposed a “generative space” for each of the four small schools to expose the contradiction between the system’s desire to create new types of learning and the lack of any programmatic contingency to do so. It was politically risky for the client to support a space in a public building that could not be programatically quantified.

RM: No doubt. But there’s probably also a better definition of what we mean by program today than “function.” Your work innovates at that level in particular. It seems to me that one of the ways that the conversation around this issue can continue is by constantly redefining the term *program*. And one possible redefinition lies in the interplay between what a client’s program traditionally calls net spaces and gross spaces: the instrumental or functional spaces and the circulation spaces. It seems that was part of the thinking on the FIT project; because the client was less specific about the rooms, there was more *play* between net and gross spaces.

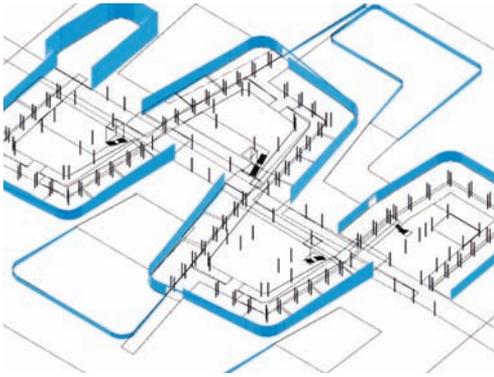
SM: The percentage of non-program space was large for that very reason. The client wanted to give us room to invent new program possibilities as a way to define a future direction for the institution. Program has always played a provocative role in our work, and while some dismiss it as unreliable, I don’t think we ever went through that phase. Program has always been about quantifying space, whether through type or through attempts to create a direct correspondence between activity and space (as with functionalism) or – in more extreme “scien-



Chicago School program diagram

tific” forms of programming – with groups like Quickborner. More recently the interest has been in unprogrammed space or “event” space that is more contingent and circumstantial. Historically, program has been an insistent protagonist for architects, whether embraced and carried to an extreme or rejected outright. We do need a new definition of program.

RM: In a more speculative mode, I often find myself insisting that there’s really no such thing as program at any level. There’s no way of verifying what’s going to happen in any space. So, in a way, what’s interesting about the “event” proposition is that it keeps the door open, as it were. And that’s always very important. It keeps the door open to the future; there’s something about the space that hasn’t been planned or programmed in a systemic sense. Whereas, what used to be called *function* is now often called *performance*. This seems to be a rather perverse effort to name – and in a way to instrumentalize – this open-endedness. That’s too technocratic for me, since program is at best an approximation or generalization that enables architects to pick hardware and furniture and to decide something about the very particular characteristics of a space. But in the end there are two levels of organization that I’m interested in here. In a school there is a certain arrangement of chairs, of storage, of architectural hardware, of surfaces and light: the material facts of the building that are specified in the working drawings. And then there’s the system of images and symbols: the signs on the doors. If you took the sign off the door and no longer called it a classroom, could you still learn in that room? Of course. Or you can look at it in reverse and subtract specific architectural elements: at which point



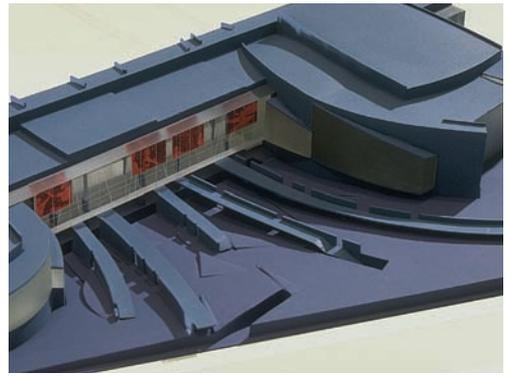
Chicago School structural diagram

does the classroom that you design cease to be a classroom? That's what's interesting about institutions: they're not fixed, not "institutionalized," really. There's no such thing as a classroom. It's something that architects are inventing all the time, though often by simply reinforcing existing norms. That's where that strategic move enters in – that hinge space at CPS, for example, that has a ripple effect and could potentially turn the whole small schools concept upside-down.

SM: If I understand what you're saying, you are alluding to a weakness in what you call the material facts of program.

RM: Yes, you can't reduce a building to its official program.

KF: We ran into this problem when working through the programming of the FIT project. We developed the infrastructure to adapt easily to change, but established relational organizations – linked and paired learning spaces – as learning loops or cycles. These have the potential to overlap with each other in the negotiated spaces between classrooms or to open into each other to link different methods of teaching. This was in direct response to our understanding that while the design industry is heading toward increased specialization (and FIT's classes have begun to reflect this), architecture can set up strategic relational adjacencies that will encourage those specializations to interact, perhaps opening up unanticipated potentials for both education and industry. The goal was to allow FIT to move later toward alternative patterns of more informal and non-hierarchical learning environments, with boundaries that are soft (teaching and learning) and that can



Nara Convention Center Competition

anticipate a future organization for the institution. So the building was designed to respond to multiple possible programs rather than a singular program. The line we were drawing here was between generic flexible space and organizations that can be both responsive and generative while allowing for a specific type of flexibility and change.

Topology

SM: It seems that one of the aims of your book is to contextualize and to present a history of two current topics in architectural discourse: organicism, which you brought up earlier, and topology, both outside of a purely formal project and more within an operational one. Now that this is complete, how do these topics reinvent themselves and move from topics of analysis to modes of design while avoiding the problem of becoming illustrative?

RM: I wouldn't necessarily say that this history is "complete" or fully accomplished. It's probably more like moving from one phase to another. So one could translate this kind of analysis to your projects or to any project. It's a matter of thinking about architecture in general as a topological problem. This is a subject frequently discussed in architecture in a way that reverses the real meaning of the term. *Topology* has often been used to describe curved shapes, but in fact it doesn't refer to shape at all. Instead it refers to relations of inside and outside, among other things. It also refers to connectivity, as in a network. Even the most conventional building has an extremely complex topology. I wouldn't say that *topology* is synonymous with *organization*, but it's certainly close to many of the meanings that we've already discussed with respect to that term.

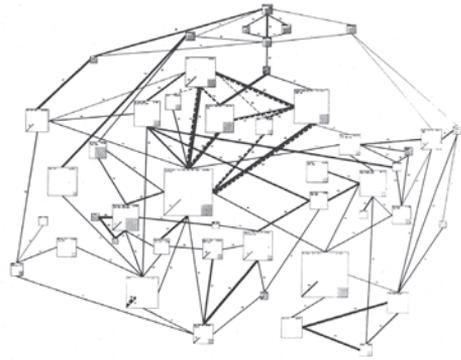


Chicago School courtyard between schools

Specific topologies are associated with specific organizational effects. It's not that anything goes, then. A residence or a museum is just as determined a space when we think of it topologically. The most cellular, old-fashioned organizations – like the old New York City schools, for example, which are very monumental and rigid – still possess a topology. And your topological studies, especially with the FIT project and the doubling back of the skin and the circulation, do seem to exploit one of the strategic opportunities available to architects here. But to put things back in historical context, relations of inside and outside are always topologically specific in buildings as well as in various kinds of networks. This is why even a flexible network of networks, like what I call the “organizational complex,” can work to reinforce control rather than freedom by making everything so flexible and indeterminate that there is no longer any conceivable “outside” to the system. This is, in a sense, control through integration or assimilation, rather than through despotic command: the integration of human subjects into naturalized systems, whether they're called corporations, buildings, or cities.

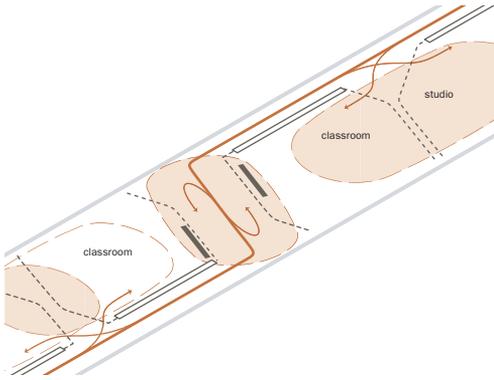
KF: That's interesting, because one aspect of your book (something we've been discussing) is that you seem to define the subject in the organizational complex as a monolithic body. Integrating the subject into the system may not present the same problem in your organizational complex as it would in the case of a public project – the public school, for instance.

RM: It's risky territory in which to operate, because when working historically – and I'll try to make the translation to the present – what I pay the most attention to are stereotypes, like the “organization



Quickborner Team, organizational diagram

man.” This of course can make the subject of the organizational complex seem monolithic or indeed stereotypical. But what's interesting about that particular stereotype is that it's not so much about standardization as about a kind of fluidity or, again, flexibility – even multiplicity. For example, in playing out that stereotype, *The Man in the Gray Flannel Suit*, the 1956 film with Gregory Peck, shows the main character (Gregory Peck) to be an emotional individual with a “human” face, someone with unique life experiences. In fact, what makes the “man in the gray flannel suit” stereotypical is, oddly enough, his individuality. So the corporation treats him as a member of the family rather than as a cog in the machine. In turn, he relates to the corporation in that way. And that's actually what corporations were doing at the time with the managerial approach called “human relations.” Human relations counselors in the 1950s treated both men and women employees as members of the corporate family, in effect reproducing the “family values” of the suburbs. In general this was about maintaining an emotional equilibrium, so that office workers would be more productive. What was stereotypical about the “organization man” was that he was, by definition, “different” from other organization men despite the gray flannel suit. This was the beginning of a process in which difference itself is instrumentalized. Of course you still had a great deal of reductive stereotyping, and indeed profiling, going on in these big, monster organizations. But you also saw them embracing an ideological vision of a happy global village in which everybody's different and everybody's an individual. A kind of corporate “diversity.”



FIT Campus Extension strategic adjacencies

KF: There's still a selective diversity. It's still about selecting an image, a particular presentation of the organization. It's a private construction.

SM: So in constructing these subjects, the organization selects individuals who are happy to go along. Do you see a significant difference between that effect in a corporate or private organization versus in a public organization where the selection is less controlled and carefully constructed and where everybody's involved rather than just a select few? This is the condition of the public school system that is essential to consider.

RM: Liberal institutions are often both reformers and instruments of social control; it's the double-edged nature of enlightened institutions. Any public institution would fall under this rubric, including the American public school system. For example, the schools built in New York City in the early part of the century as a wave of immigrants entered the city are interesting because although they're aesthetically neoclassical, their project at the level of organization was essentially one of Americanization. In these "H" and "U" shaped schools, the idea of America and New York as a melting pot was, in a sense, crystallized in the form of a common unit – an architectural "type" – that all these different people would enter. Everyone would learn English and study a common curriculum in a standardized education that put everyone on what was considered a level playing field. But it also meant a certain rigidity, a certain social standardization reflected in the standardization of the buildings. Since then we've gone through various stages in school design. In the 1970s, for instance, you had a lot of social clusters or conversation pits in which students were



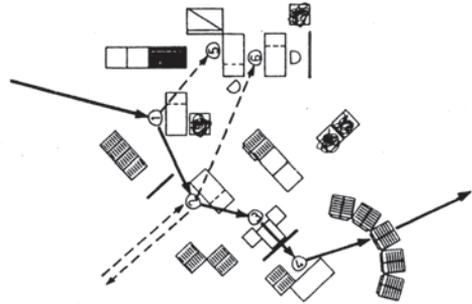
FIT Campus Extension skin and circulation

expected to express themselves. Each of these stages has imposed a kind of institutionalization of, even indoctrination into, a certain system. But do you produce the system or does the system produce you? There are many possible answers to this, though with the system formulated in the "organizational complex," I think both are true. In a cybernetic model such as the one I describe in the book, feedback loops, communication, and subject formation occur dynamically.

Similarly, in responding to the legacies of modernism, I think architecture's current fascination with fluidity is a reaction – not just to postmodernist monumentality, but also to the perceived rigidity of the modernist grid and of straight lines, modular planning, and functionalist architecture in general. But if you actually look closely at these new "fluid" buildings and projects as well as the institutions they claim to "build," what you also see is a tendency towards a privatization of the social functions previously associated with public institutions. This parallels recent developments in the "organizational complex." In general, corporations today look after their employees in a slightly less paternalistic way than in the old company towns; their approach is less panoptic, more immanent and diffuse, more personalized, more decentralized, and gradually less hierarchical. At the same time you have the rigidities of functionalism breaking down into a decentralized matrix. One example here from the 1960s would be the office landscape movement in Germany and elsewhere with the Quickborner Team. There, in a big open plan, people could arrange furniture to make conversation clusters and work groups, which was equally deterministic and rigid in its own way.



Gregory Peck in *The Man In The Gray Flannel Suit*



Workgroup plan diagram, Quickborner Team

SM: While functionalism tried to directly express specific uses or programs, the ideas behind Quickborner were to physically organize relationships among individuals to improve communication and productivity. This kind of physical network, very influenced by cybernetics, created an even more rigid organization. Although the plans appeared very playful and almost chaotic, the logic driving them was one of control. It can be seen now as a last attempt to physically organize lines of communication before digital technology redefined the spatial and temporal potentials of networks. So Quickborner is beyond functionalism in a certain way.

RM: Yes, it's a kind of mad diagramming. It is behavioral in its approach to communication. And it is environmental, even ambient, rather than utilitarian, an example being the white noise generators they used to keep conversations private in an open office. So one of the challenges today, as virtual space becomes even more virtual, is that anybody who wants to carve something different out of this space must be able to recognize what's actually happening and reflect critically on that if they are going to push in a new direction, locally or globally. They must also have the tools, both historical and theoretical but also technical, to demystify virtual space – to know how it works and know how it's produced.

SM: As the practice of architecture becomes more aware of its reliance on, and position within, increasingly varied organizational systems, the role of the architect would seem to shift from a master creator of buildings and cities to more of a manager of political, economic, and industrial forces that then culminate in the form of buildings and cities. Any shift toward this realization would require archi-

tecs to reposition themselves at this level. What you're talking about is a way of working today that is neither resistant to these forces, nor just an affirmation of the forces, but strategically in between. Is this something that you think has been established and is going on now?

RM: No, I don't think it's going on, though I would also add that resistance and projective action are not necessarily mutually exclusive. I wrote *The Organizational Complex* in response to many things going on in architectural discourse today. In the introduction there is an implicit critique of certain digital ideologies, especially the go-with-the-flow tendency. The research on cities that we're currently doing attempts to follow up on that critique in architectural terms. But in order to fight a battle, you need a map to lay out the territory and to make visible relationships and connections between things – patterns.

KF: You haven't mentioned pattern until now.

Pattern

RM: Well, yes, but that's only because it's everywhere. Patterns within patterns. Gyorgy Kepes called the kind of vision I'm advocating *pattern-seeing*. It was a mindset that was very important to him and to many others, including the Eameses and Buckminster Fuller. This is also something that's quite pervasive today, especially in the digital realm. Often architecture today is described in terms of patterns that change, like so-called "morphogenetic diagrams," though symptomatically these can also be seen as alternatives to the rigidities of the grid and particularly to functionalist hyperdetermination.



Office plan, Quickborner Team

Of course the system is always one step ahead of you – it, too, is emergent. Organizations like the Rand Corporation understood this long ago, as did the military-industrial complex in general, which was already experimenting with computerized, emergent patterns and pattern recognition techniques. One of the initial tests of pattern recognition was trying to teach American computers to read Russian. (This had to do with the cold war, of course, where to recognize patterns was a strategic act.) Patterns present one possible answer to the question of how to work with systems: you use the same maps, but you learn to see the patterns as always developing and therefore always subject to change.

SM: It requires that you remain in a continual state of suspension, really.

RM: Yes. You can't identify with anything – you must keep one step ahead of fixed, rigid order. At the same time, the organizational complex is telling you, "Emerge. Change." That's what advertising is telling you all the time, to change, because if you're always the same, you don't buy anything. "Think different," as they say at Apple, and buy a different color iPod every year. It doesn't mean that there's no escape. But that's another reason why topology is a very important tool for architects. There is no outside to this system in the classical sense that allows you to stand apart and resist the thing externally. But however complex the system is, it's also full of holes. And so, in a sense, the outside is on the inside.

That's where images come in. An *image* of seamlessness is one of the things that the organizational complex and its progeny have been very successful at maintaining. Think of the curtain wall. It is an im-

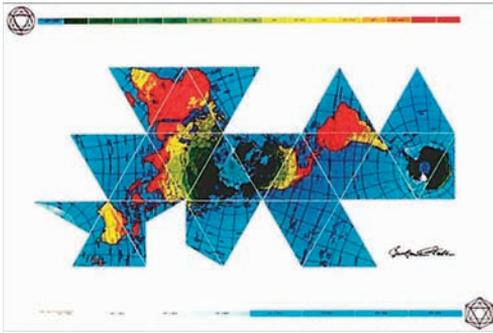


What Is A Home?, Charles & Ray Eames

age, a sort of phantasm, of seamlessness. You're trapped in the grid; maybe now it keeps on changing, but there's no outside. So architects like Rem Koolhaas have developed strategies of surfing that are based on the premise that there is no outside. You can trace these efforts and others to the 1960s and to groups like Superstudio that in a way represented one last attempt to imagine a revolutionary architecture – to escape. But now we go with the flow, which nevertheless assumes that there is in fact a flow, and that this flow is seamless. I'm not pretending that there's an easy way out. But there are loopholes and wormholes in this seamless fabric. Still, since images are real, the image of seamlessness works, oddly enough, to reinforce the *fact* of seamlessness, which is why the curtain wall is not just a decorated shed or billboard. It's not just advertising. Images organize. They organize by maintaining the phantasm of internal coherence, of organic integration, which in turn helps "build" both subjects and institutions in a feedback loop. The fantasy of identification with the monolithic, integrated network of the corporation as a family is made possible concretely through images.

KF: Images are just one of the patterns, literally like a plan, a pattern that is recognizable. Patterns, as a form of organization, can be played out in the plan, in the façade, in the image(s) of the institution.

RM: Image is, exactly, one of the patterns. Looking at your FIT project, it exposes an interesting problem in the relation between pattern and plan, image and organization. In many modernist glass curtain wall buildings, image and organization, or pattern and plan, are more or less isomorphic. The Union Carbide Building is even more – much more – sys-



Dymaxion Map, R. Buckminster Fuller

tematic than Mies van der Rohe's Seagram Building in that sense. The module is not just on the façade; it is on the ceilings and on the floors and in the furniture. It's everywhere.

KF: Right, drawn into every corner...

RM: Drawn into your very soul! In an interview that Arthur Drexler did with Gordon Bunshaft, he described one of his colleagues at SOM, Roger Radford, as a "tall, modular fellow," basically like an SOM building. What's the difference between the subject and the object in that case?

KF: With FIT we were working with the possibility that these multiple patterns could operate simultaneously but to different ends. There is a built pattern in the façade that reflects an economy of materials and construction and building systems; in this regard it is technically refined and high performing. This is one of our interests, but also important is a use or program pattern that tracks across the façade through the operability of the glass panels. The pattern is still there but it is opened up.

RM: Yes, I think a strategy is being played out here and perhaps could be amplified as a more general strategy for architects. Sometimes patterns don't add up. This is a very suggestive trajectory pursued in a lot of recent work. Take Bernard Tschumi's work at La Villette, where the superimposed patterns of circulation and infrastructure don't add up. The focus in that project is on disjunction, characterized by the gap between, the overlap, and the montage. That's one line of research – to explore the disjunctions between patterns.



Sciuscia panel patterns

There's also the "event," that unpredictable moment when you're wandering along a path and come across a folly. Something happens because the grid is superimposed over the circulation. But to get back to Karen's point, unlike the montage approach – which is essentially cinematic, one where patterns are overlaid – your work may have more to do with digital representation in the sense that where one organizational pattern ends, another one picks up. In the Sciuscia restaurant, the pattern on the ceiling and the visual effect of distance it creates may or may not have something to do with the layout of the furniture. But they are linked by virtue of the fact that one thing becomes another, becomes another, becomes another – through one screen you see the fluctuations of the others. They don't map onto one another one-to-one, like a grid; instead they pulsate through one another.

LB: If those responses are formed through a recognition of pattern, how should we make correlations between recognitions and responses in order to guide processes?

RM: In the most philosophical sense or even the most obvious sense, when you say, "I see a pattern," it means that you're predicting the future. Pattern recognition and the employment of complex patterns remains a way of regulating things, however opened they may be. And architecture, of course, does that.

KF: It's interesting because in the FIT project, pattern may be the inverse of what you're suggesting. The design here evolved from overlaying patterns, but in this case patterns meet at certain points of incredible definition instead of simply pulsating



FIT Campus Extension sky room

through each other. And unlike the disjunction of overlaid patterns, the moment where these patterns correspond initiates a new relationship. So while the patterns of the skin can be distinct from the patterns of program, they begin to have a dialogue at these particular moments. In FIT we can see where circulation and classrooms shift their relationship to the city, redirecting both learning and movement. That change is tracked in the façade – otherwise the façade operates independently of the planning. In the Chicago Public Schools project, the change actually occurs in the place we referred to as the bootstrap, a location in plan and section that is recognizable in multiple patterns or organizational diagrams of the building. The bootstrap allows patterns of growth, movement, and program to evolve independently while simultaneously addressing the multiple scales of the building. It is a heightened spatial condition systematically conceived at the moment those different patterns overlap.

SM: It's also in the service of an image maybe. When it does this, it becomes spatial. We go from talking about organization to image with no discussion of space.

RM: I would say that space, in the sense of the object in space or the shaping of space, isn't going to yield much in and of itself here. Space, or spatial dynamism, is often used to defend against the freestanding object, but many architects don't seem to understand that objects are systems. For example, we might see a freestanding object like this voice recorder – it's a beautiful object – as a problematic model for architecture because it is apparently cut off from larger systems or networks, whether we call those systems "context," the "city,"



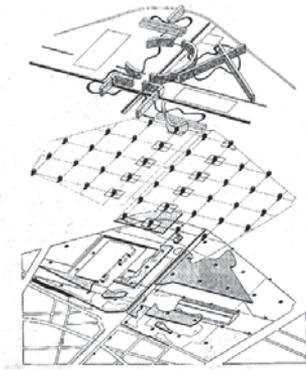
Altschul Auditorium, Columbia University

or anything else. But of course it's not. And you can use it precisely because it just sits there. Still, many architects today object to freestanding, object-like buildings. It seems to me that the object building has not lost its critical potential precisely because it's never just an isolated object. This voice recorder is not just an object; it is a system, both internally and externally. In fact technologists almost always refer to their consumer objects, whether they're digital voice recorders or space shuttles, as systems.

LB: Like Apple's system concept: iPod, iLife, et cetera. They are objects and services in relation.

RM: Exactly. They're always in a field; they're in relation, especially when they're suspended in space. Another example is television, which is seen classically as a sort of system. Literally, a *network*. ABC, NBC, CBS, they're *networks*. Television is always flowing. It's pure flow. You turn it on, and it opens up and gives you access to the seamlessness of the system. The fact that the TV set itself is an object sitting in your living room is central to its ability to literally channel flows. So the question is whether a critical opportunity rests in television. Is there any leverage there? We could argue endlessly about where that might be, but I think the most important thing is to train one's vision to seek that...

SM: It also implies that the practice of architecture must reposition itself to actually leverage these opportunities in areas that have not typically been part of its repertoire. This of course reflects on architectural education, too, where interdisciplinary work is starting to become more common, even urgent, leading both students and teachers to get serious about the knowledge of each other's disciplines.



Parc de la Villette, Bernard Tschumi

This is necessary not only to expand our thinking about our own discipline but more importantly to allow productive collaboration with others. With so much emphasis in architectural discourse on understanding peripheral forces that affect the production of architecture, the questions arise: What is still unique to the practice of architecture? What do we, as architects, bring to the interdisciplinary table?

RM: That's a very interesting question, and it's very apropos today, with people taking a lot of positions on this issue. That's why the technical details of a curtain wall or the plan of a building are extremely important to me in articulating the set of issues and strategies that we're discussing, because they are among the many specifically "architectural" instruments that architects have at their disposal. They're also a reasonable guarantee against idealization. Because there is a strong tendency to idealize organizational systems or potentials, I think it's always necessary to check that against material facts: the thickness of a particular skin on a building or how the air moves in and out, and so on.

What's specific about our discipline, I think, is the particular way in which the outside is on the inside. Architecture by definition needs to link up with other practices – for example, not just with academic disciplines but also with clients – in order to become architecture. We can pretend that the client doesn't matter, that they're "extra-architectural." But the client is literally "inside" the building in every sense. And yet the client does not determine the building. By no means can architecture be reduced to the interests of the client or to any other "external" influence. Instead we are talking about feedback loops in which disciplinary boundaries are scrambled



Seagram Building, Ludwig Mies van Der Rohe

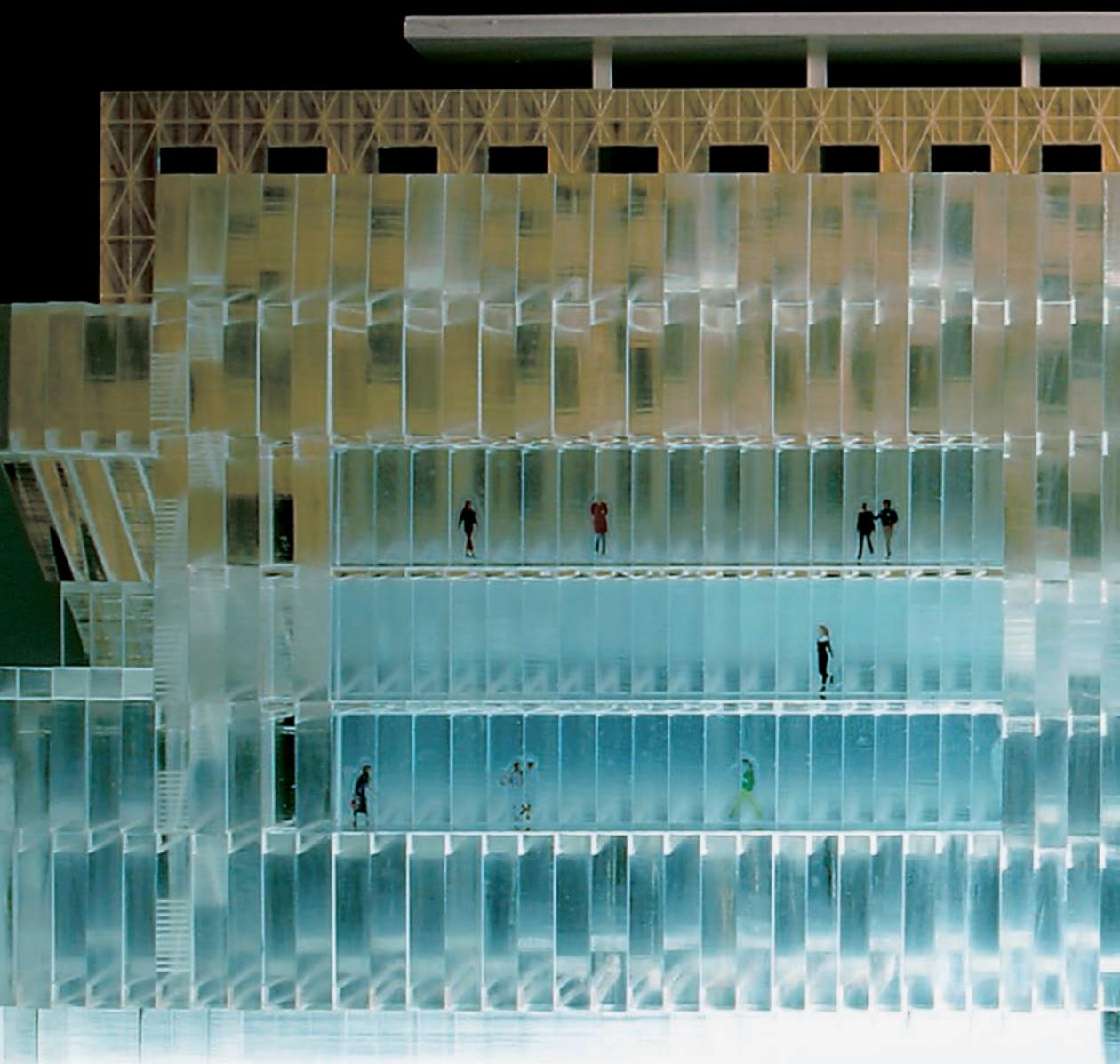
topologically without being erased. Similarly, I think that every serious practice today is obliged to experiment with how it's organized: how we collaborate or not, whether we do proposals or design competitions, whether we collaborate with colleagues on an experimental project, et cetera. Some of this is new, and some of it is not, but I think the important thing is that rather than idealize a particular pattern as a model, we must experiment with patterns. Not just for the sake of experimentation but to recognize that each one of these patterns has specific effects.

LB: It has to do with agency, and maybe that's part of the pedagogical issue. What you attempt to do is sensitize designers to the degrees – the variety – of agency that they have to perform when they go into practice. There is some professional sense of competency, of putting together material facts, that we also have to balance with the multivalency of agency.

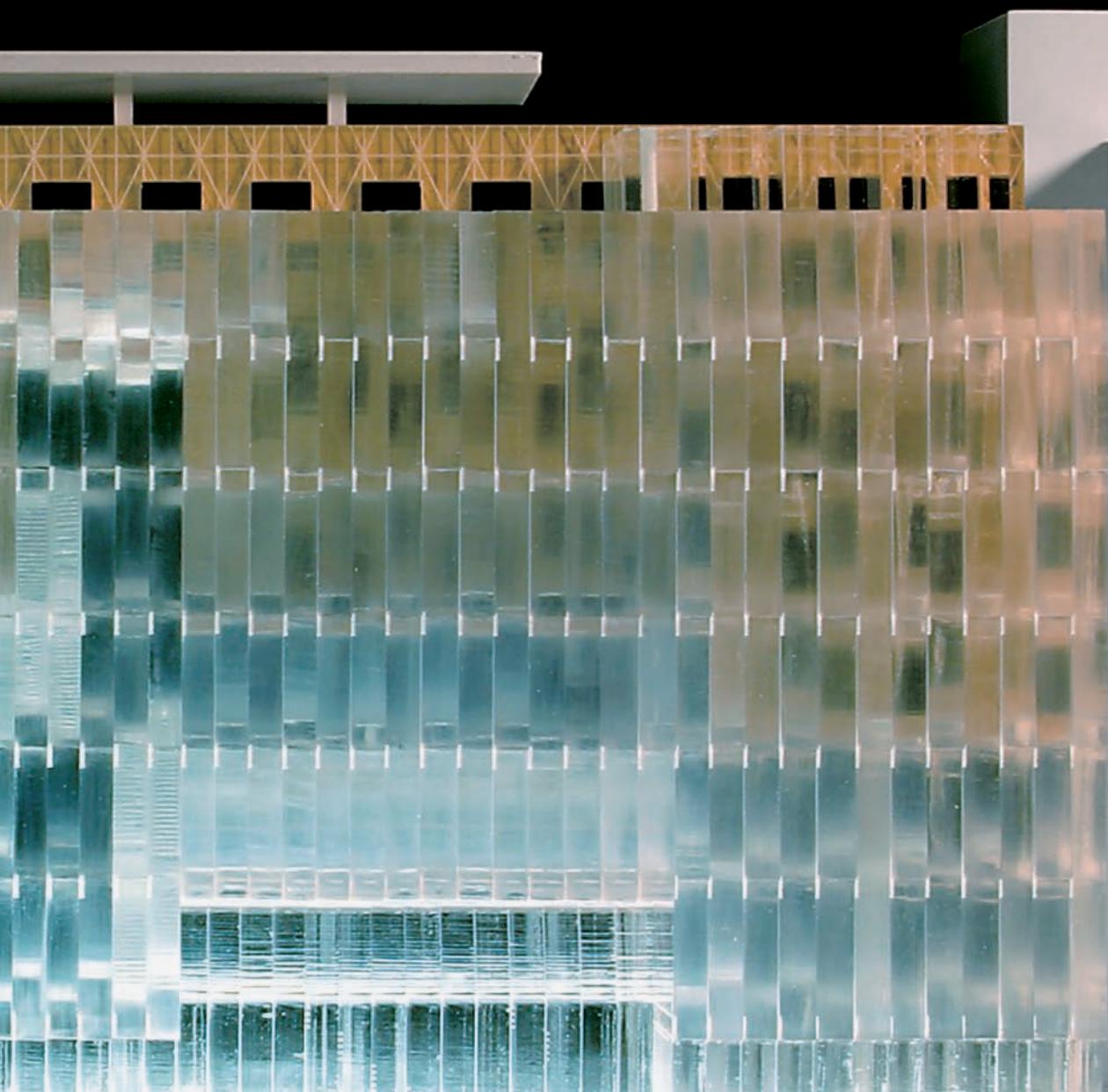
RM: Yes. I think architects have a specific sort of competency that is not "expertise" per se – another argument today that reproduces the autonomy argument of the 1970s. In dealing with the complexity of the world, I think we must always be strategic and recognize not only who we are working for, but also what our project is. For example, by withdrawing into the minutiae of a very specific, expert practice, a scientist working in a laboratory in Yorktown Heights might appear completely isolated from the world at large, and hence from its impurities. But the scientists working in Eero Saarinen's IBM Yorktown Heights laboratory were fighting the cold war. And by designing for them in the way that he did, so was Saarinen. They were not withdrawing at all. The supposed autonomy gained by withdrawing into the deep interior of your discipline in order to insulate

yourself from all the nasty things going on in the world *is* actually required by a new kind of war. There is simply no place to hide. So – to translate back to today’s context – this means in effect that you’re always confronted with the question about your position on the war. You never get away from it. This is something that many architects don’t seem to want to deal with. So many today have returned to a version of the autonomy position, using words like “expertise” as a way of saying, “Well, I’m just doing what I do. Don’t bother me. I’m a responsible citizen. I go to vote, I watch the news, I read the newspaper, but I’m an architect. I’m just an architect.” It’s not that there’s no such thing as “just being an architect.” Rather it’s that precisely by just being an architect, you link up with everything else.

I was born cross-eyed. I could see only large patterns, houses, trees and outlines of people – and all coloring was blurred. I could see only two dark areas on human faces, but I could not see a human eye or a teardrop or a human hair. Not until I was four years old, in 1899, was it discovered that my cross-eyedness was caused by my being abnormally farsighted. Lenses fully corrected my vision. Despite my ability to apprehend details, my childhood's dependence only upon big patterns has persisted. – R. Buckminster Fuller, *I Seem To Be a Verb*



Fashion Institute of Technology Campus Extension



As part of a new identity campaign, the Fashion Institute of Technology held a design competition for a new academic building extension that would reorient the campus to the city and reveal the diverse curriculum and energy of the school. Despite its location on Seventh Avenue – Fashion Avenue, the “Broadway” of the New York fashion industry – the FIT campus currently focuses inward with little connection to the surrounding city; the existing campus buildings, generically referred to as Buildings A, B, C, D, and E, are all linked by an internal circulation network that masks the vibrant activities inside.

Initially founded as a school of fashion design, today FIT offers thirty different programs, reflecting the increasing specialization and interdisciplinary trends in the design industry. The proposal responds to this change with program organizations foregrounding integrated, non-hierarchical forms of learning that rethink established categories of knowledge. The design extends the space of the formal classroom and studio to include more informal and casual areas of the building to promote ambient learning – learning not bound to any particular space or time.

The urban strategy focuses on making the new extension an interface between the campus and the city, turning the activity of the school inside out. The site, which faces north, is 220 feet long by 45 feet deep, with only 35 feet between it and Building C. This proximity led to conceiving the new building as a thick façade woven to Building C by visual links and programmed surfaces. The full depth of the site is utilized to redefine



View of Fashion Institute of Technology proposal down 28th Street from Seventh Avenue

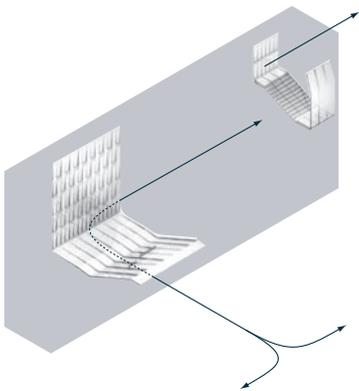
the relationship of the campus to the city, through the new extension, as interactive and interdependent drawing on the vitality of the adjacent fashion district and simultaneously positioning FIT as a major anchor. Extending the logic of ambient learning to the scale of the city, the extension links urban and institutional boundaries, as city, building, and campus merge into a programmatically thickened interface.





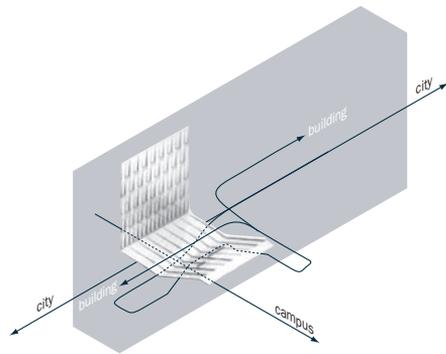
Location

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FIT's campus is embedded in the urban fabric of midtown Manhattan at the southern edge of the Fashion District. All campus buildings are internally connected, some across blocks. The new campus extension connects to Building C and faces 28th Street.



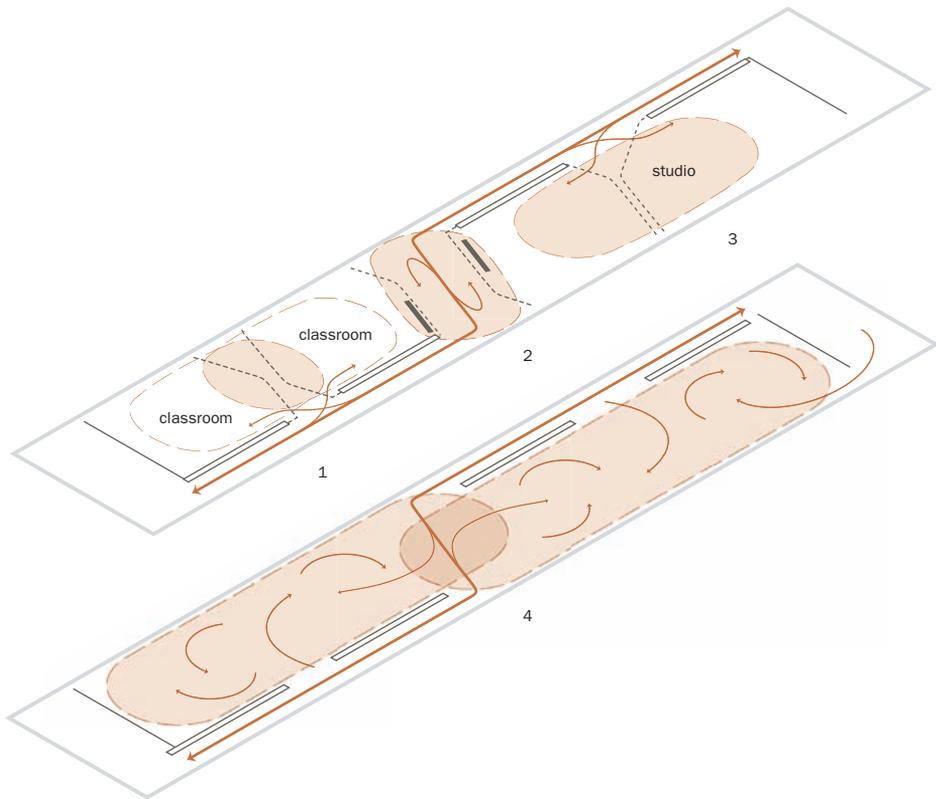
Urban attractor

From Fashion Avenue, the façade weaves through the building forming a floating glass presentation room (the lobe) at the corner of the building and an outdoor seating area at the entry. These two discrete programmatic details act as attractors to Fashion Avenue.



City/campus interchange

The entry sequence up into the new building has the unique condition of moving through, under, and then over the façade resulting in a continual reversal of inside and outside. Teaching areas, display, movement and informal gathering are all clustered around this interchange presenting a density of social and academic activity to passers-by on the street and the school population as they enter the campus.



Ambient learning

The proposal rethinks the separation between classrooms where students “learn” and labs or studios where students “do.” Studios and classrooms are grouped together, and can be combined into integrated learning environments. As disciplinary and spatial borders within FIT become soft, teachers will increasingly become facilitators of knowledge in informally organized, student centered spaces. The social discipline and singular focus of the hermetic classroom will give way to a dispersed interactive environment in a move toward ambient learning. Classrooms have become smart simply by having internet access. The ability to access knowledge anywhere and at anytime challenges the individual classroom structure and the traditional student/teacher relationship. With this shift, the informal social spaces of hallways and gathering areas outside designated classrooms become a potential new space of learning. Ambient learning combines technology-driven smart classrooms with a reorganization of curricular and physical boundaries.

1. Overlap

Independent learning loops have the potential to overlap with each other in the shared/negotiated space between classrooms.

2. Redirect

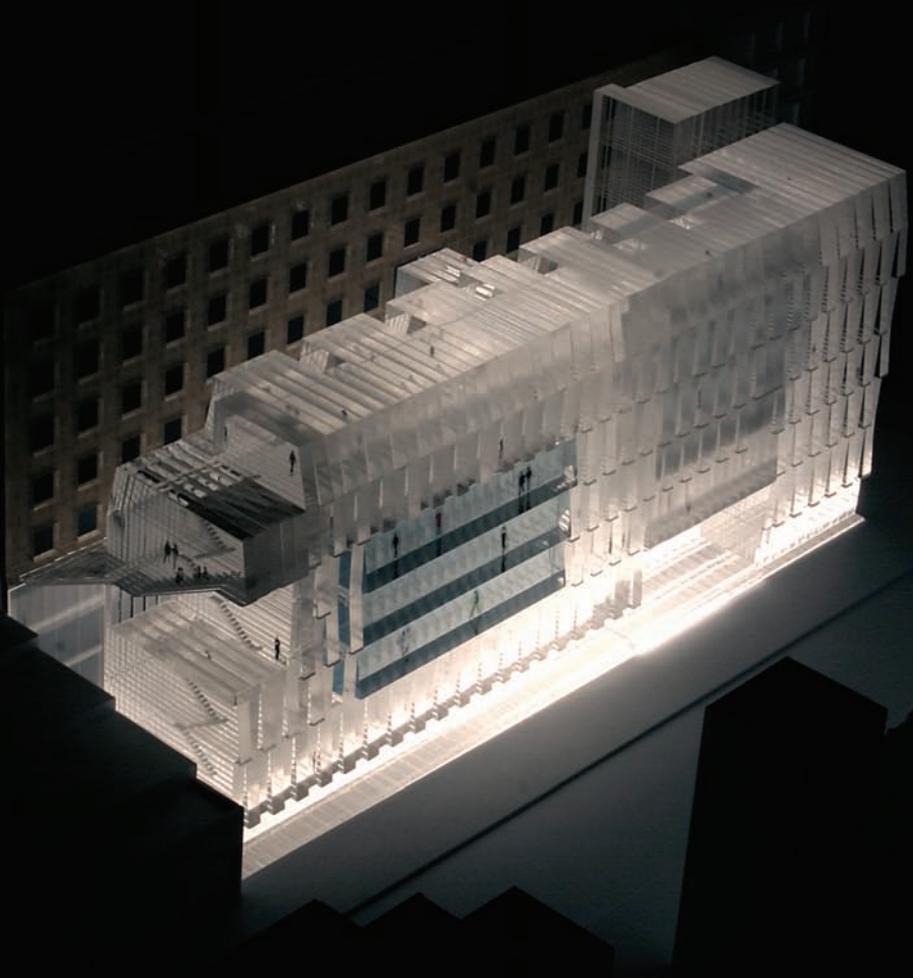
The primary movement system flips from campus side to city side and is redirected by the display of classroom projection (and other forms of display) linking formal and informal learning areas.

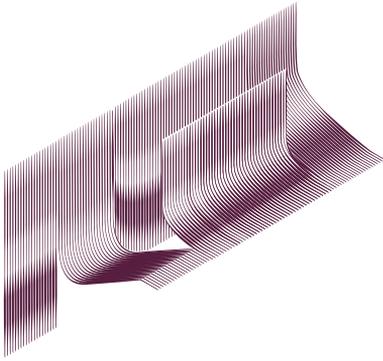
3. Link

Classrooms paired with studios are configured as one continuous learning loop where the production of objects directly links with the teaching of the classrooms.

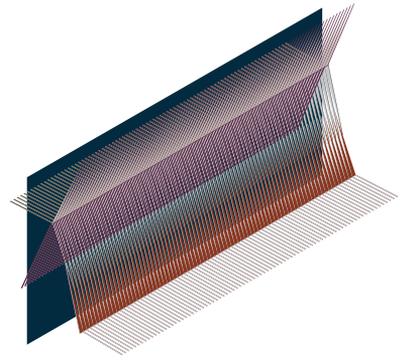
4. Future Learning Organizations

The infrastructure of the building allows FIT to move toward future alternative patterns of more informal and non-hierarchical learning environments.

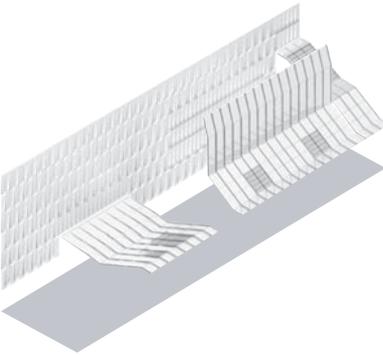




1. Looping of inside and outside



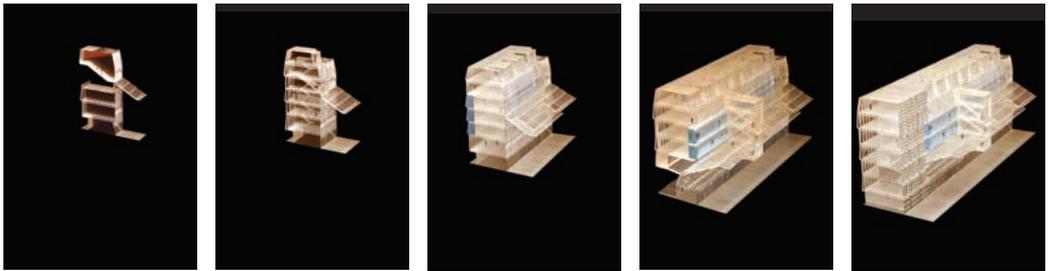
2. Spatialization of surface



3. Thickening of surface

Surface weave

The front and rear façades wrap back to link into the 4th floor of Building C forming an exterior balcony off existing studios. The new building is conceived as a thickened façade that is threaded together with a combination of material surfaces, views and movement.



Composite sections

Composite section model describes the relationship between the surface weave module and internal organization. Adherence to internal/external equivalence is loosened to achieve moments of syncopation between the building skin's modularity and the disposition of spaces. Consequently, it becomes possible to locate areas where micro-adjustments could be made between envelope design and local conditions.

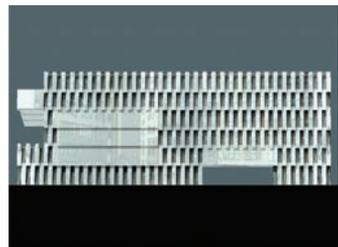
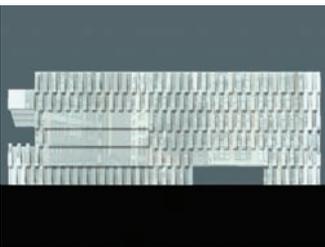
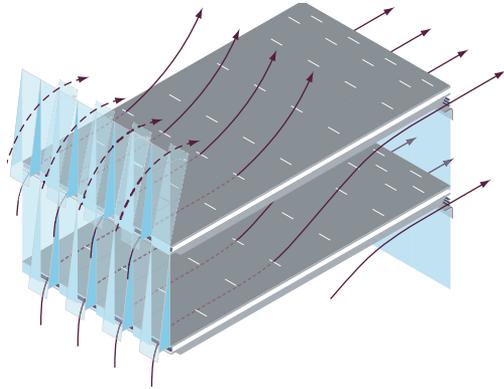
Strategic transparencies

Views develop through multiple layers of inside and outside spaces, and between the new extension and Building C. Outside and inside boundaries collapse as one enters and looks through the façade from outside to outside or inhabits the surface of the façade as it wraps back to connect to Building C forming exterior seating areas.

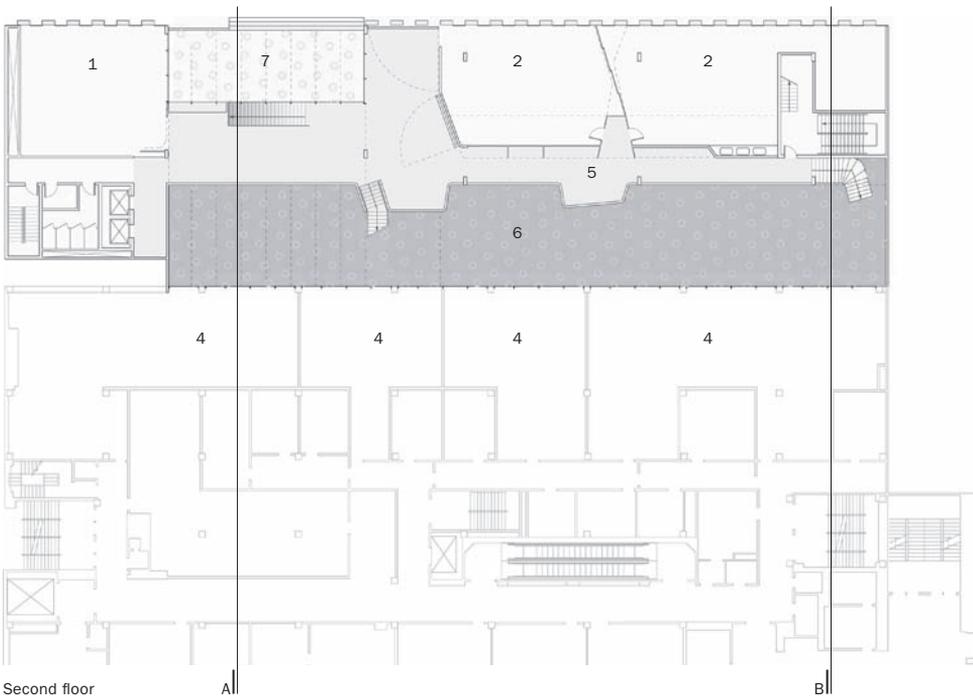
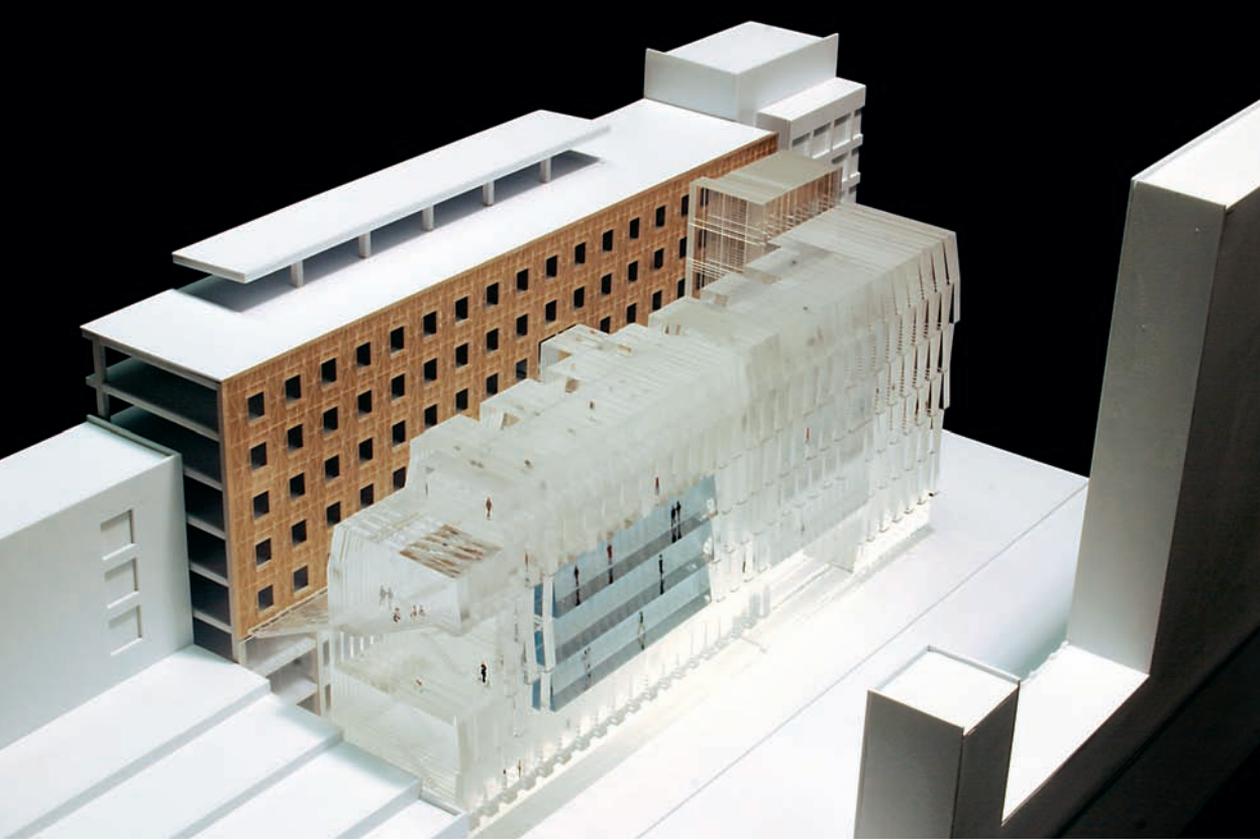


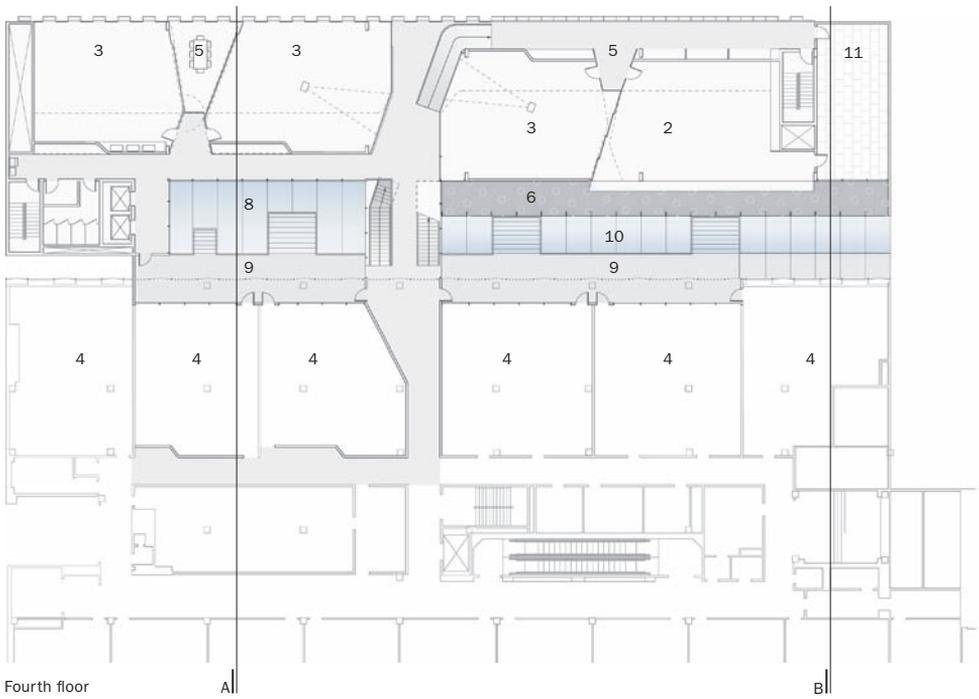
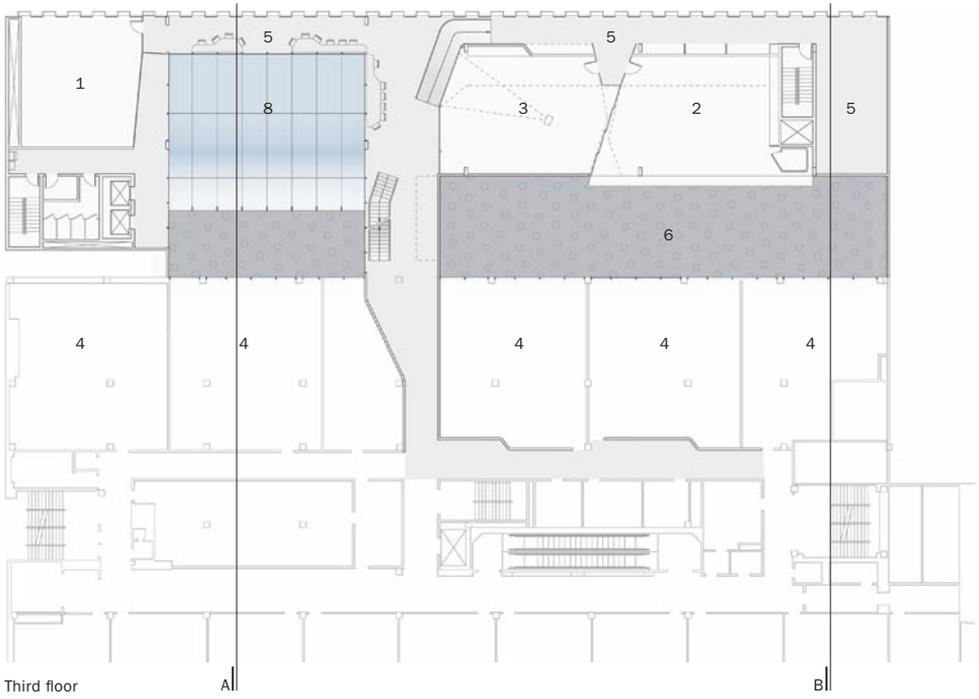
Urban lung

The 28th street façade is conceived as an urban lung that allows the building to breathe. The climate in New York City allows for unconditioned ventilation for up to six months out of the year, resulting in a significant reduction in energy consumption. The long length and relatively narrow depth of the building allows a highly effective passive ventilation system. Air is admitted through an alternating pattern of operable windows and louver-controlled intakes at each level of the building. Below, the façade varies from an even pattern during the winter to a more random pattern during the spring, summer and fall when operable windows are selectively opened.

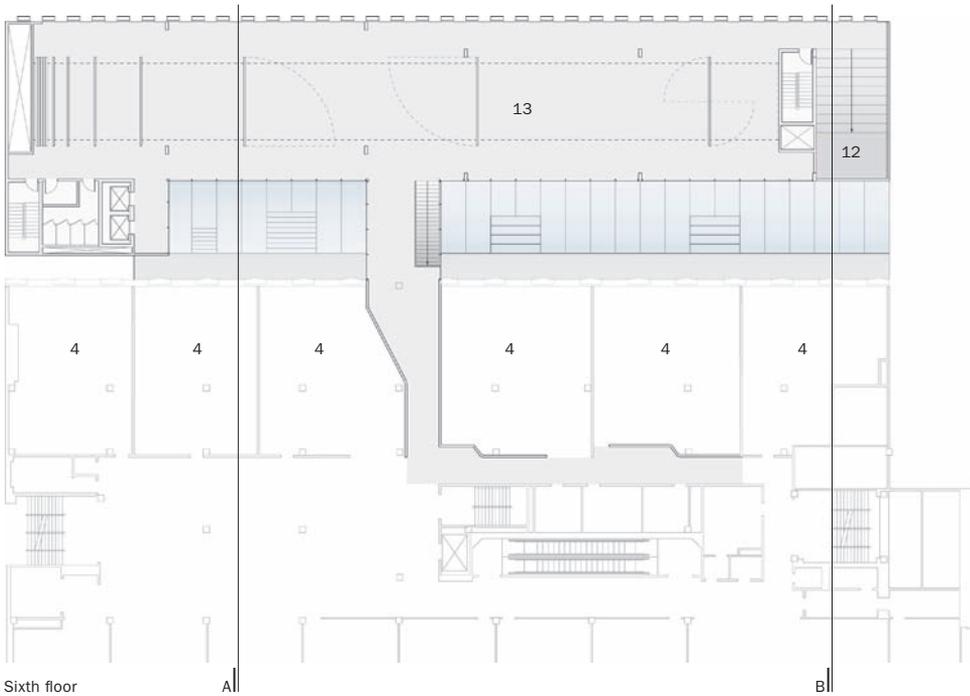
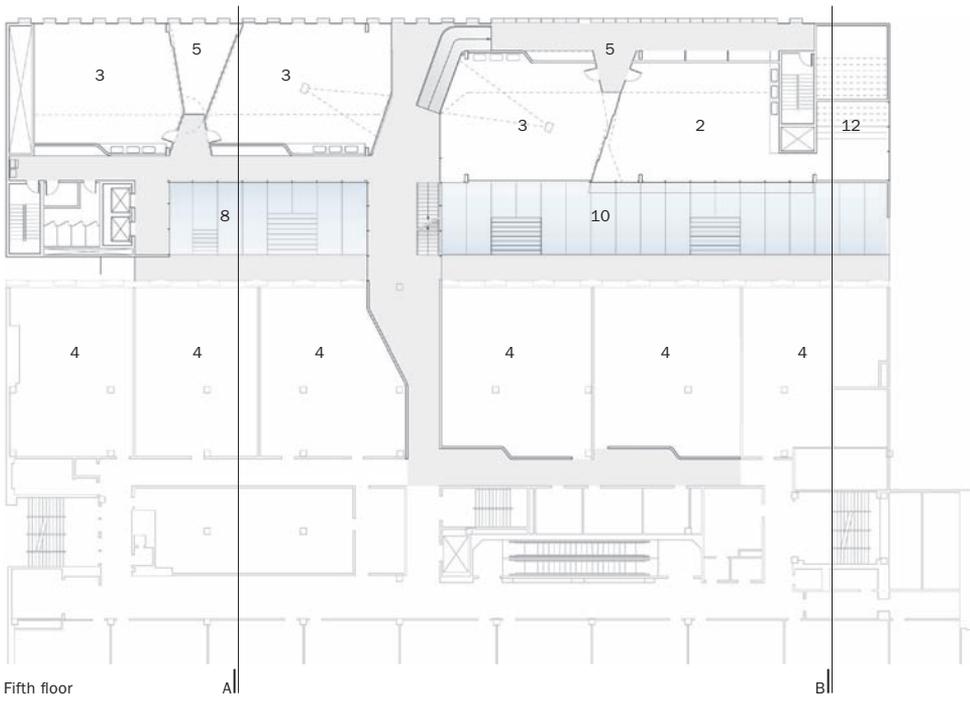






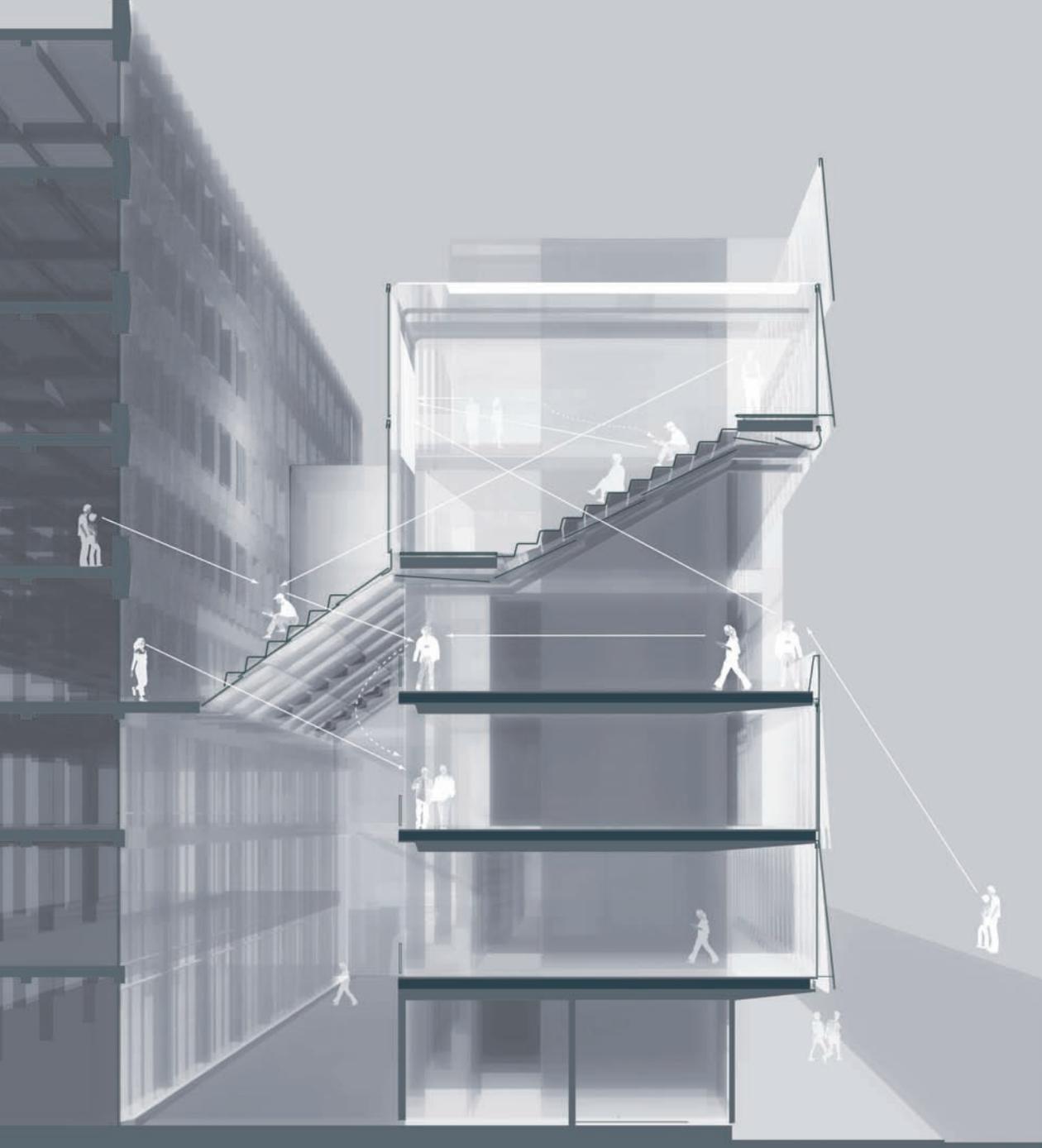


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|------------------|------------------------------------|--------------------------|-------------------------|-------------------------------|
| 1. Computer lab | 4. Existing building design studio | 6. Entry lobby below | 9. Balcony for studios | 12. "Lobe" theater |
| 2. Design studio | 5. Ambient learning areas | 7. Street entrance below | 10. Glass roof of lobby | 13. Adjustable design studios |
| 3. Classroom | | 8. Glass "belly" | 11. Outdoor terrace | |



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| 2. Design studio | 5. Ambient learning areas | 7. Street entrance below | 10. Glass roof of lobby | 13. Adjustable design studios |
| 3. Classroom | | 8. Glass "belly" | 11. Outdoor terrace | |





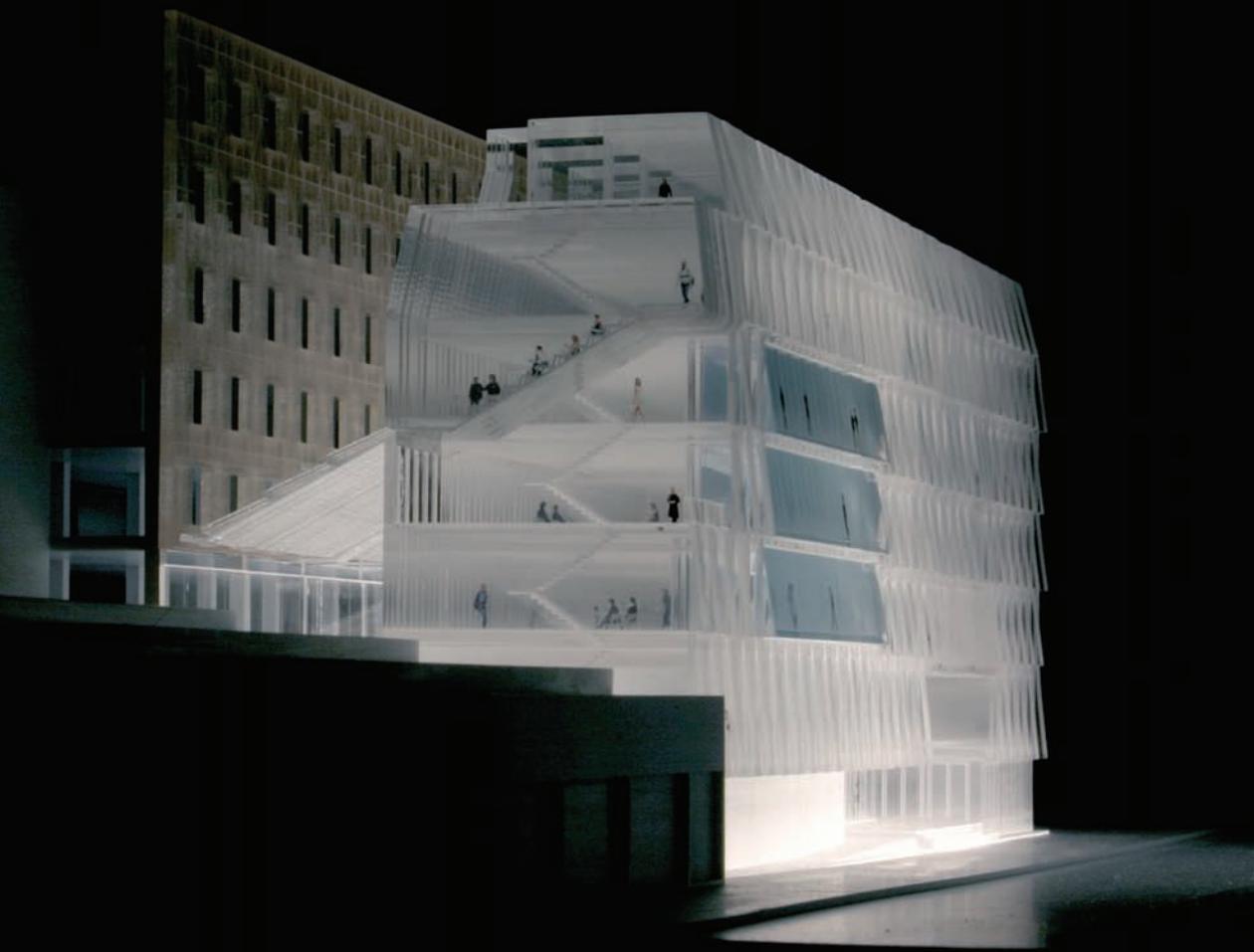
Section B through lobe theater







Section A through entry

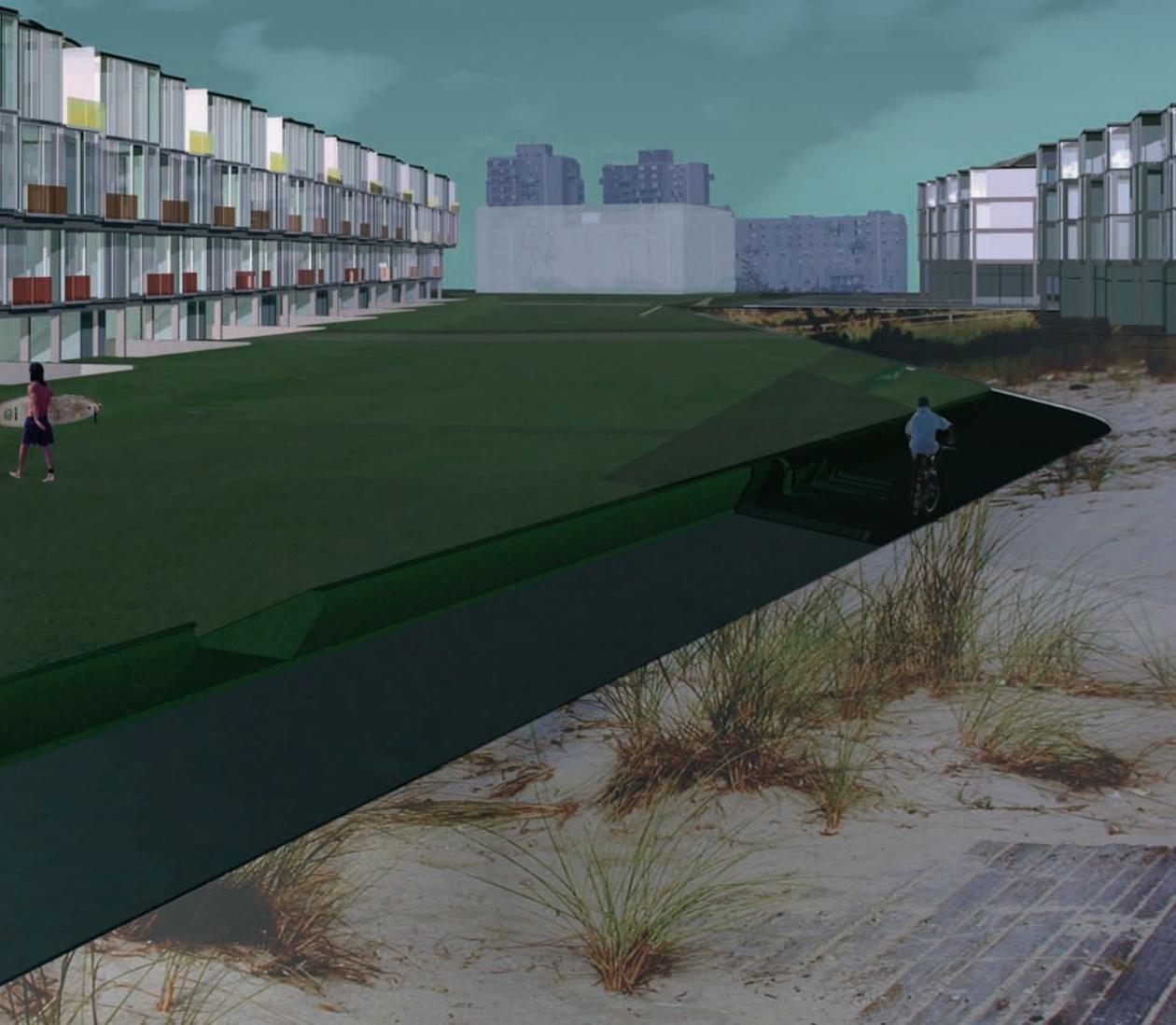


Vertical Townhouse: two views









Few development sites are positioned so literally between natural, legislative, infrastructural, and social extremes as Arverne in Far Rockaway, New York. Public subsidized housing slabs line the beach to the west; the elevated NYC subway line defines the northern boundary; Ocean Village, a self-contained social condenser from the 1960s, rises out of the almost pastoral landscape to the east; and the Atlantic Ocean is to the south. These boundaries combined with the fragile ecology of the landscape below and the JFK flight paths overhead establish the immediate context for this architecture and urban design project.

With over 300 acres, the Arverne Urban Renewal Area is one of the largest developable tracts of land in New York City. Since the area was cleared in the late 1960s, and despite numerous proposals ranging from high-density housing to a multimedia gaming park and hotel complex, the site has remained undeveloped.

In 2001 the city identified 100 acres of the renewal area as a site for market rate housing, with a target density of eight units per acre. Marble Fairbanks (Housing Ecologies), together with Michael Bell Architecture (Stateless Architecture) and Mark Rakatansky Studio (Urbia), formulated a collaborative urban design proposal, with each group developing a sector of the site at densities ranging from the requested eight units per acre on the east end of the site to 28 units per acre on the west end. The variable densities and their planning strategy as well as the specific architectural design for each sector were developed to respond to the intricate social and urban conditions surrounding the site.



Far Rockaway, aerial view west over Arverne site



Housing Ecologies

Marble Fairbanks

Target density 28 units per acre

interface



interface

Stateless Housing

Michael Bell Architecture

Target density 18 units per acre

Urbia

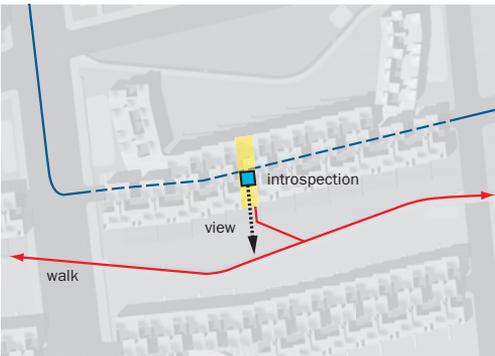
Mark Rakatansky Studio

Target density 8 units per acre



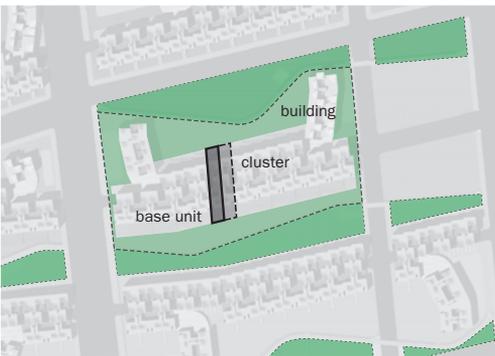
Streets / Sidewalks

The hierarchy between streets, sidewalks and blocks along the east west axis of the site is rearranged to allow more varied, even conflicting uses within each. The proposed east/west streets extend under the housing bands and lead to parking for the residents. Sidewalks are extended across the blocks to form east/west passages through the site between the housing bands and correspond to ecological rifts – changes in ground material from sand on the ocean side to scrub trees on the land side. The main north/south through streets are maintained to link the adjacent community through the new development to the beach.



Unit / City

The internalization of the city street as domestic parking initiates a sequence of shifting expectations of interior and exterior; unit and city. In response to the condition of interior anonymity and the prevailing design strategy of planned, demographically determined, housing communities, the unit is reasserted as a generator of the city. Both the architecture and the landscape are conceived from a sequence of moving from the inside out – through the interior of the unit to the site.



Negotiated territory

The policy shift of almost all government housing agencies from publicly subsidized rental units to public/private partnerships based on home ownership is largely driven by the premise that ownership will introduce a process of individual commitment and propriety that will overcome the digressive economic conditions of past housing projects. The flip side of ownership, and one which is very likely on this site due to it being surrounded by one of the largest concentrations of subsidized housing in NYC, is the protection of property by closing off access to surrounding communities. Housing Ecologies proposes discrete scales of ownership that attempt to link to public zones on and around the site to form overlapping boundaries.

*The problem of how to transmit our ecological reasoning to those whom we wish to influence in what seems to us to be an ecologically “good” direction is itself an ecological problem. We are not outside the ecology for which we plan – we are always and inevitably a part of it... Herein lies the charm and the terror of ecology – that the ideas of this science are irreversibly becoming a part of our own eco-social system.**

The communities in the areas surrounding Arverne, the site of the proposed new housing development, in large part comprise families relocated from areas around the city that have been obtained for redevelopment. They are lower-income populations financially unable to voluntarily move elsewhere that have been brought together as a result of urban redevelopment. The ambition of the new Arverne development is to bring market rate home buyers into an area with the largest concentration of subsidized housing in New York City and to simultaneously avoid exacerbating the already displaced and isolated condition of the existing communities. The title of this proposal, Housing Ecologies, alludes to the simultaneous realms of housing’s material and social organization – housing as a place (noun) and an activity (verb) – understanding them as concurrent processes that, in their interrelations, behave as a single ecology. As such, the project proposes architecture as a flexible, collective infrastructure that allows the individual actions of housing to be generated in response to specific organizational anchors (parking, generative voids, circulation cores), finding a place between the reductive efficiencies of market forces and the remaining traces of domestic subjectivity. The project utilizes ecological processes to constructively navigate between aspects of pre-established productive forces and the occupational desires of housing, working on the premise that housing communities, as ecologies, can perform most effectively when conditions exist for a degree of self-generation and the ability to reorganize over time.

Flexibility – Processes of Movement
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Architecture is unlikely to be able to adequately respond at the speed with which the criteria for its production changes – the 35 year delay in development on the Arverne site has been due in part to the continual change in programming needs in response to rapidly evolving market demands and subsequent

public reactions. While Housing Ecologies proposes a target density of 28 units per acre over approximately 30 acres of land, this proposal is driven by an organizational logic of flexibility. It anticipates density fluctuations up or down in response to factors ranging from changing household structures (family size) to the frequency of homeowner relocation (approximately every six years) to the economic ability and desire of owners to expand or reduce their unit size. The project intends flexibility here to encompass not just the action of change but also the systemic processes that influence change. Ross Ashby, an early cybernetic theorist, suggests that systems can be understood as made up of interrelated variables, each having a range (or supply) of adaptation (or flexibility) within its own identity that facilitates links to other variables. As variables interact, the supply of flexibility of one expands or contracts in response to pressure from another. If kept within a tolerable range, this fluctuation promotes a productive system (ecology). If the supply is exhausted in any one variable, distortions can occur, affecting all others and jeopardizing the stability of the system as a whole. *Flexibility may be defined as uncommitted potentiality for change.** Housing Ecologies embraces these processes of change by asserting architecture as an integral part of the social and natural ecological system.

Degrees of Territory – Processes of Negotiation
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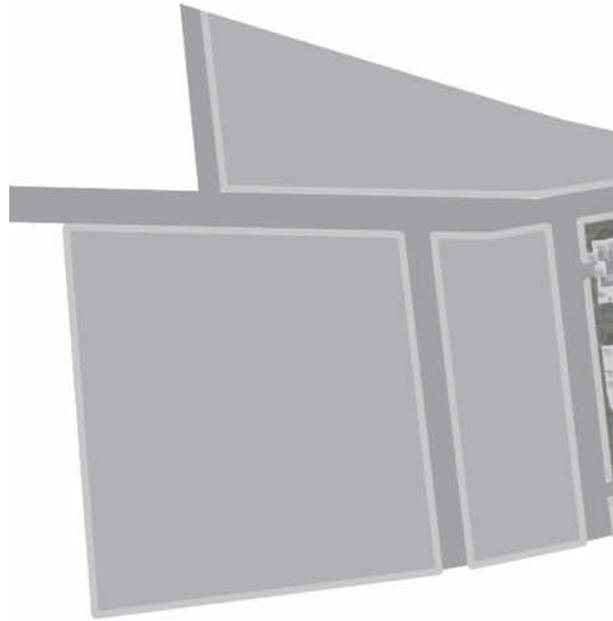
In an effort to expand established public/private domains from an oppositional relationship to a more affirmative, generative gradient, Housing Ecologies is structured around degrees of territory, providing for a range of spatial and temporal flexibility in the precise location and definition of territorial boundaries. In allowing these territorial boundaries to evolve over time, (architectural) parameters have structured flexibility so that public and private domains coexist. As such, the project proposes architecture as a system that structures the potential interrelations of the desires and tendencies of individuals and communities, and the continual play of social and economic forces – in effect, as an architecture that houses ecologies.

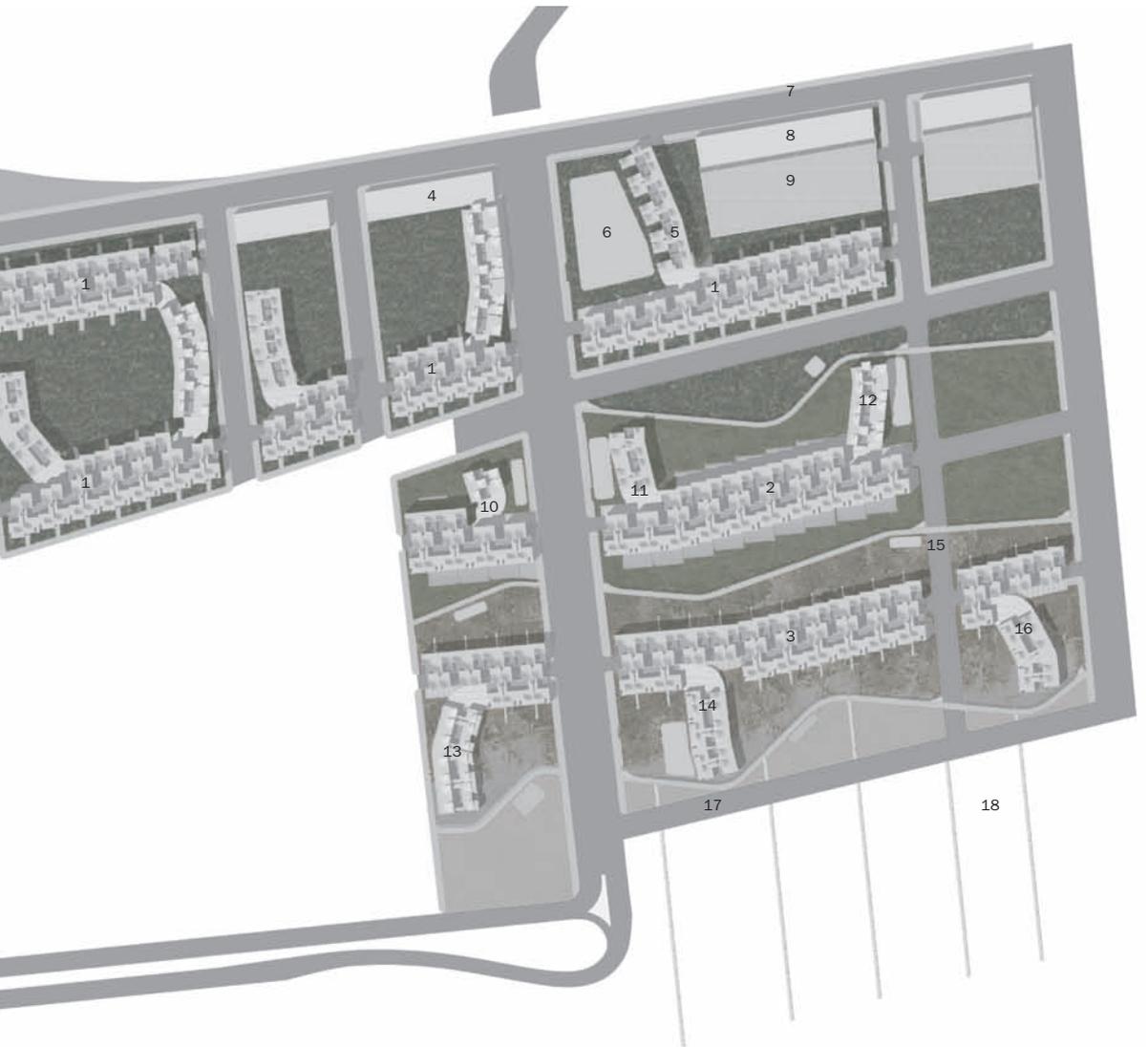
By allowing degrees of territory, the project anticipates a process of territorial negotiation that will construct communities as productive ecologies. This process of negotiation as an active and dynamic variable is integral to the ability of communities

to establish and sustain self-identity. If territory is a flexible variable within a productive ecology, it is the process of territorial negotiation, an exercising of flexibility, that promotes the health of communities, and it is the lack of exercising this flexibility that threatens to destabilize the ecology. Assumed passive territorial stability will ultimately lose its ability to adapt when the inevitable pressures from other variables begin to impinge on it. Public or private divisions, while giving the impression of clearly defined boundaries and legal jurisdiction, could be seen in this light to contribute to a systemic imbalance between the individual and the collective. Resistance to market forces has become ineffective as a means for architectural production in housing. The quasi-socialist public housing policies of the past have given way to forms of subtle but real market-driven programs. What is proposed at Arverne, while called private market rate housing, is in fact a public/private venture since the city and state will provide the land and infrastructure. The optimistic view is that this strategy of private ownership within partially public territory will succeed, due in part to the acknowledged interdependency and negotiable shades of gray between public and private realms, yet in proposing territory as dynamically part of a housing ecology largely driven by market forces, it leaves the question open as to whether these forces can be ecological.

*The ecological analyst faces a dilemma: on the one hand... he must first recommend whatever will give the system a positive budget of flexibility; and on the other hand the people and institutions with which he must deal have a natural propensity to eat up all available flexibility. He must create flexibility and prevent the civilization from immediately expanding into it.**

*All quotes are from Gregory Bateson, "Ecology and Flexibility in Urban Civilization," paper presented in October 1970, a year after Arverne was originally cleared for development, to urban planners from the Lindsay administration in New York City.



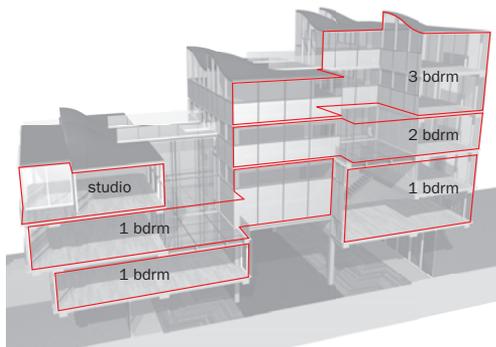
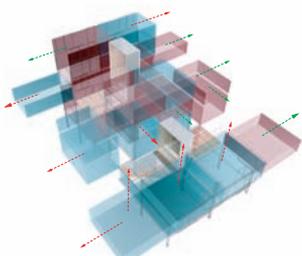
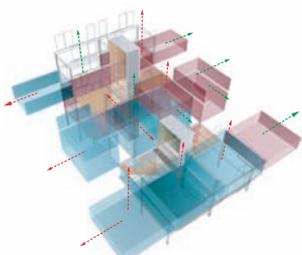
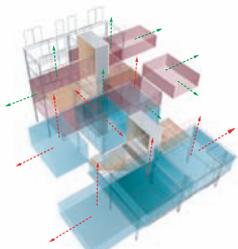
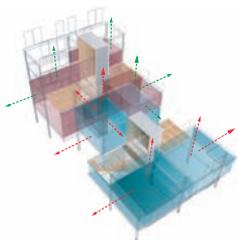
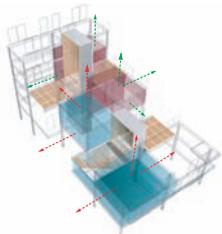
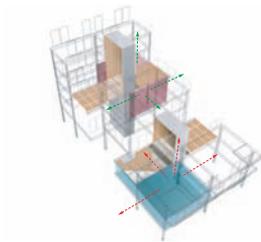


Site Plan

1. Four to five story residential, parking below
2. Three to four story residential, parking below
3. Two to three story residential, parking below
4. Two-story commercial
5. Charter school, residential above
6. School yard
7. Elevated subway, retail below
8. Retail below, cinema above
9. Outdoor recreation platform, parking below
10. Community center
11. Galleries, residential above
12. Daycare center, residential above
13. Mobile retail, residential above
14. Common residential amenities
15. Recreation street, overflow parking
16. Ecological learning center, residential above
17. Beach parking along street
18. Boardwalks to beach



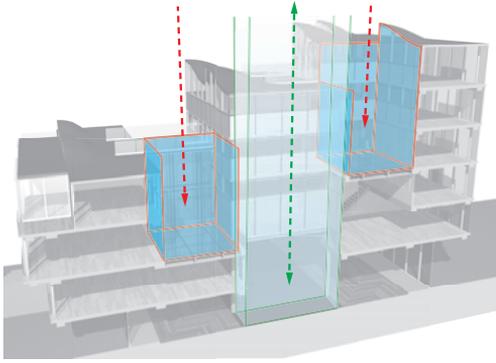




Unit flexibility

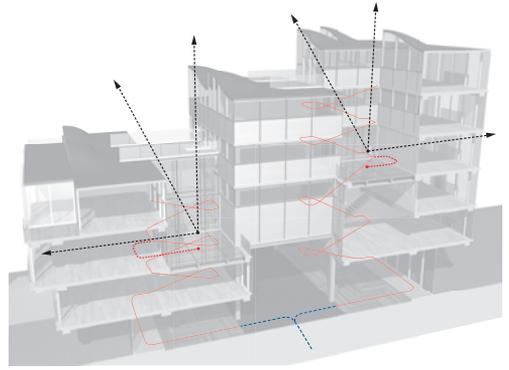
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The base number of units within a 26-foot wide bay ranges from four units in the ocean side building to six units in the furthest land side building and ranges from studios to two bedroom units. The pre-fabricated concrete frame structure and wall panel system allow unit expansion both vertically and horizontally. The stair core, which serves two bays, also contains vertical shafts for all utility risers with short distribution runs to bathrooms and kitchens.



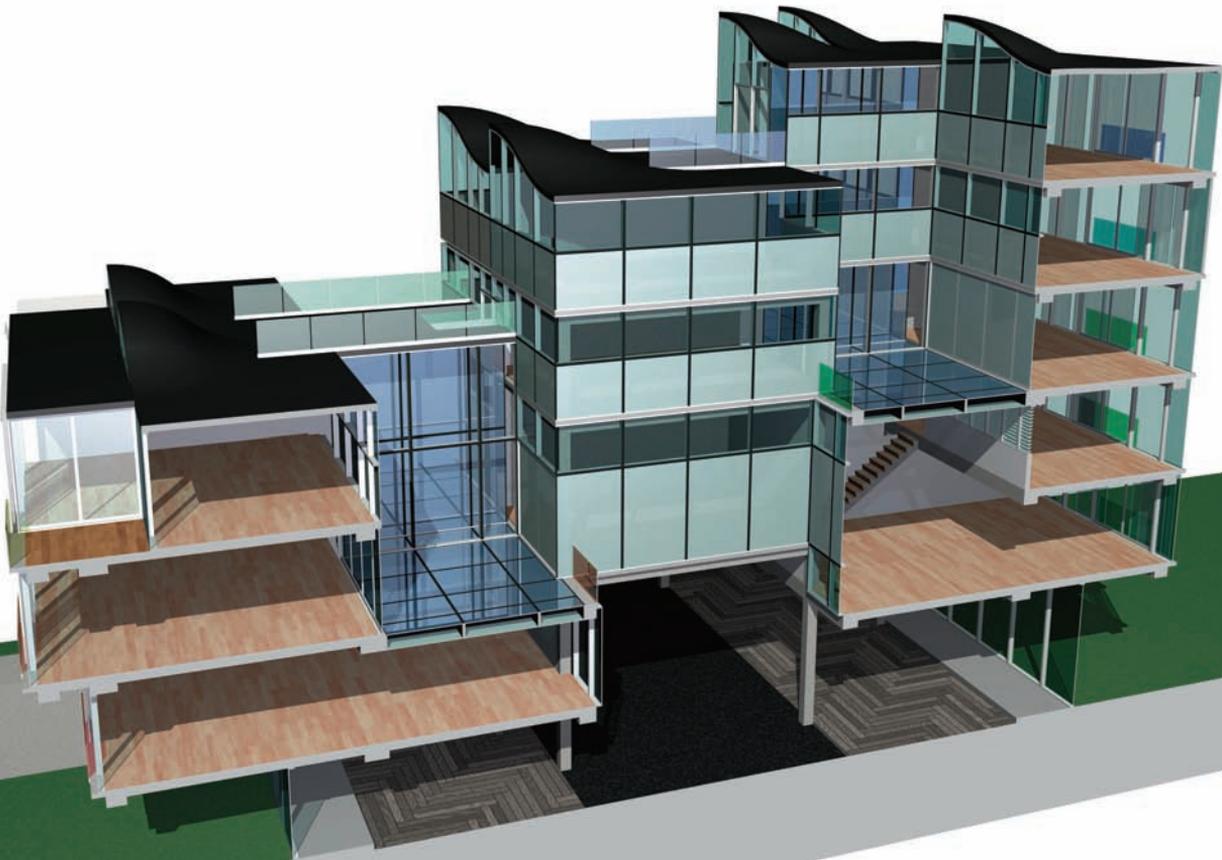
Generative voids

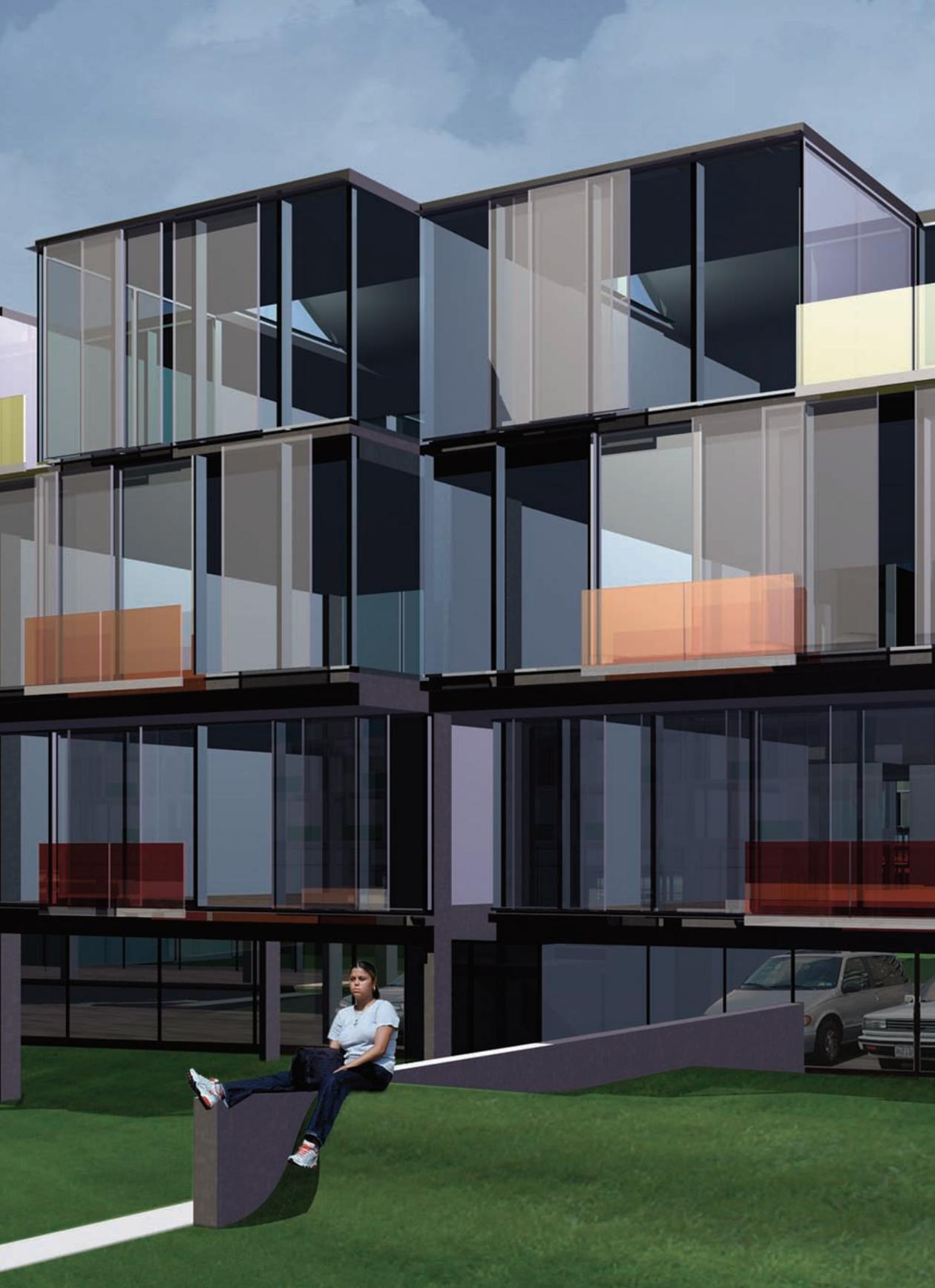
Given the base distribution of units which are oriented either ocean side or land side, cross ventilation and light to each room is achieved by voids within the mass of each housing band. The floor of the voids are owned and occupied by the adjacent unit while the space above is common to allow light and air into upper units. The voids are a space of negotiation between neighbors. For larger configurations, the voids can become the sole domain of a single homeowner.



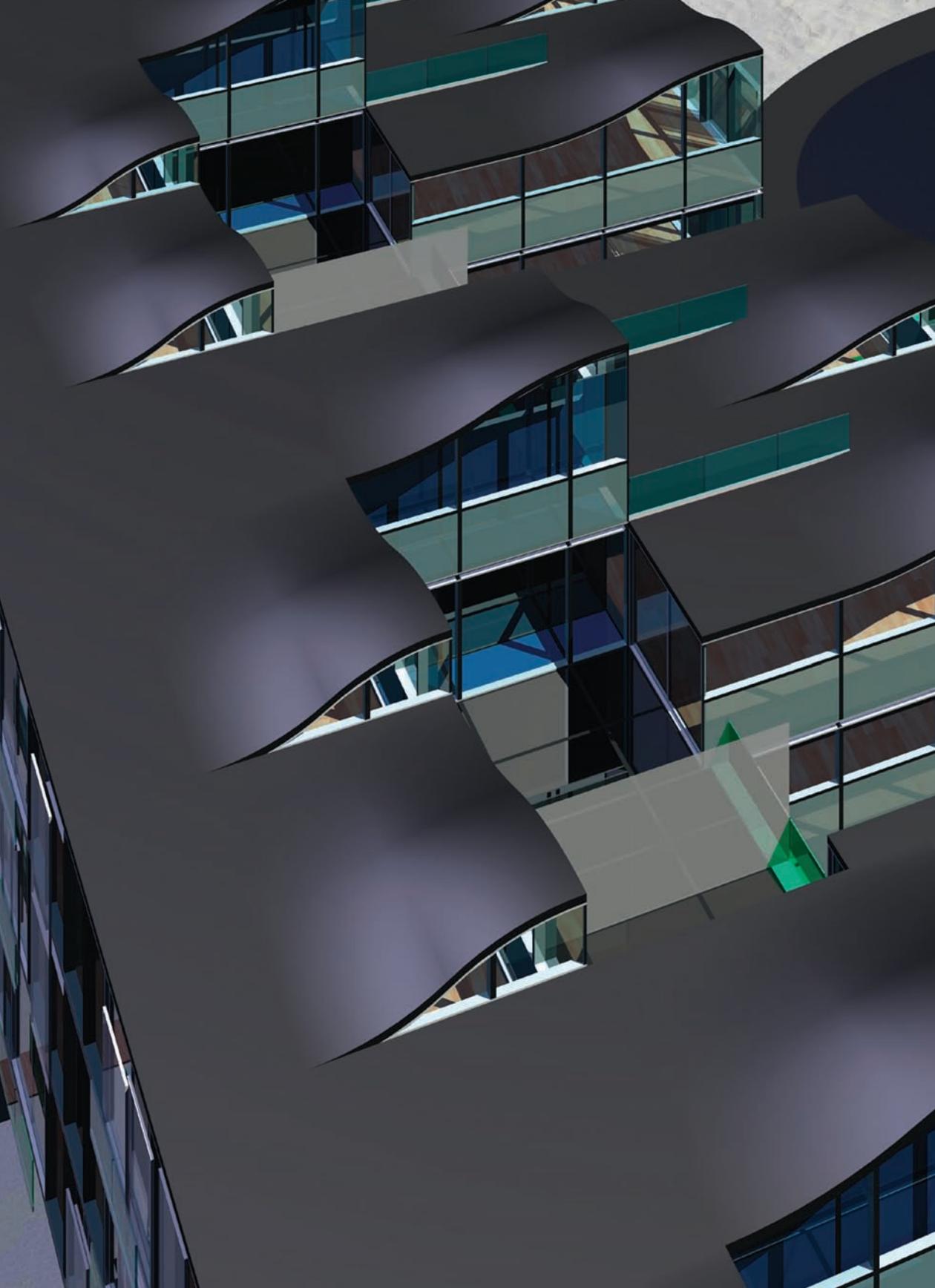
Split horizon

The horizon has a powerful presence at Arverne. The stepped section of the housing bands allows the upper units to view over the roofs of adjacent units toward the expansiveness of the ocean and simultaneously into the immediacy of the voids. From within the void, the sky is framed by the units above.











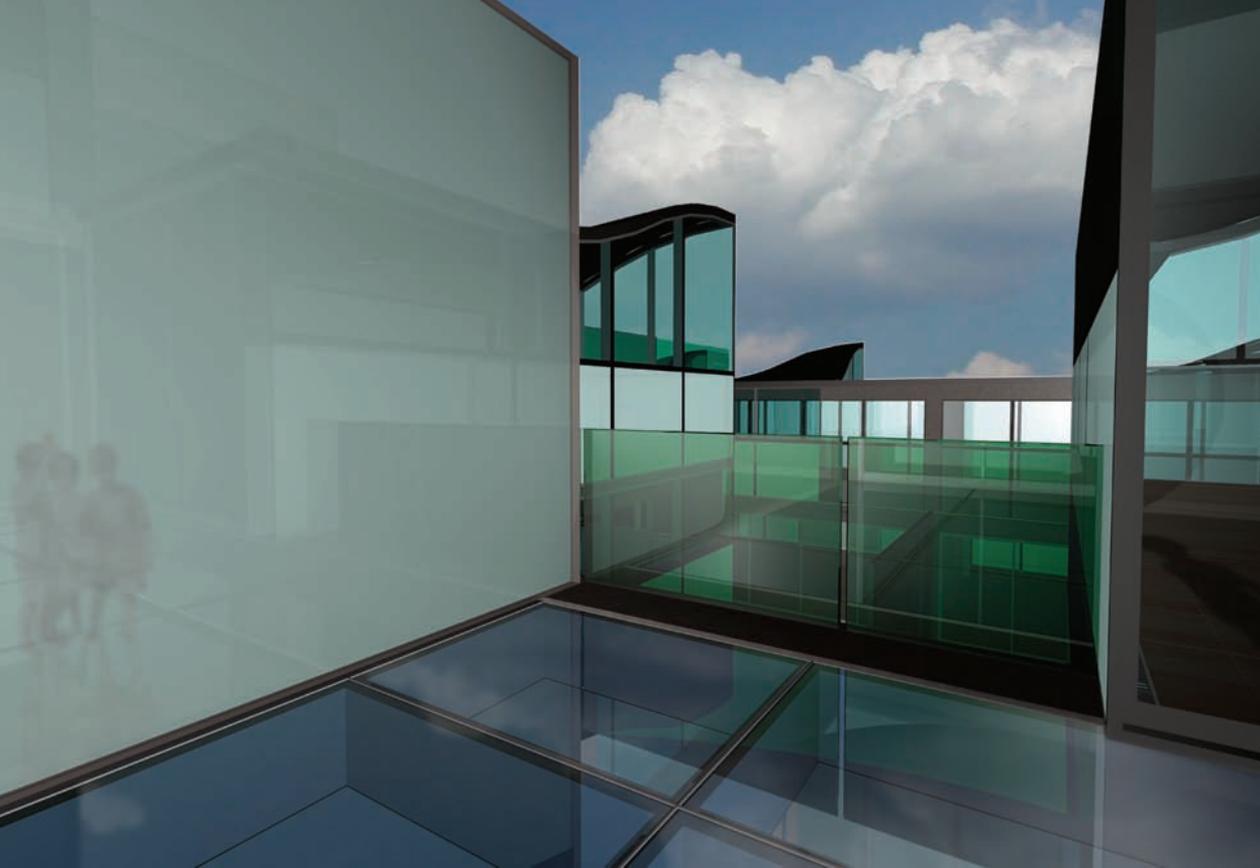


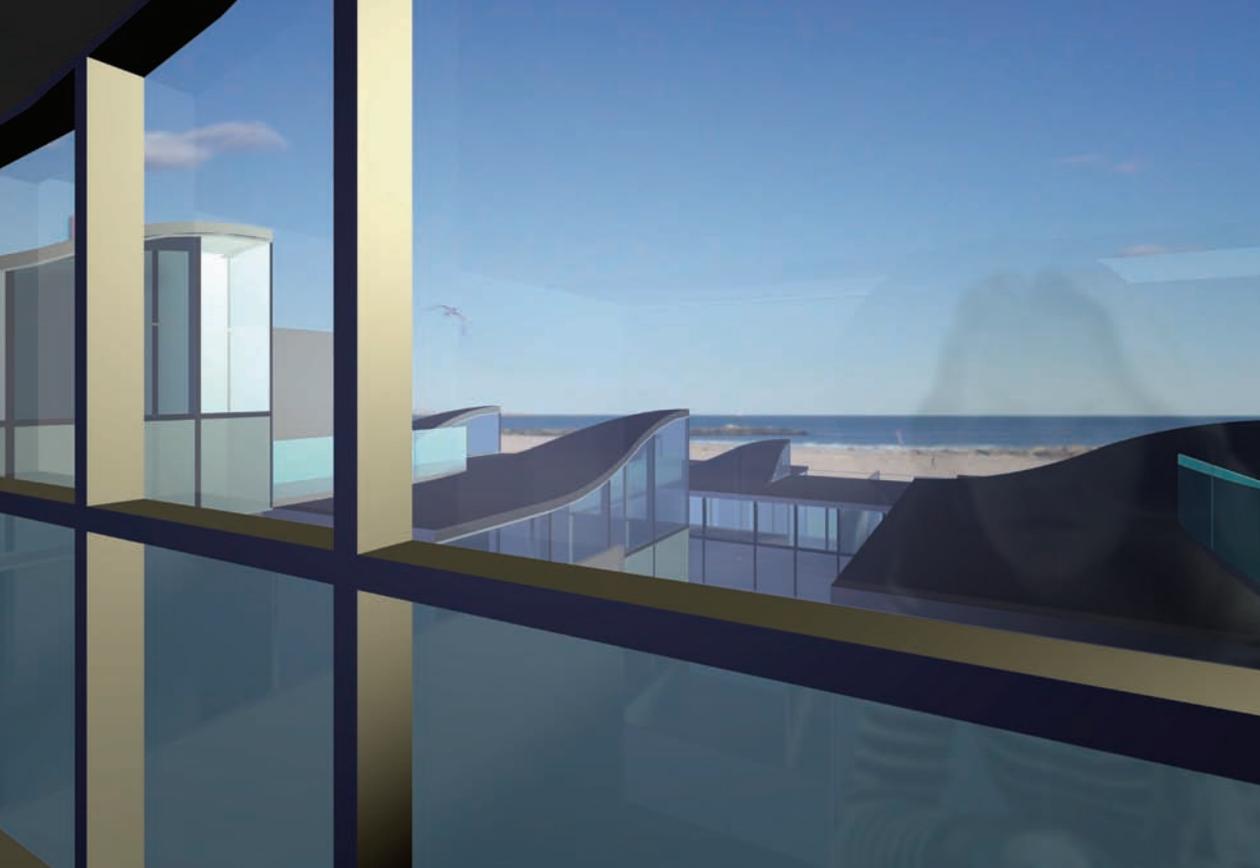
Generating domestic interiors
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Considering the increased mobility, both social and physical, of the modern dweller, it becomes ever more difficult to determine who are the intended subjects of the standard unit of housing in contemporary Europe or the typical tract home in the United States. In either case, these dwellings are usually designed for a phantom “next resident,” someone who statistically conforms to the demand for housing, which is programmed by either the state or the market. The resale value of the American house regularly takes precedence over other priorities. Thus, the bedroom, rather than belonging to its current occupants, always pertains to some statistical “other” who will enact seductions there in the future. – Richard Ingersoll, “Editors Note: The Resistible Little House”







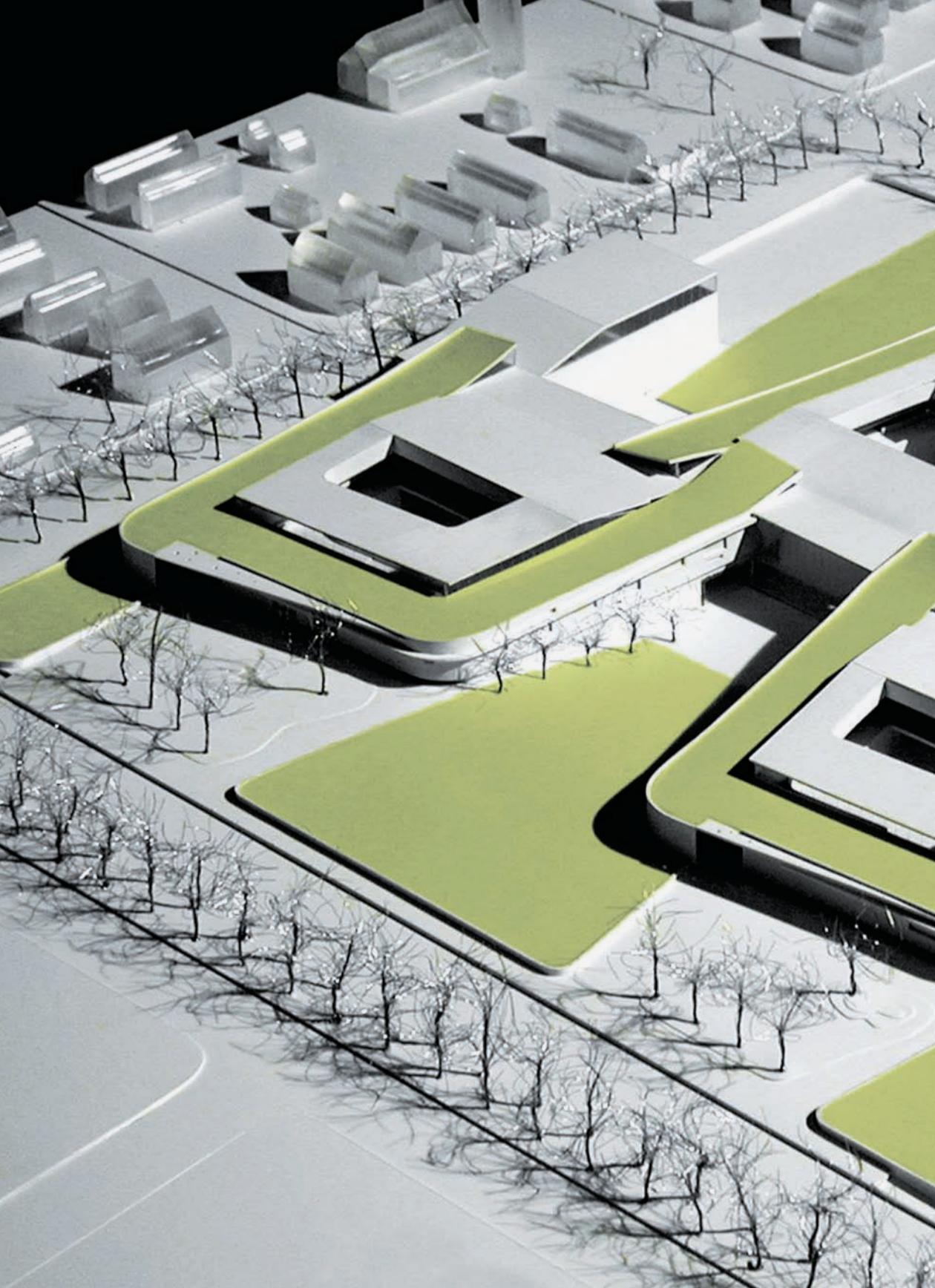


Open Loft: three views

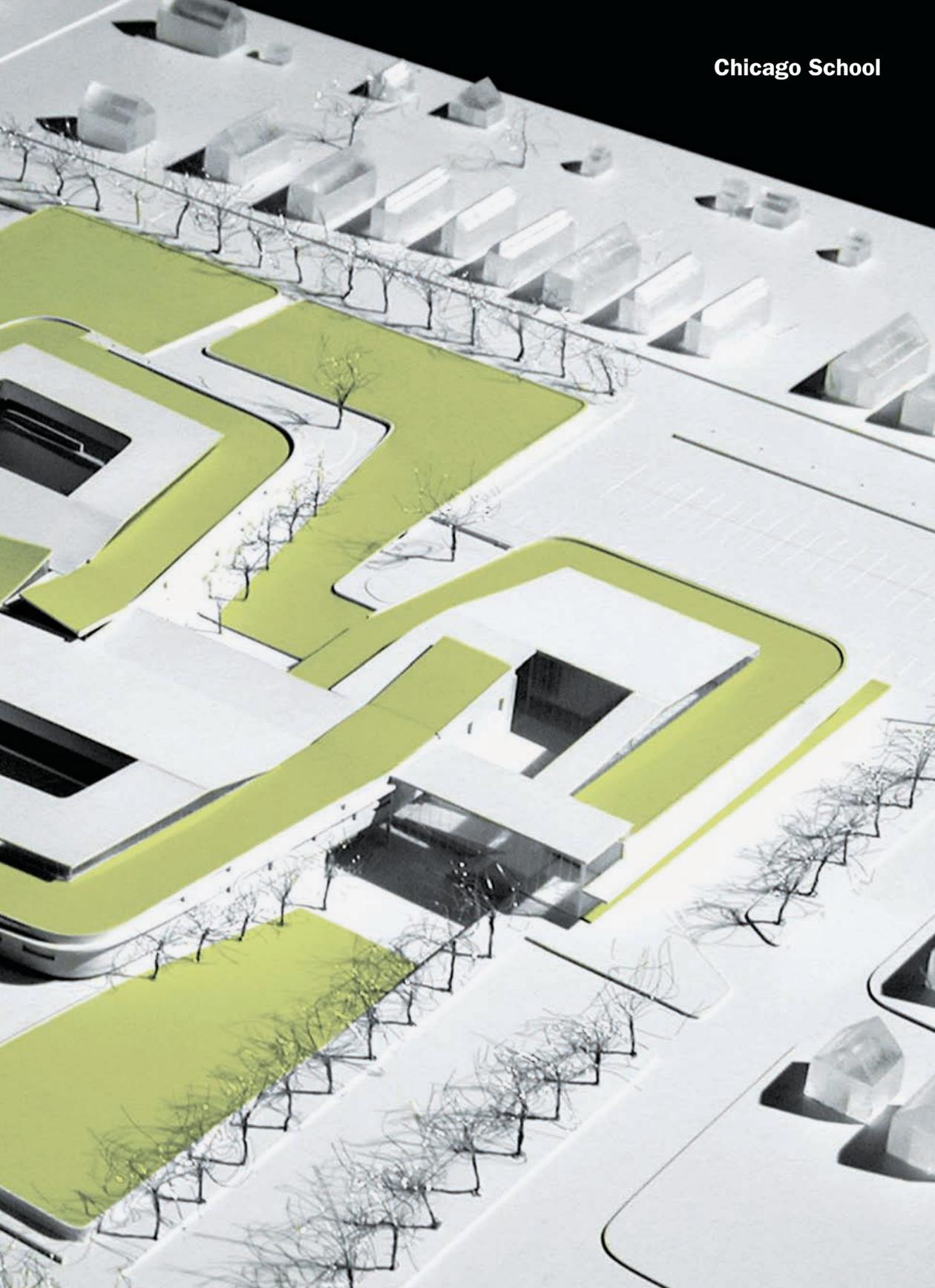






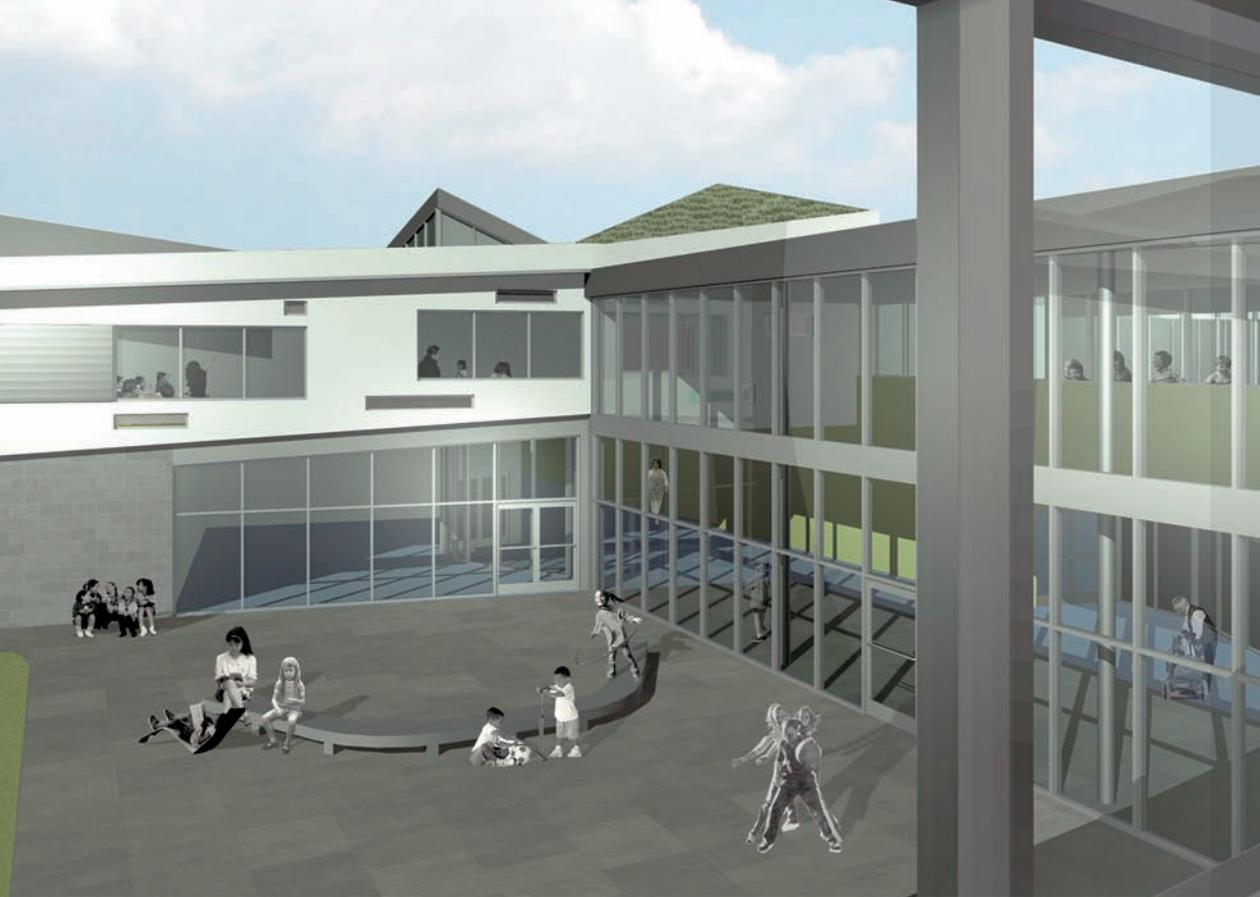


Chicago School



As in many urban areas, public schools in Chicago currently accommodate student bodies significantly above the desired size for the most effective learning, resulting in overcrowded classrooms and large schools where many students have little or no individual attention. Because of these capacity problems, and following extensive research that indicates better performance in smaller classroom environments, cities began experimenting with strategies to break down the organization of large “factory” schools to achieve optimum sizes for student achievement. These experiments resulted in various school types, including Alternative Schools, Charter Schools, Pilot Schools, and Mini-Schools, each having slightly different structures relative to funding, organization, and management approaches, but all of them small in size.

Acknowledging the advantages of smaller schools, but realizing that it is politically and financially impractical to build new individual public schools as small as they should be, school systems have begun organizing their existing schools into several smaller schools-within-schools. New building types that emerged from this reorganization include Multiplexes, several teacher-led small schools within a single facility; Scatterplexes, several schools in different locations under the legal umbrella of a shared principal; and Schools-within-Schools, several autonomous units with their own personnel and program that are part of a larger school in terms of building operation. Seeing the success of these initial experiments within existing facilities, cities then began planning new facilities based on these organizational principles,



combining the financial advantage of economies of scale with the educational benefits of small schools.

This project was the winning entry for a competition to develop a prototype for new school buildings in Chicago based on an organization that would take a large school (in this case, an 800-student elementary school) and provide smaller schools within one building. Each school would have some independence, but still share common facilities and be under the jurisdiction of a single principal.

Project chronology

Fall, 1999: A coalition of educational reform organizations along with Chicago Public Schools discuss a design competition for two sites in Chicago. A north side site will house The Frederick Stock School and Inter-American Magnet School and a south side site will merge the Davis Developmental Center and Langston Hughes Elementary School.

August, 2000: Business People for the Public Interest (BPI), Leadership for Quality Education (LQE), Chicago Public Schools (CPS), Mayor's Office for People with Disabilities (MOPO) agree to sponsor a design competition "Big Shoulders, Small Schools." The competition is endorsed and supported by Chicago Mayor Richard M. Daley and Gery J. Chico, President of the Chicago Board of Education.

September 29, 2000: Competition programs available; two-stage competition for each of the two sites. Designs for each site will be selected from proposal submitted by two invited architects and two others to be selected from an open competition.

January 16, 2001: First stage competition submissions due in Chicago. 115 Projects are submitted.

January 19 – 21: Competition jury meets to select two first stage finalists for each site. Marble Fairbanks is selected as a finalist for the south side site.

January 31/February 1, 2001: All finalists present first stage projects to community groups in Chicago, tour existing schools and get second stage information.

Feb 10, 2001: All finalists present projects at community forum with panel of educational experts at Walter Payton High School in Chicago.

March 1, 2001: Second stage submissions due in Chicago.

April 1, 2001: All finalists present to a jury at the Union League Club in Chicago.

April 11, 2001: Winners for both sites publicly announced at an awards ceremony and press conference. Marble Fairbanks wins south side and Koning Eisenberg Architects from Santa Monica wins north side.

April 12, 2001: Lee Bey, architecture critic for The Chicago Sun Times writes an article on the winning designs "Out of

Town Architects Win Design Bid to Build Accessible Schools" and states that "if budget corners are cut, the Marble Fairbanks school would look as brutal as a street fight."

April 25, 2001: A resolution is passed by the Chicago Board of Education to build the two winning designs.

May 7, 2001: Marble Fairbanks receives letter from Gery Chico, President of the Chicago Board of Education giving Marble Fairbanks the first right to negotiate a contract for the design of the south site school.

May, 2001: Lee Bey is appointed by Mayor Richard M. Daley as Mayoral Deputy Chief of Staff for Planning and Design for the City of Chicago.

May 24, 2001: Gery Chico resigns as President of Chicago Board of Education.

June 6, 2001: Paul Vallas resigns as CEO of Chicago Public Schools.

June 7, 2001: Mayor Richard M. Daley appoints Michael Scott as new President of Chicago Board of Education to replace Gery Chico.

June 15, 2001: Marble Fairbanks and Jeanne L. Nowaczewski, Public Education Project Director at BPI who has spearheaded the competition process, meet with Tim Martin, CFO of CPS to discuss the process of moving forward with the project.

June 26, 2001: Mayor Richard M. Daley appoints Arne Duncan as new CEO of Chicago Public Schools

July 25, 2001: Exhibition opening for CPS design competition winning schemes, finalists and select entries at Chicago Architecture Foundation. Paul Vallas is honored for his support of the competition.

September, 2001: Marble Fairbanks CPS competition design wins New York AIA award.

September 4, 2001: Jeanne Nowaczewski is hired by Arne Duncan, to be Small Schools Coordinator at CPS. She resigns from her position at BPI.

January 4, 2002: Marble Fairbanks CPS project wins Progressive Architecture Award and is exhibited at Max Protetch gallery in New York.

May 20 – 31, 2002: Marble Fairbanks CPS project along

with other south side entries are exhibited in the public lobby of offices of Chicago Public Schools. 2001 – 2003: The project site, two city blocks of single family residences is cleared for construction of the new school.

January 15, 2003: Marble Fairbanks initiates idea to build a public garden on the site to address the lack of activity on the empty site and to maintain momentum for the project.

January, 2003: Langston Hughes and Davis Developmental Center submit an application for community and school gardening assistance to the Neighborhood Gardens Program at the Chicago Botanic Garden.

January 24, 2003: Marble Fairbanks sends letter to Eliza Fournier at Neighborhood Gardens Program of Chicago Botanic Gardens in support of the proposal.

February 11, 2003: Kevin Gujral appointed by Mayor Richard M. Daley as Executive Director of the Public Building Commission (PBC), the public agency, created by former Mayor Richard J. Daley in 1956, responsible for building all public buildings in Chicago. Mayor Daley serves as Chairman of the Board.

February, 2003: Marble Fairbanks receives phone call from neighbor to the competition site requesting that someone cut overgrown grass.

February 25, 2003: Parents testify at the Chicago Board of Education meeting of the dire conditions of their school and request the new school begin construction. They are assured by Board President Michael Scott that the Board is moving ahead with the project and the school will receive funding.

February, 2003: The Chicago Botanic Garden awards \$6000 to Langston Hughes and Davis Developmental Center to develop a community garden on the emptied competition site.

February, 2003: Students and teachers from Langston Hughes meet with Senator Barack Obama.

Mar 12, 2003: Fox News features parents from Langston Hughes Elementary School talking about the deficient conditions of their school and the proposed new building.

Mar 13, 2003: Marble Fairbanks attends book launch in Chicago celebrating the release of

Architecture for Education: New School Designs from the Chicago Competition, a publication documenting the competition process and the winning schemes, finalists' schemes and other select entries.

March 14, 2003: BPI organizes meeting with Marble Fairbanks and school parents at Langston Hughes to discuss Chicago Botanic Garden \$6000 grant to start community garden.

June 11, 2003: Marble Fairbanks sends a letter of introduction to Mayor Richard M. Daley.

June 25, 2003: The Chicago Tribune reports that CPS has slated \$340 million for new school construction including "a long awaited elementary school building on the south side", the Langston Hughes/Davis Elementary School. "The project should be ready for bid in the next few months, school officials said. From that point, it will take 16 to 19 months to build."

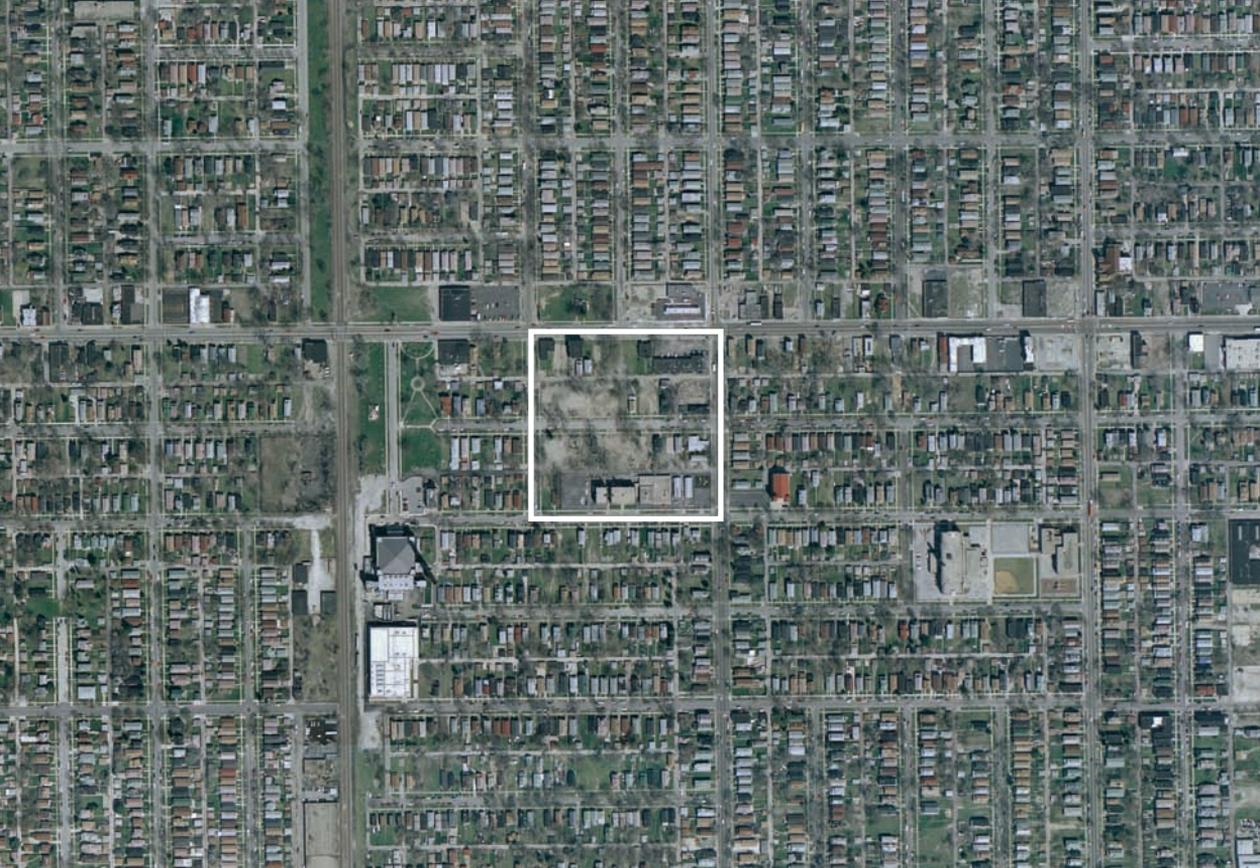
July 10, 2003: In discussion with Giacomo Mancuso, director of programming and demographics for CPS and competition jury member, Marble Fairbanks learns that the standard procurement process for architectural design services for public schools is that Chicago Public Schools hires a managing architect to complete the design and then transfers this design along with project funding to the Public Building Commission who hires an executive architect to complete the construction drawings.

July 28, 2003: E. Hoy McConnell II, Executive Director of BPI sends letter to Kevin Gujral, Executive Director of PBC, recommending that Marble Fairbanks be hired as architects for Langston Hughes/Davis Elementary School.

August 4, 2003: Tim Martin resigns as chief of operations of CPS and is replaced by Sean Murphy.

August, 2003: Marble Fairbanks receives call from Kevin Gujral of PBC indicating that they are preparing to begin contract negotiations for design services for the new school. He assigns a project manager to the project and puts Marble Fairbanks in contact with him.

September, 2003: Marble Fairbanks begins contract negotiations with PBC Project Manager and is encouraged to form a joint venture with a local, pre-qualified architectural firm familiar with public school procurement processes.



Aerial view of north and south Chicago Public School sites; Marble Fairbanks project was slated for construction on southern portion

October 1, 2003: Marble Fairbanks receives contract terms from PCB.

October 13 – 15, 2003: Marble Fairbanks interviews six potential joint venture firms in Chicago. Marble Fairbanks meets with Kevin Gujral and the Project Manager to discuss the procurement process.

October 15, 2003: Marble Fairbanks meets with CPS and is told that a resolution committing funds to build the school is being prepared for the November board meeting.

November 7, 2003: In an effort to continue to build support, PBC Project Manager suggests that Marble Fairbanks send a letter to BPI summarizing the progress in contract negotiations and the formation of a joint venture and copy Arne Duncan, Kevin Gujral and Lee Bay.

November 17, 2003: A letter from Executive Directors of BPI, E. Hoy McConnell, II and LQE, John S. Ayers is sent to the members of the Chicago Public Schools Board of Education recommending the

appointment of Marble Fairbanks as architects for the school at its next board meeting.

November 24, 2003: Marble Fairbanks makes a second trip to Chicago to interview four short-listed potential joint venture firms.

November 25, 2003: Marble Fairbanks selects Schroeder, Murchie, Laya Architects as joint venture firm and begins preparing legal structure.

December 1, 2003: PBC Project Manager receives draft proposal from CPS for the December board meeting committing funds to build the new school and transfer to PBC to begin procurement process. He notifies Marble Fairbanks and proposes to put a resolution forward at the December PBC board meeting to hire Marble Fairbanks as architects.

December, 2003: Marble Fairbanks has daily phone calls with the PBC Project Manager working out the details of the contract.

December 9, 2003: At their December meeting PBC board members provisionally accepts school project from CPS but defers selection of architect. Board member and CPS Board of Education President Michael Scott express reservations concerning the project on behalf of CPS.

December, 2003: Marble Fairbanks continues to draft a joint venture agreement with SM:LA. All sub-consultants are selected and contract terms are prepared.

Dec 17, 2003: At their December meeting, CPS board members pass resolution to request the PBC to undertake the design and construction of the Langston-Hughes Competition South Elementary School allocating a budget of \$28,983,637 approved from capital funds. The school is scheduled to open in September, 2006.

January 2, 2004: PBC Project Manager calls Marble Fairbanks and conveys that CPS thinks Marble Fairbanks's fee proposal is too high and is considering putting a stop on the project.

January 5, 2004: Marble Fairbanks sends final proposal to PBC adjusting fee to meet their request.

January 13, 2004: PBC Project Manager and Director of Procurement place conference call to Marble Fairbanks just before going into board meeting to resolve one last contract detail. Board approval is considered to be just a formality at this point.

January 13, 2004: At their January meeting PBC board members defer action on Langston Hughes/Davis Elementary School because of budgetary concerns and concern that if this school is built, other communities might want similar type of school.

February, 2004: Lee Bey leaves his post as Mayoral Deputy Chief of Staff for Planning and Design for Mayor Richard M. Daley to become director of media and governmental affairs at Skidmore, Owings & Merrill (SOM).

2004: Kevin Gujral resigns as Executive Director of PBC.



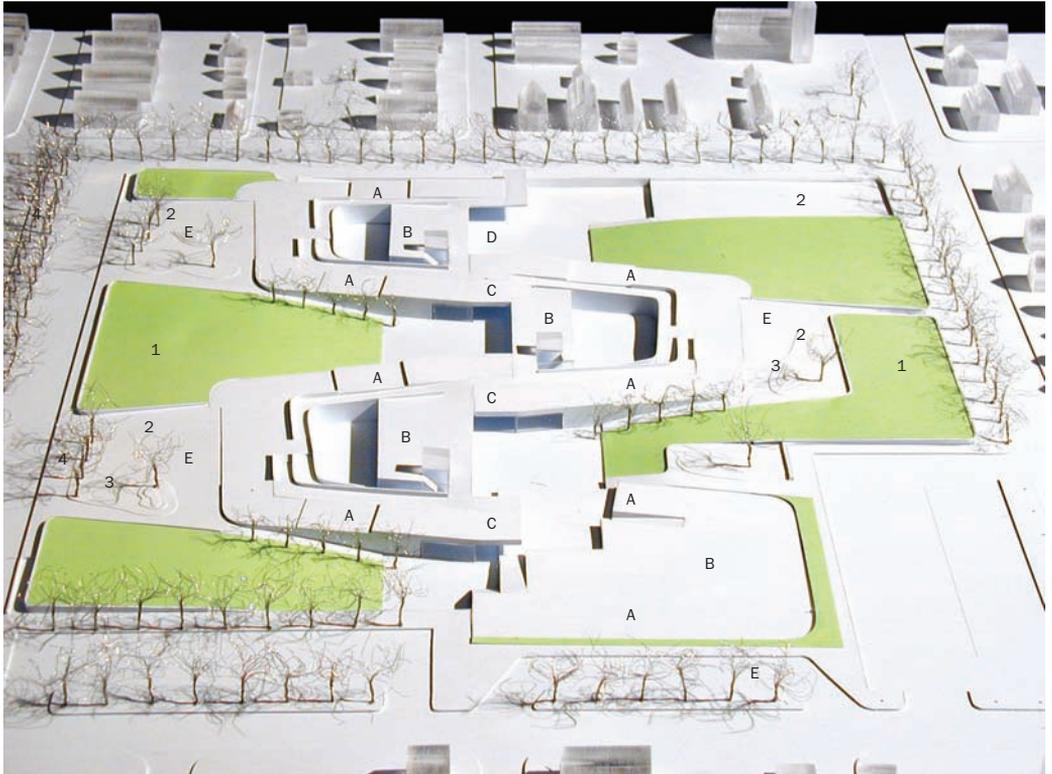
Landscape and building exterior

The design is based on providing sufficient autonomy to each of the four small schools while maximizing shared resources such as library, cafeteria, science and art areas and health services.

Organizational junctures within the building function as bootstraps providing a structure to encourage self-generation at multiple scales: from the student in the classroom to the community of a small school, to the larger school community housed in the entire building, and finally to the neighborhood community.

The classrooms (A) provides the platform for the generation of a group dynamic between the students and their teachers, and is their link to their small school. The generative space of each small school (B) acts as a bootstrap for that school to generate its own identity and link to the school at large.

The parent/teacher rooms and classrooms that bridge across the interior street (C) link adjacent small schools, providing a shift in scale from the small school to the larger one. The interior street (D) is a bootstrap to the community.



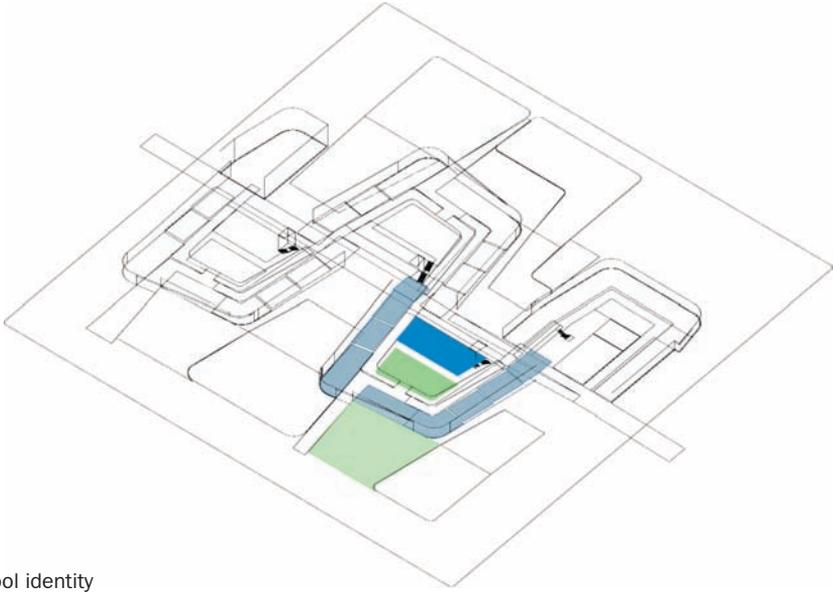
Landscape and building interior

The building is continuous with the landscape, sloping up out of the landscape towards the entry to each small school (E), while the grassy play areas slope down towards the interior street (D).

The continuity is perceptually reinforced through the use of grass on the classroom roofs. The landscape of the site interweaves large soft grass areas (1) and hard surfaces (2) to play on with interspersed islands of resilient playground surfaces, plantings, and exploratory gardens of water, sand, and wind (3). The landscape also extends to the edges of the site with a zone of community gardens (4) to engage the neighborhood.

The primary movement of students and teachers is facilitated by a system of 1:20 ramps that allow all students of varying abilities to access all programs. The ramps allow for a two story arrangement of programs that facilitate interaction between the small schools, the shared programs and the community circulation space of the interior street. The school building is compact and efficiently arranged such that

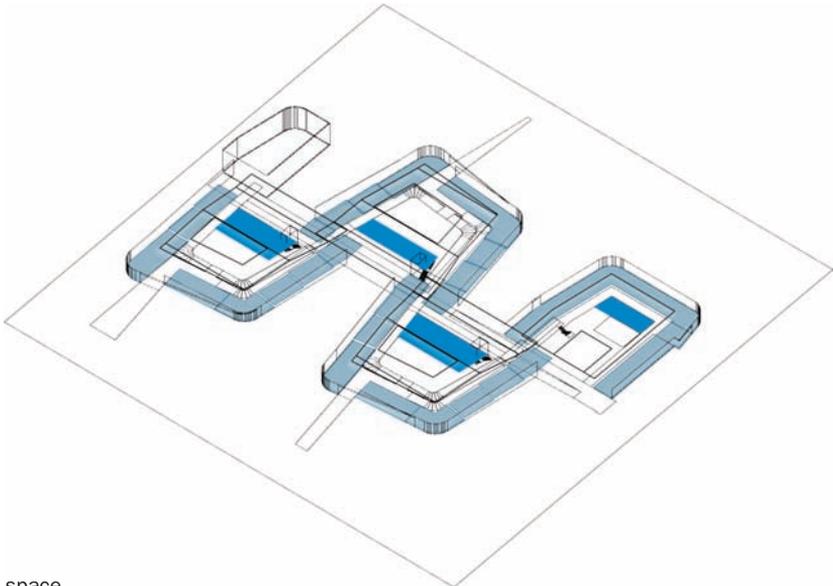
travel time is minimized and the identity of the small schools remains clear. As students travel on the ramps to their classrooms they encircle the space of their school, creating and defining its atmosphere through their daily interactions.



Small school identity

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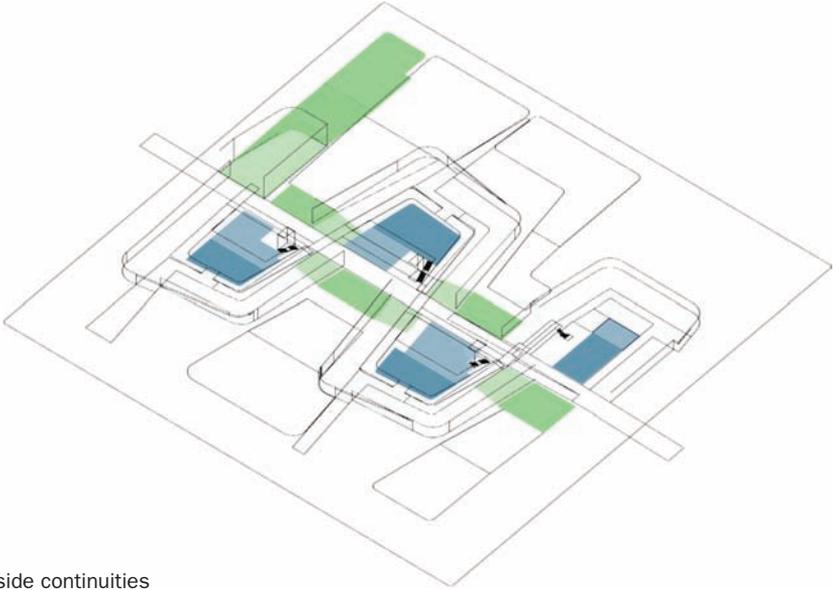
The generative space, the courtyard adjacent to it, and the outdoor play space of each small school provide the platform for the school's identity to evolve.



Generative space

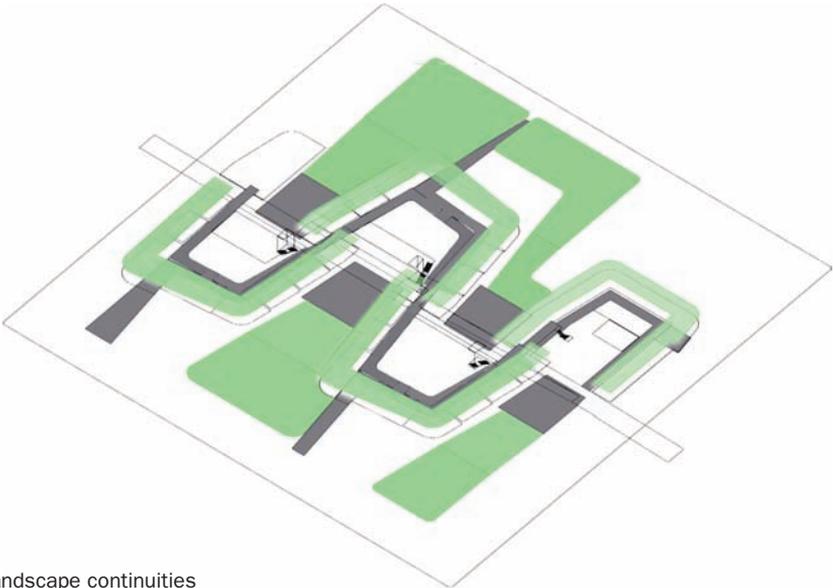
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Each small school is provided with a generative space intended to evolve and grow as part of the self-constructed identity necessary for the success of schools.



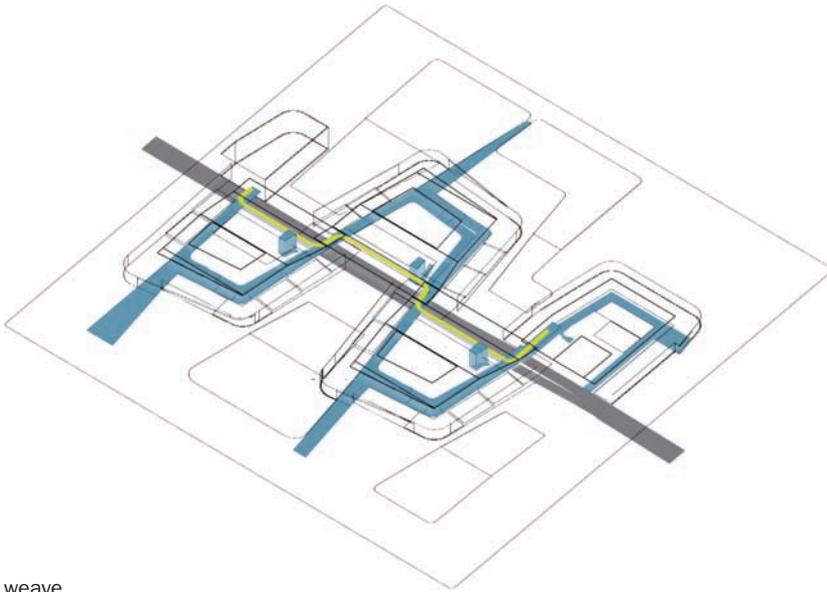
Inside/outside continuities

.....
Each shared program has an adjacent outdoor space with views and direct access so that school activities can occur both inside and outside.



Building/landscape continuities

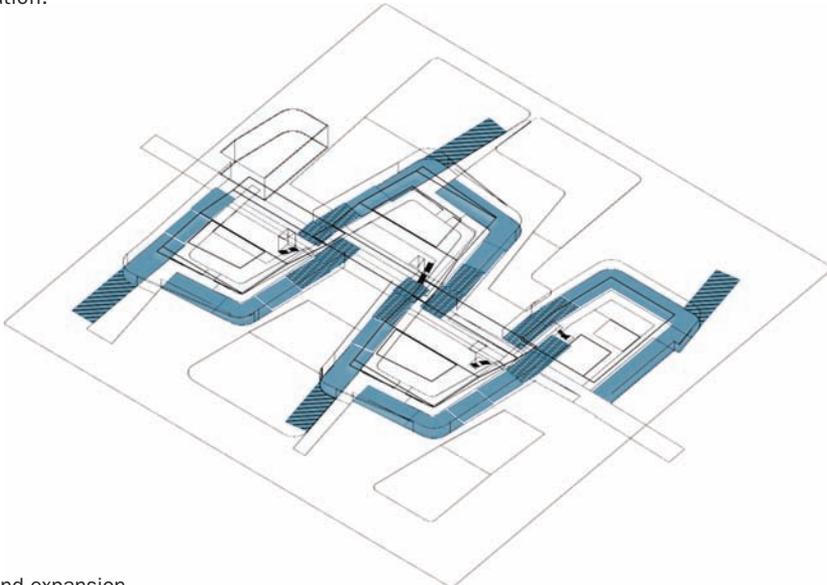
.....
The building is set into the landscape such that the two levels perform as a continuous path of movement.



Circulation weave

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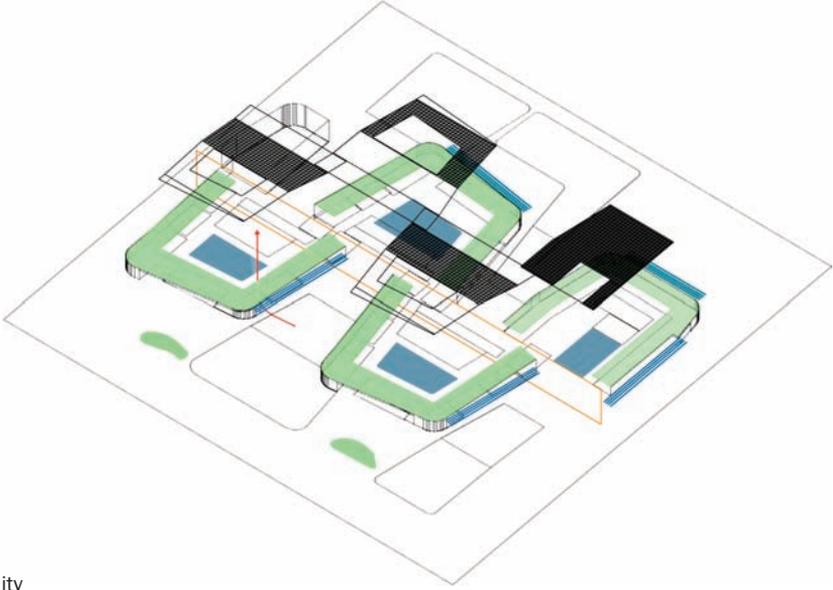
Three primary paths of movement weave through the building: ramps within the small schools; an interior street connects the larger community; and an upper level path connects each small school with the administration.



Flexibility and expansion

.....

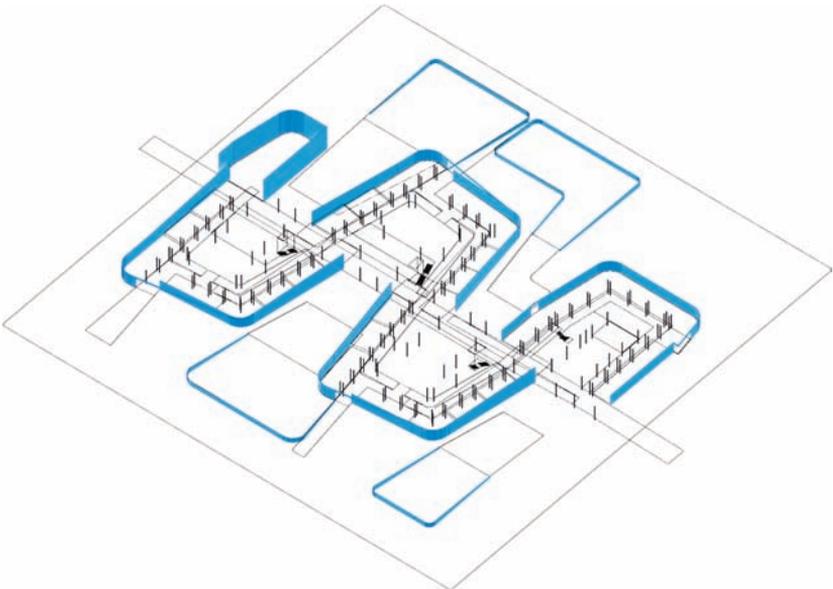
As the population and exact make-up of each small school evolves, the design allows for adjustments in school size through of classrooms bridging over the interior street, and the possible expansion of each school wing.



Sustainability

.....

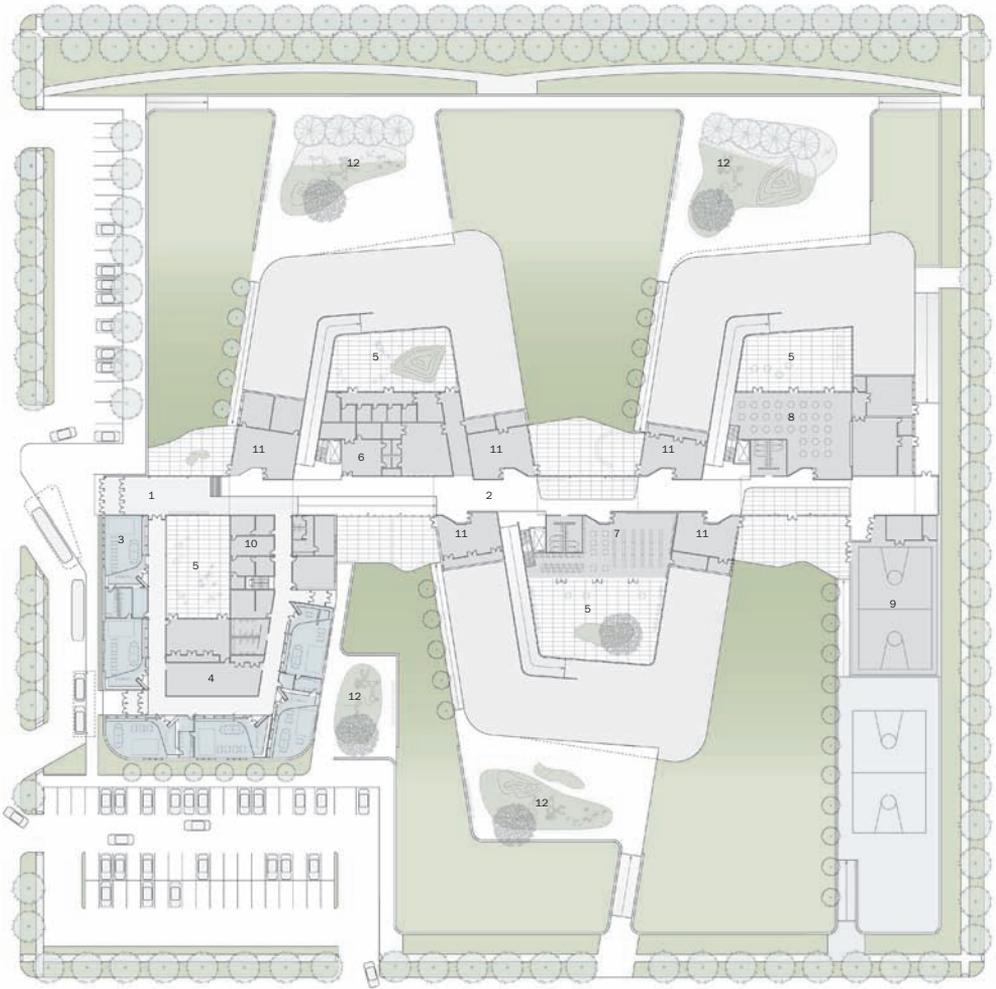
The design incorporates various strategies of sustainability: shading devices, wind blocks, courtyards for natural light, grass roofs, photo-voltaic panels, and year round use of the building.



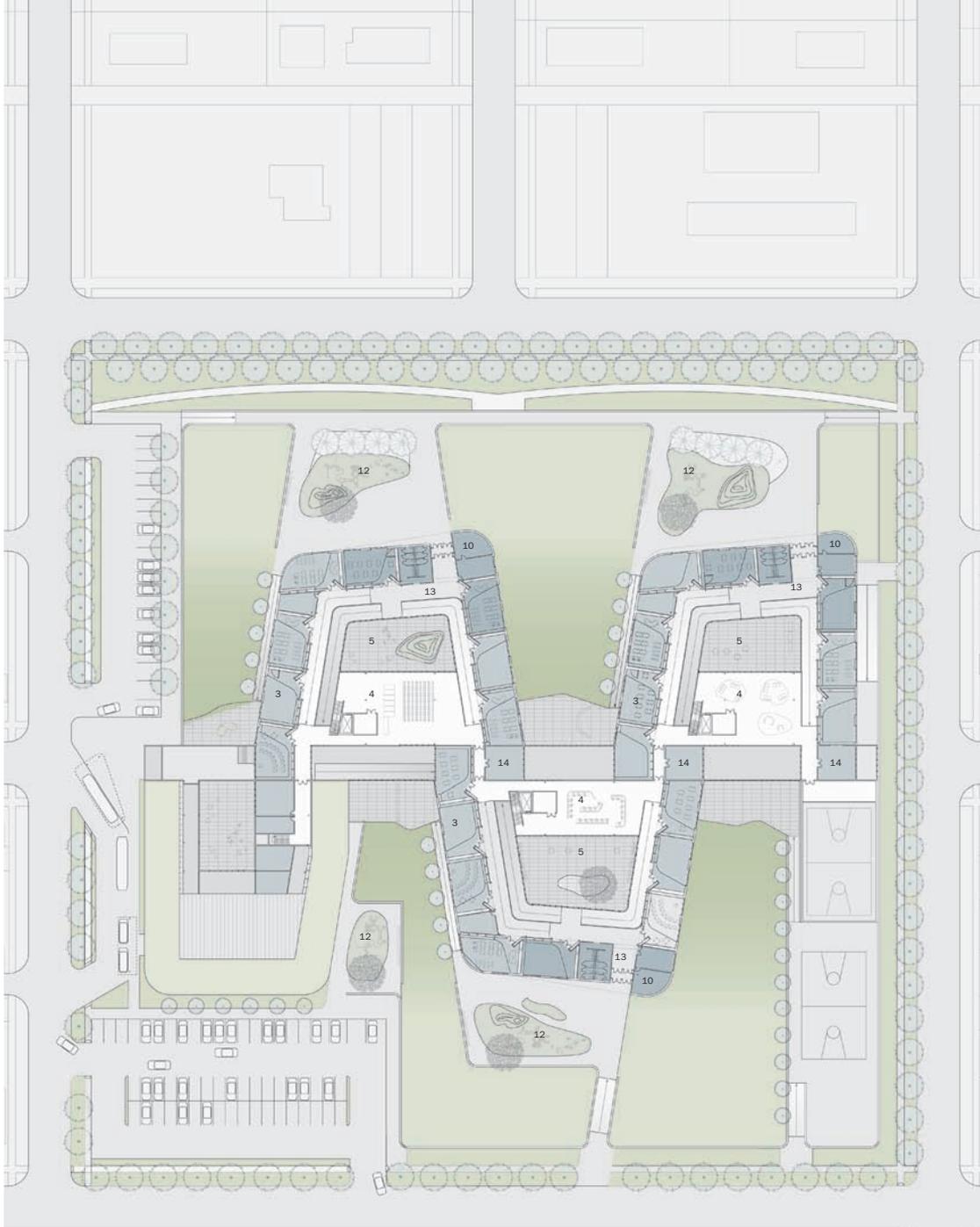
Structure

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Masonry bearing walls delineate both structure and landscape, wrapping the perimeter of the small schools to become the retaining walls of the outdoor play-space.



Plan, level one

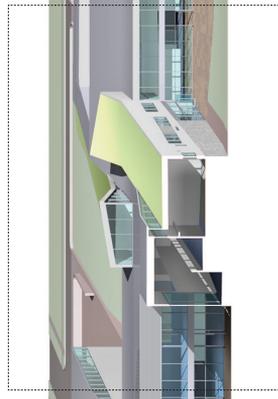


Plan, level two

- | | |
|----------------------|--|
| 1. Main entrance | 10. Administration |
| 2. Interior street | 11. Shared programs: science lab, discovery room, music room, art room |
| 3. Typical classroom | 12. Play space |
| 4. Generative space | 13. Small school entrance |
| 5. Outdoor garden | 14. Teacher/parent/student conference space |
| 6. Physical therapy | |
| 7. Library | |
| 8. Cafeteria | |
| 9. Gym | |



Section B - B



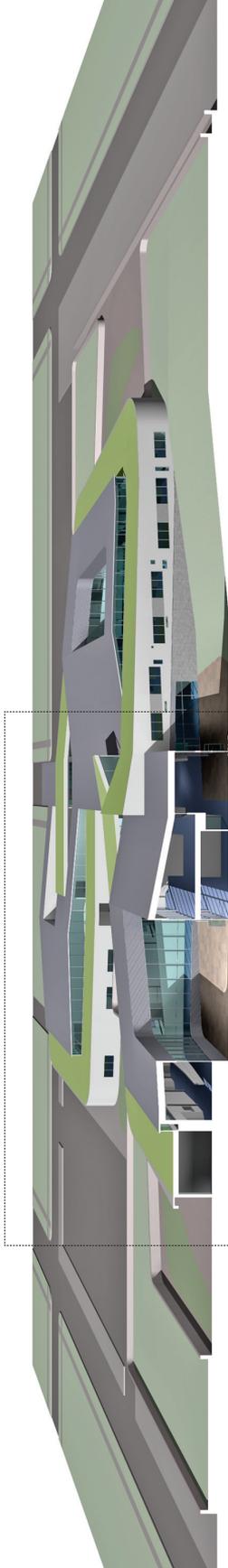
Detail section page 102



Section A - A



North elevation

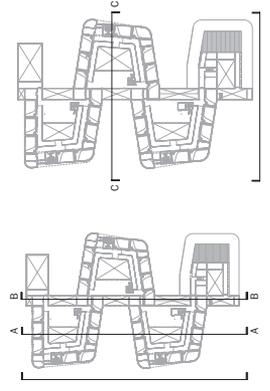


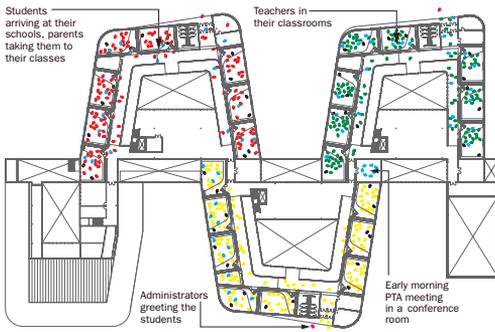
Section C - C

Detail section page 104

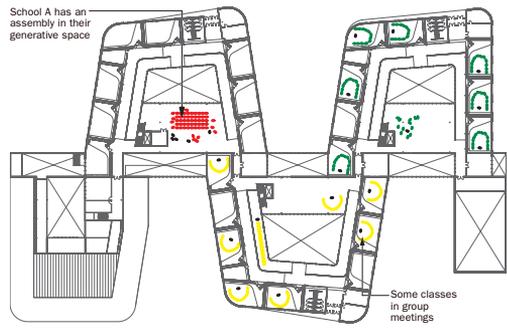


West elevation

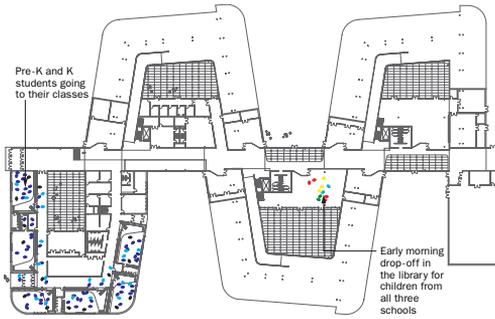




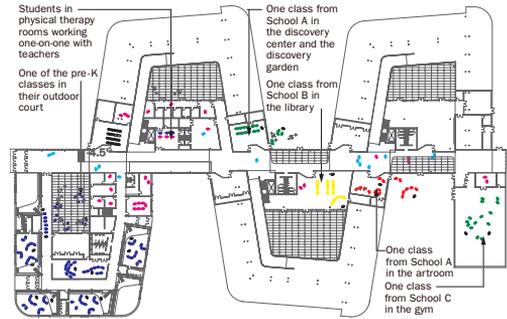
Upper level



Upper level



Lower level

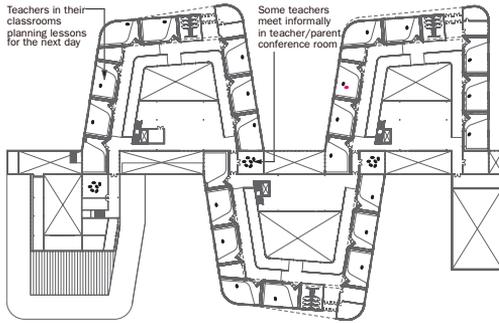


Lower level

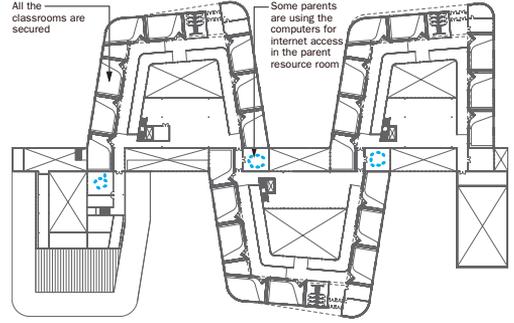
8:30 am

11:00 am

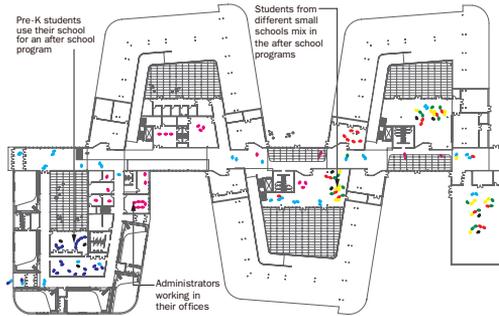
- Students, Kindergarten and Pre-K
- Students, School A
- Students, School B
- Students, School C
- Parents/Community



Upper level

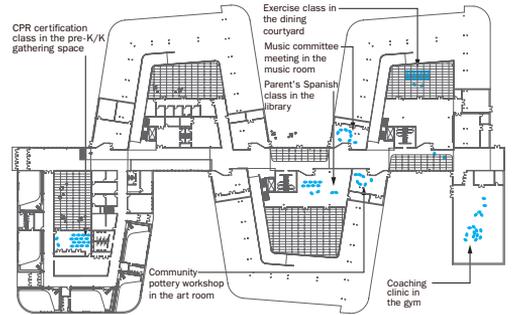


Upper level



Lower level

3:30 pm



Lower level

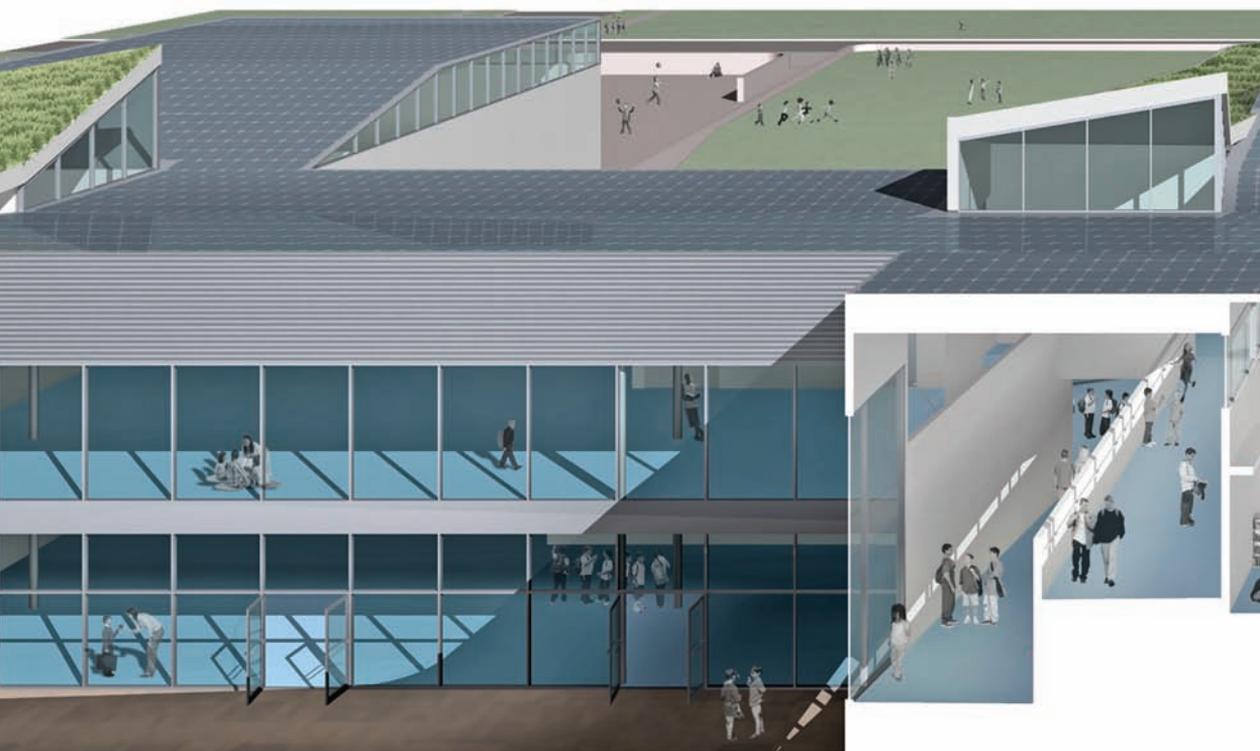
6:00 pm

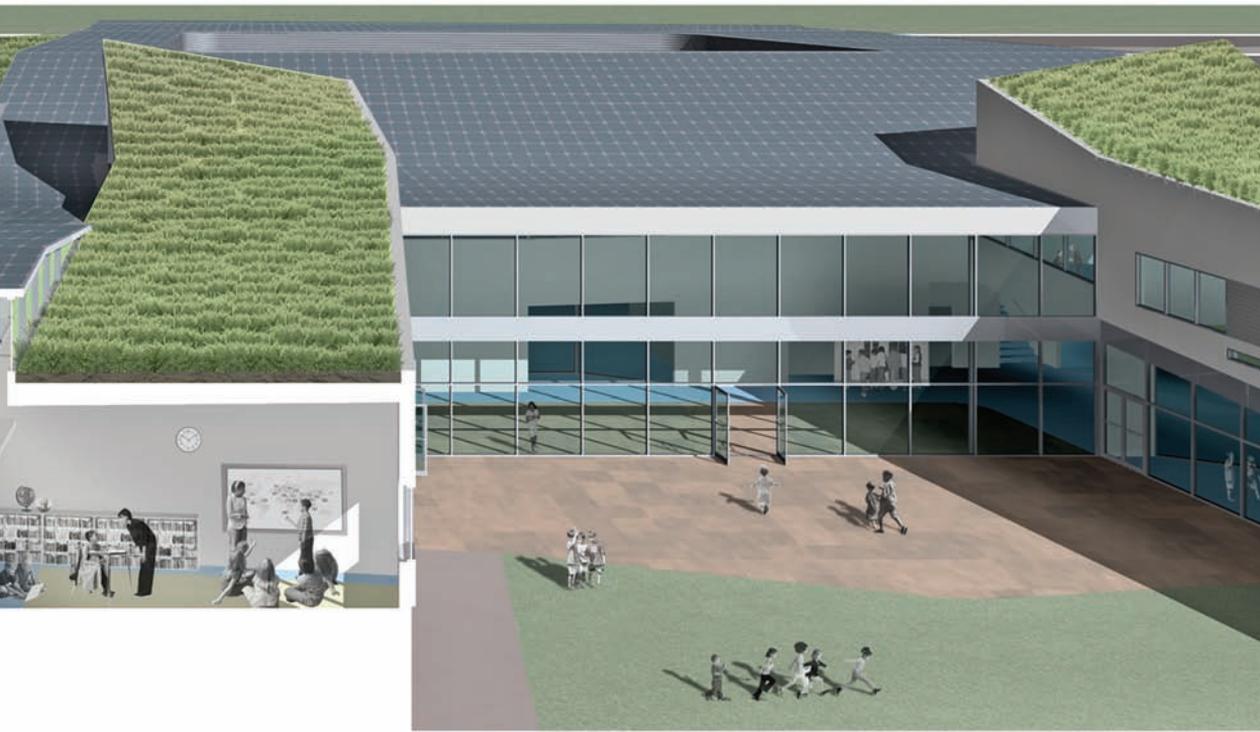
Time use diagrams

The success of any school depends on it integrating into the daily life of the neighborhood it serves. The successful operation of schools within schools with shared facilities depends on a careful calibration of schedules among each individual school.

The organization of the Chicago School with classrooms on the upper level and shared facilities on the lower level allows multiple simultaneous activities to occur with subtle overlaps to encourage connections between the schools.

For example, a class from one school in the library can use the outdoor courtyard that is surrounded by another school. The generative space, while primarily an outlet for alternative teaching, can also serve as a swing space to absorb the inevitable conflicts in scheduling. These diagrams serve to test use patterns over the course of a day.

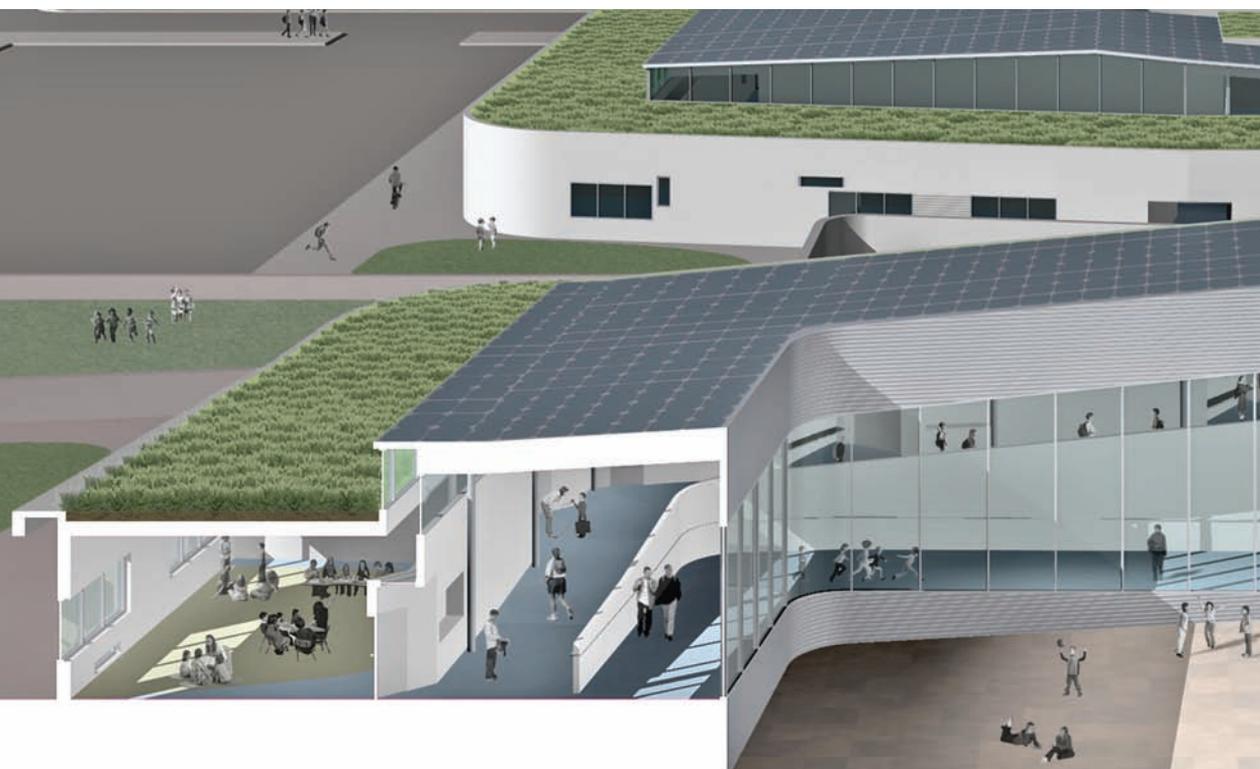


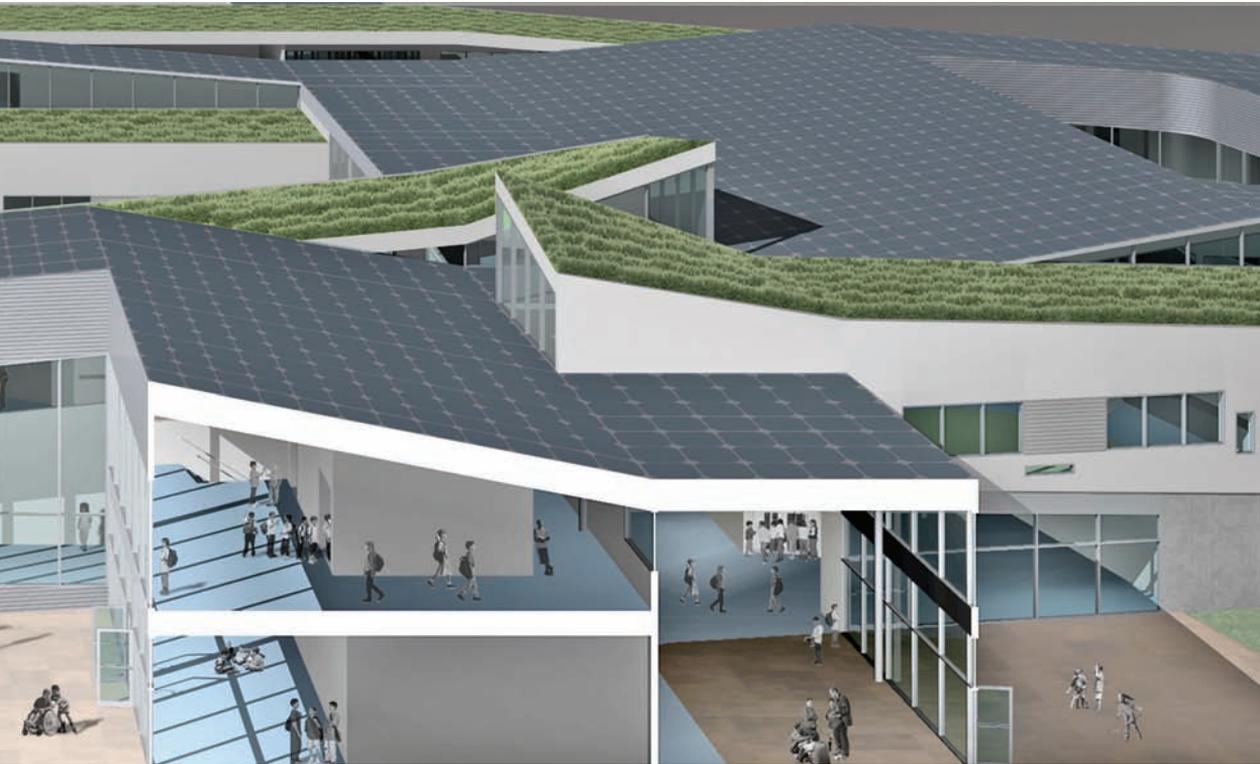


Detail section A – A

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The ramps and bands of classrooms form internal courtyards that are accessed directly from the lower level shared facilities (cafeteria, library, health services) and external courtyards that serve as general play space for all four schools.



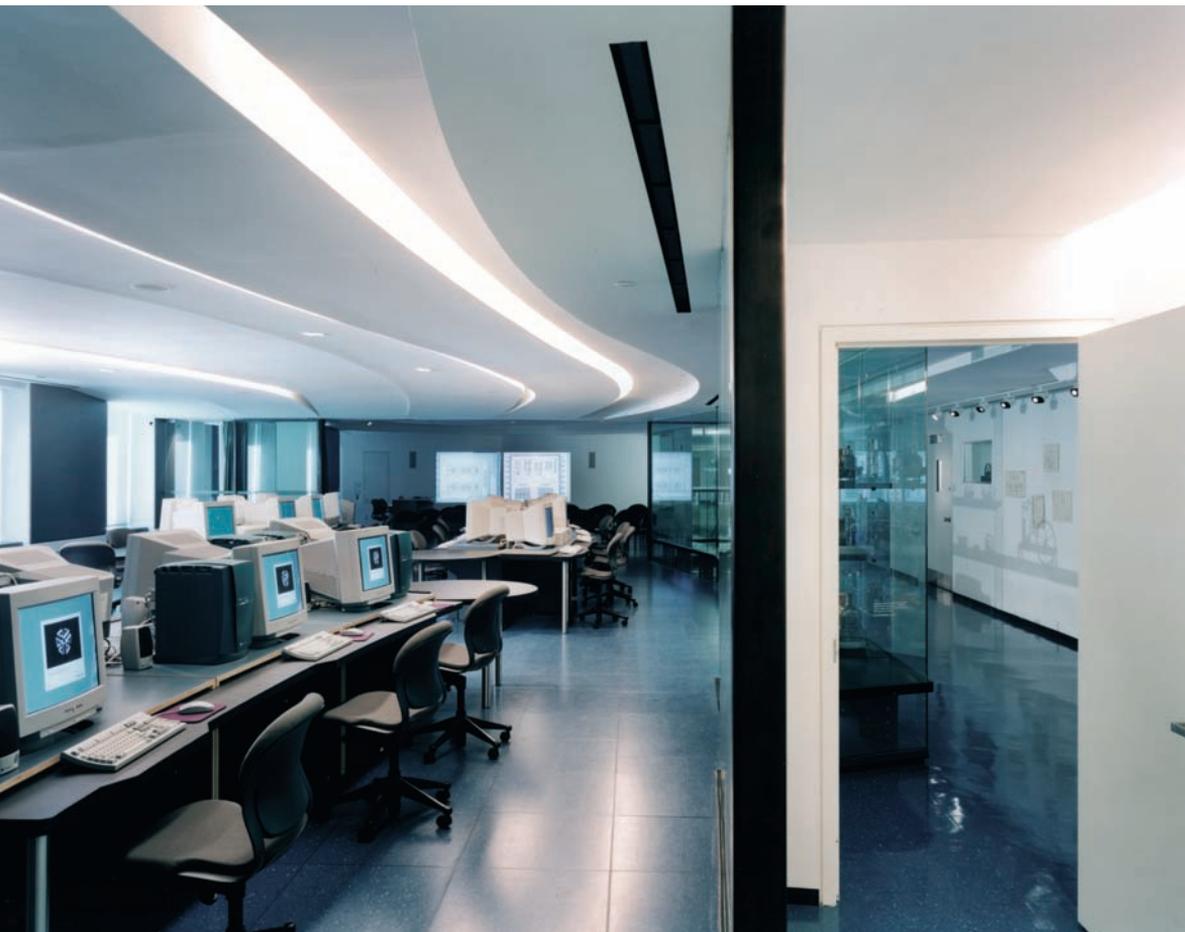


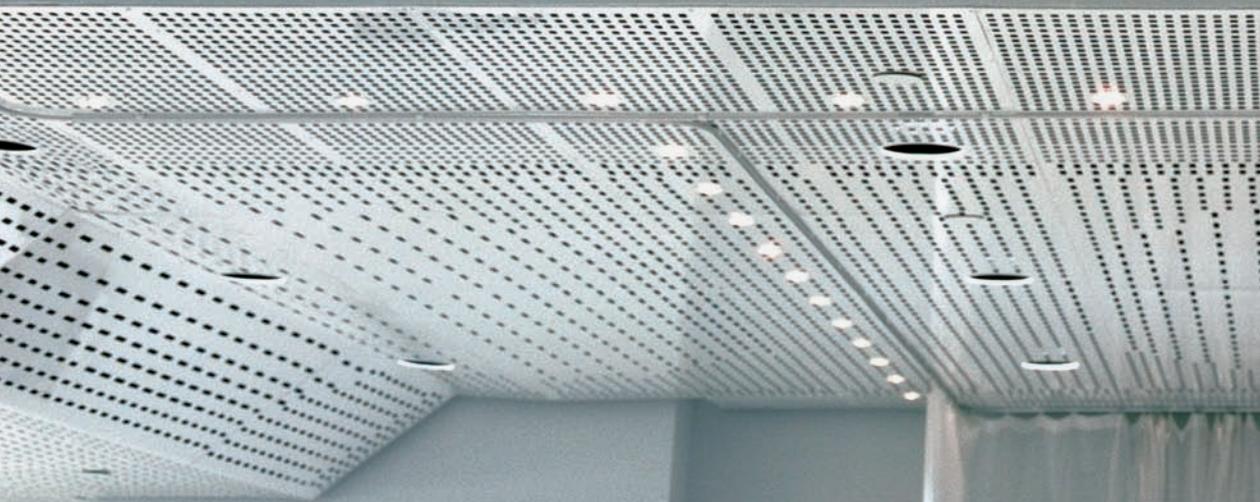
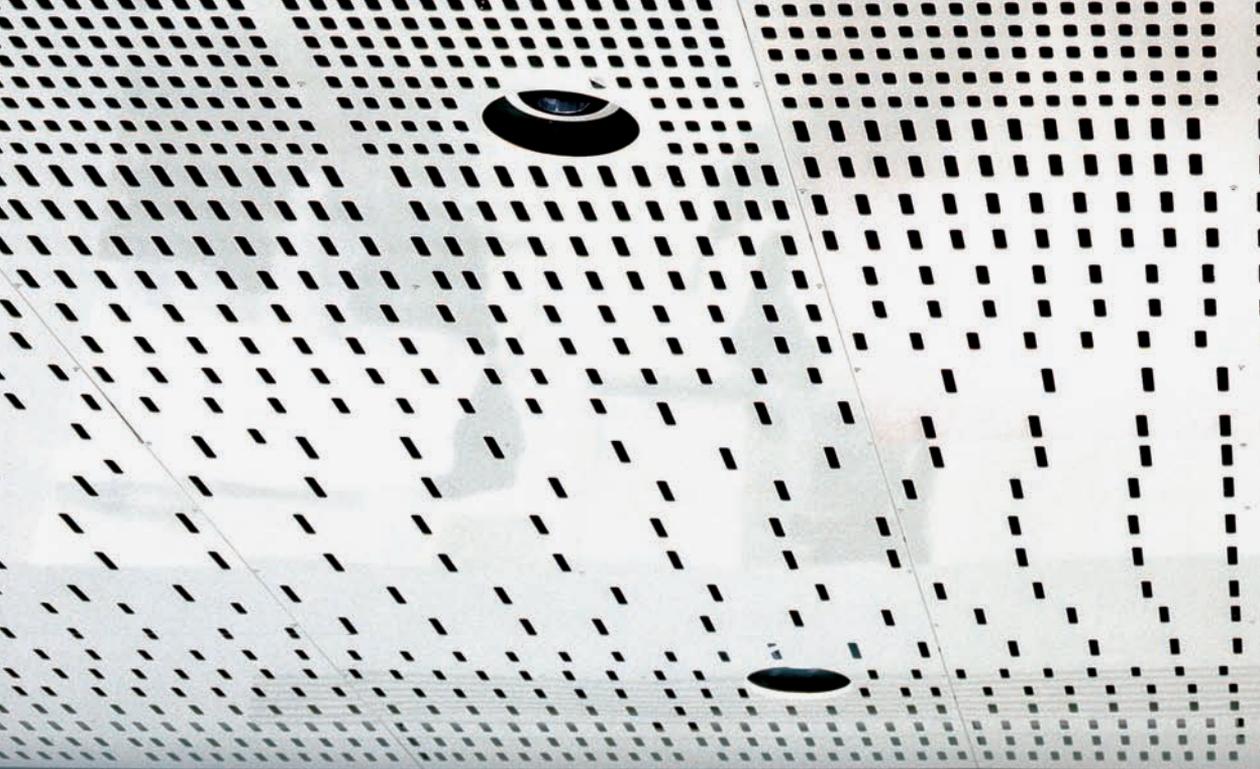
Detail section C – C

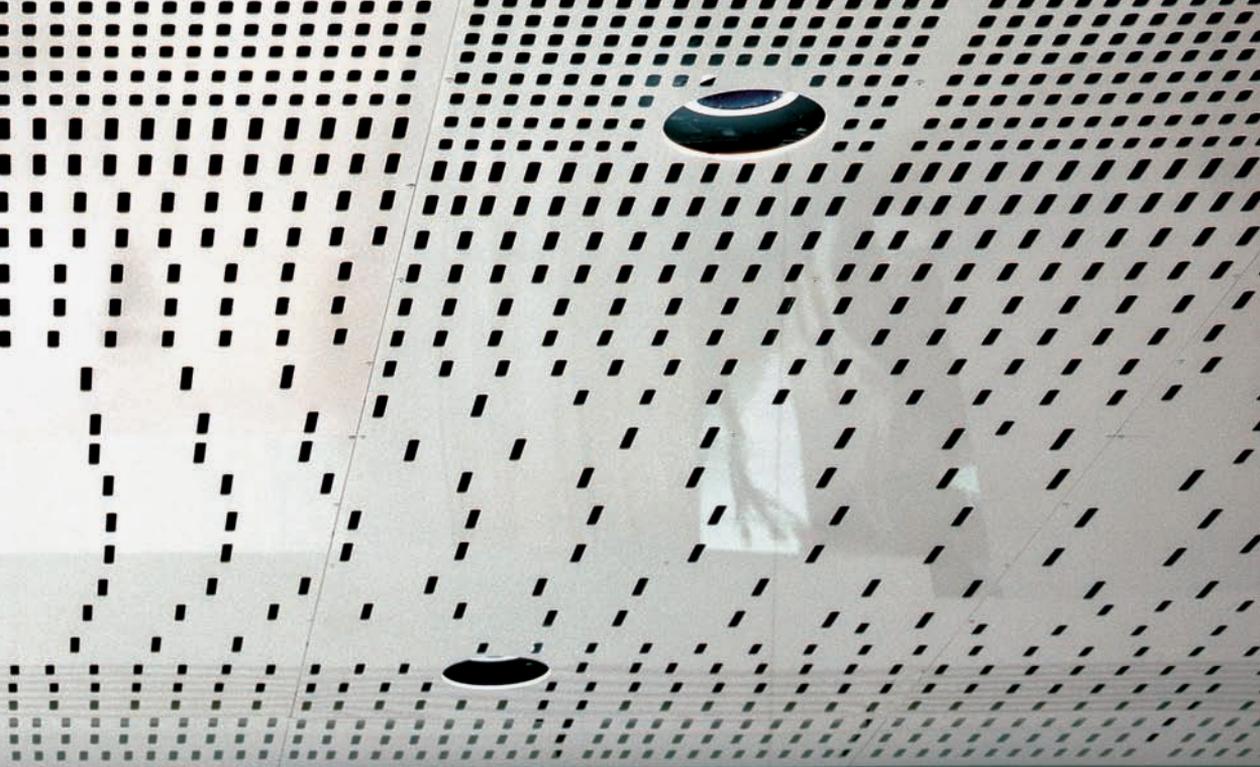
.....

The internal courtyard is only accessible to the lower level shared facilities used by the entire school, but it serves as a source of light and an organizational focus to the upper level small school. The courtyard is one of several design elements that are productive links between the four small schools.

Cooper Union Engineering Design Center: two views







Sciussia

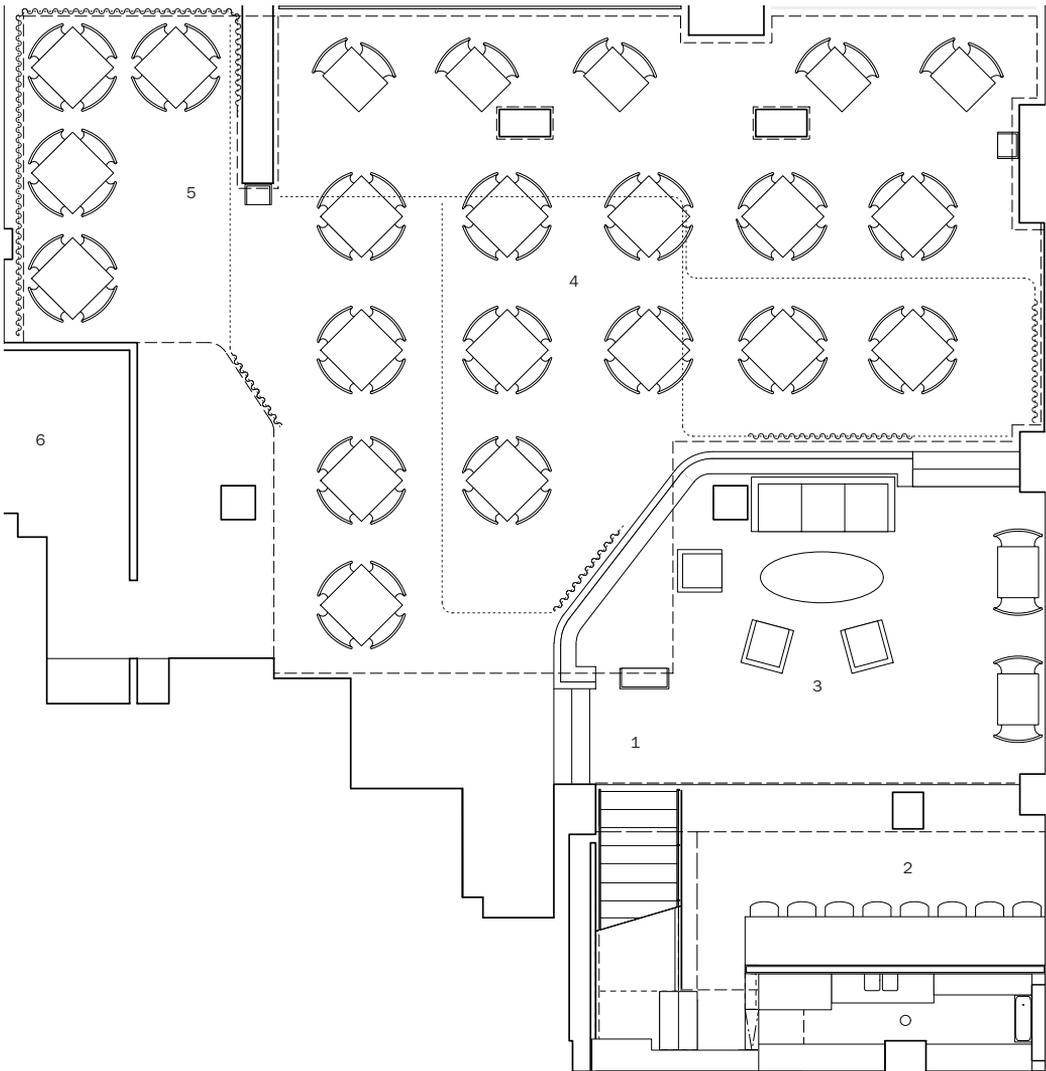
Digital technology has transformed design with sophisticated software capable of generating a virtually instant visualization of ideas irrespective of their formal complexity. In an environment free of material resistance, designers have been liberated to explore form through visualization and to predict performance through the simulation of material and environmental properties. Boeing's design of their 777 passenger jet entirely through computer models in the early 1990s serves as a benchmark for future networked and integrated design environments at a large scale. Over 5,000 engineers located around the world designed the 777 without having to build a physical mock-up.

One of the next steps in the evolution of digital technology in architecture is the ability to integrate design with fabrication. The abstract tools of digital representation (both drawings and three-dimensional models) used by designers are now becoming part of an integrated system that allows design information to be embedded in production and assembly processes. Design and production have merged within a common language of digital information, allowing the formation of a fundamentally new link between the abstract process of drawing and its material result.

This project – the design and fabrication of a ceiling and wall system to surface an existing interior space for a new restaurant in New York City – applied this technological link. Given the timeframe for completion and limited budget, Marble Fairbanks took an integrated design and fabrication approach that produced a unique result. The focus of the design was a custom graduated, perforated ceiling and wall panel system, which



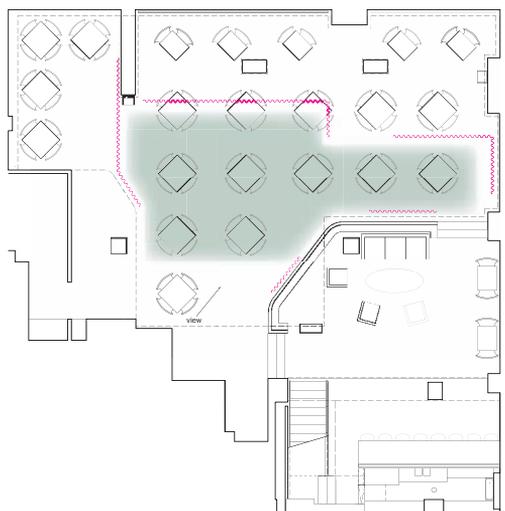
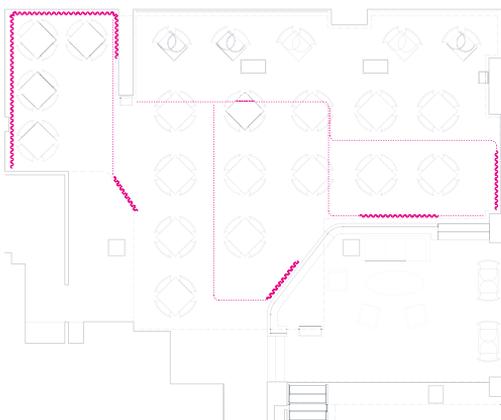
in general provided a delicate surface to alleviate the sense of being below ground and in specific formed acoustical zones within the dining room through variable sound absorption. The integrated design /production process reduced the cost differential between standard and custom produced components, allowing the design intentions to respond more specifically to the client and program needs within the given budget. By streamlining the production process of the custom ceiling and wall panels with design drawings that were also used as laser cutting paths for the panel fabrication, the project was designed and built in two months.



- 1. entrance stairs from street
- 2. bar
- 3. lounge
- 4. dining room
- 5. private dining room
- 6. to kitchen

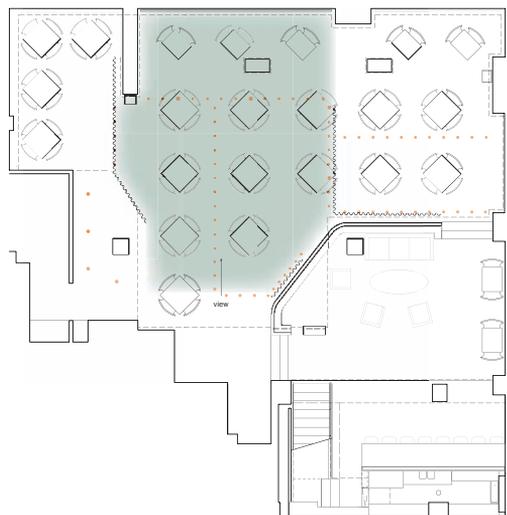
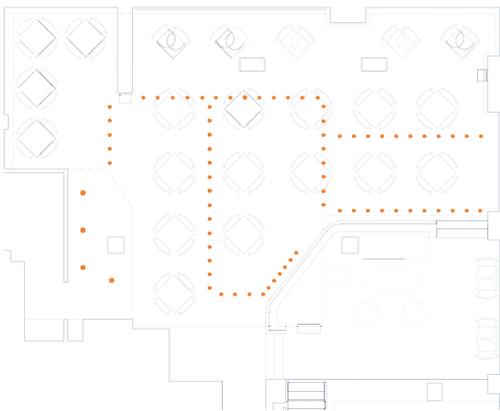
Floor Plan

The layout was to a large extent, predetermined; kitchen, and stairs to the street had to remain as configured. The design focused on re-skinning the interior surfaces.



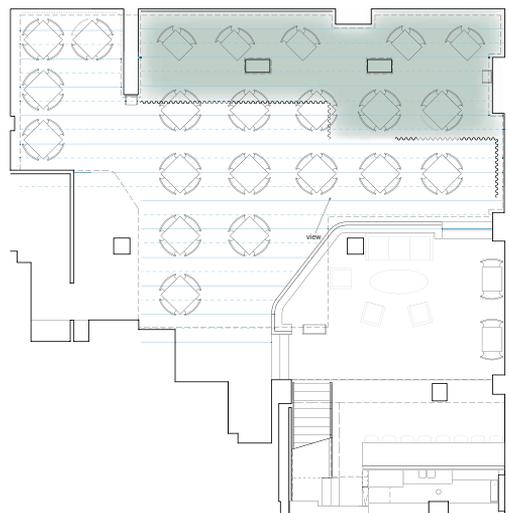
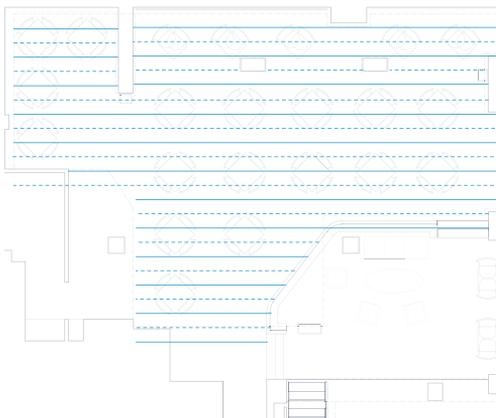
Curtains

The dining area can be subdivided into smaller, more intimate zones by positioning a series of sheer curtains in different configurations. Right and above: dining scenario one



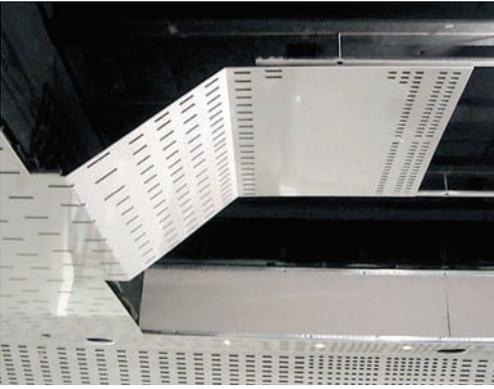
Curtain Light

Laser cut holes in the custom perforated ceiling serve as a template for the placement of small curtain lights mounted above. Right and above: dining scenario two



Steel Substructure

Small steel tubes were pre-threaded to received the custom perforated panels. Installing the first panel locked the location of the tubes in place and calibrated the threaded holes in the tubes with the screw holes laser cut into each panel. Right and above: dining scenario three



CNC fabricated perforated ceiling system

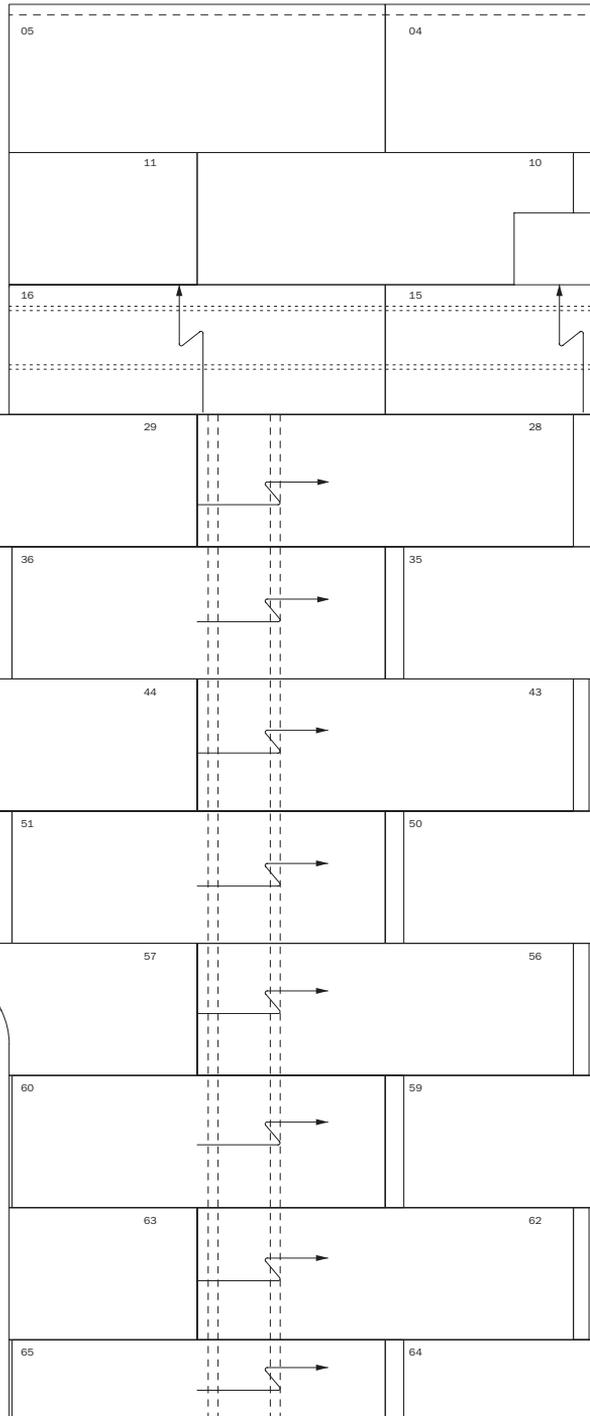
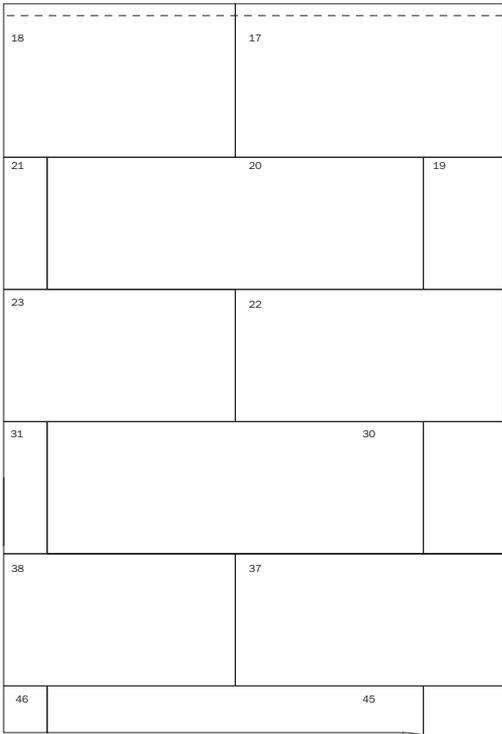
To simplify the installation process, the aluminum panel ceiling was hung two to four inches below the existing drywall ceiling with an inexpensive and low-tech hanging system. Continuous wood furring strips were first anchored to the drywall ceiling and roughly leveled. A one inch by one-half inch steel tube substructure was then attached to the furring strips with four inch screws that could be tightened or loosened to allow for precise leveling. The steel tubes were pre-drilled for the hanging screws and tapped at nine inches on center by CNC machining to receive the panels.

Using CAD software with CNC technology, the acoustical perforation pattern, all light holes and screw holes for hanging were laser cut into the aluminum panels directly from the design drawing files. Utilizing digital information as a control source, the panels were cut and shipped from Boston; the substructure was machined in Brooklyn and the two components were successfully installed with zero tolerance.

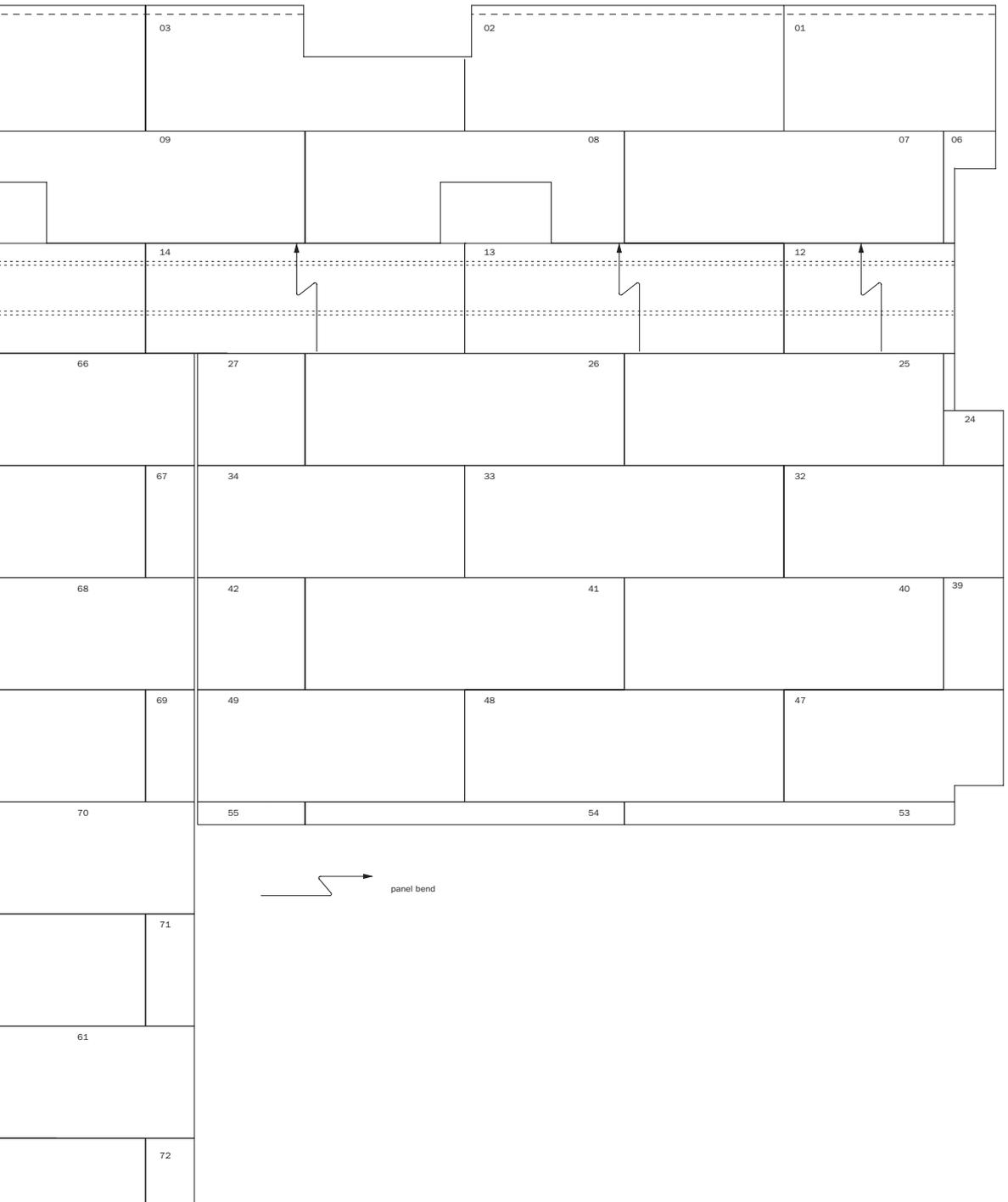
Panel fabrication

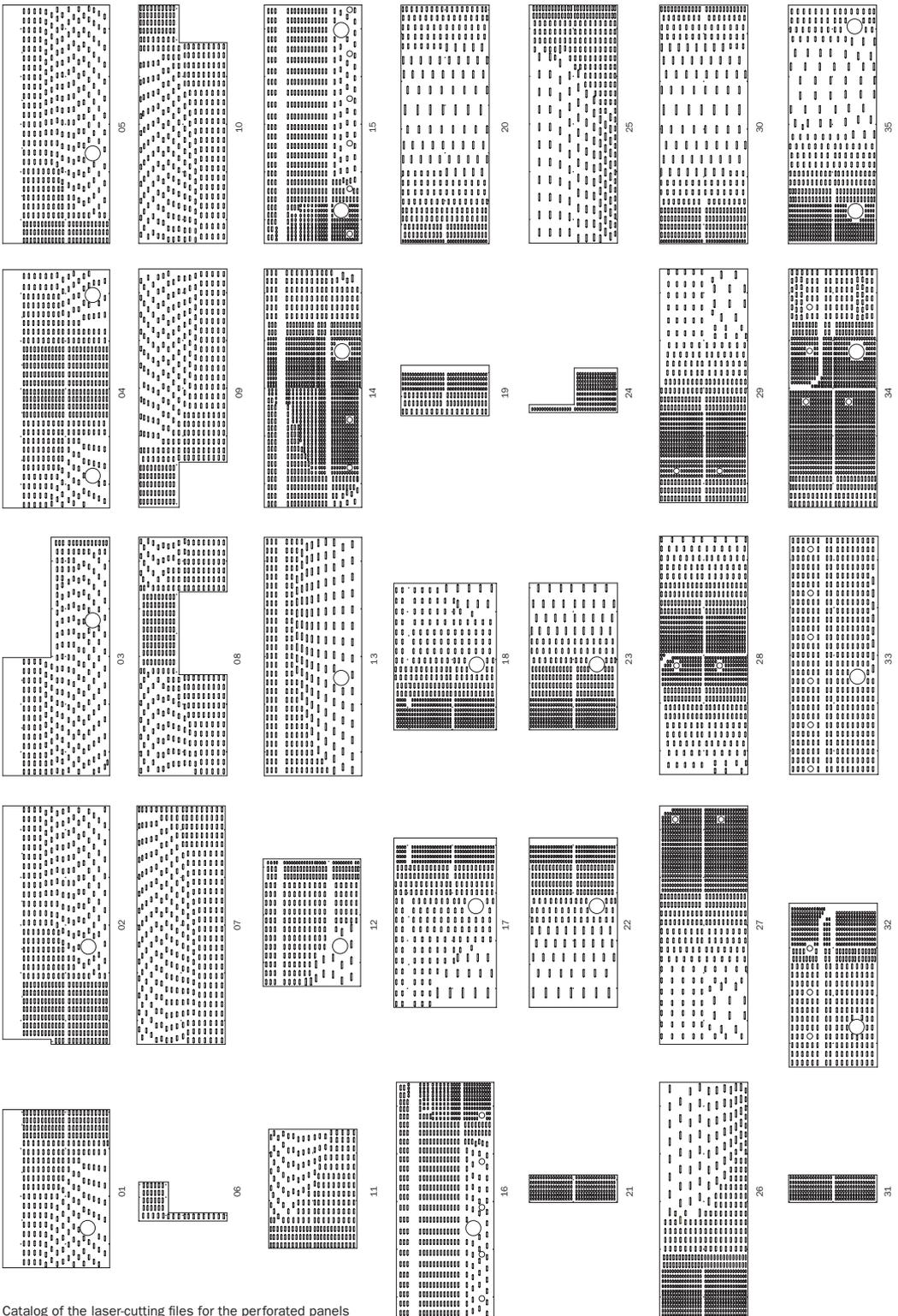
Because of the quick schedule, the aluminum panels were laser cut, bent (if necessary), finished, and delivered to the site in three stages to fast-track with other site specific work. The fabrication and installation sequence was driven by site constraints which lead to clusters of panels being installed in three different areas instead of working from one end of the ceiling to the other.



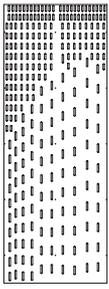


Location Drawing for Panels

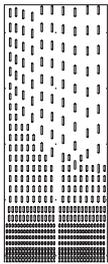




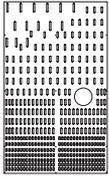
Catalog of the laser-cutting files for the perforated panels



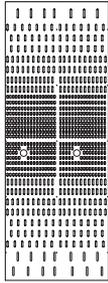
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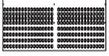
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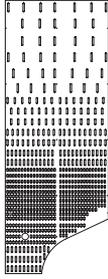
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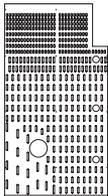
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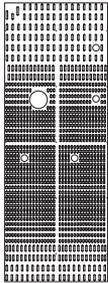
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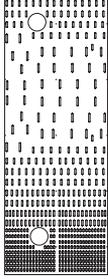
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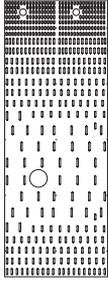
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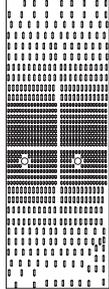
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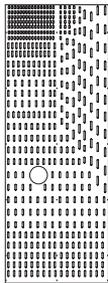
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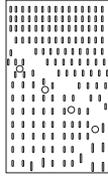
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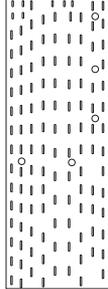
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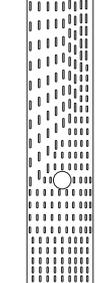
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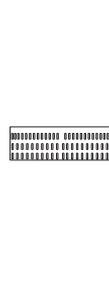
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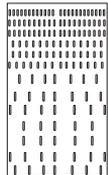
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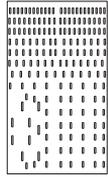
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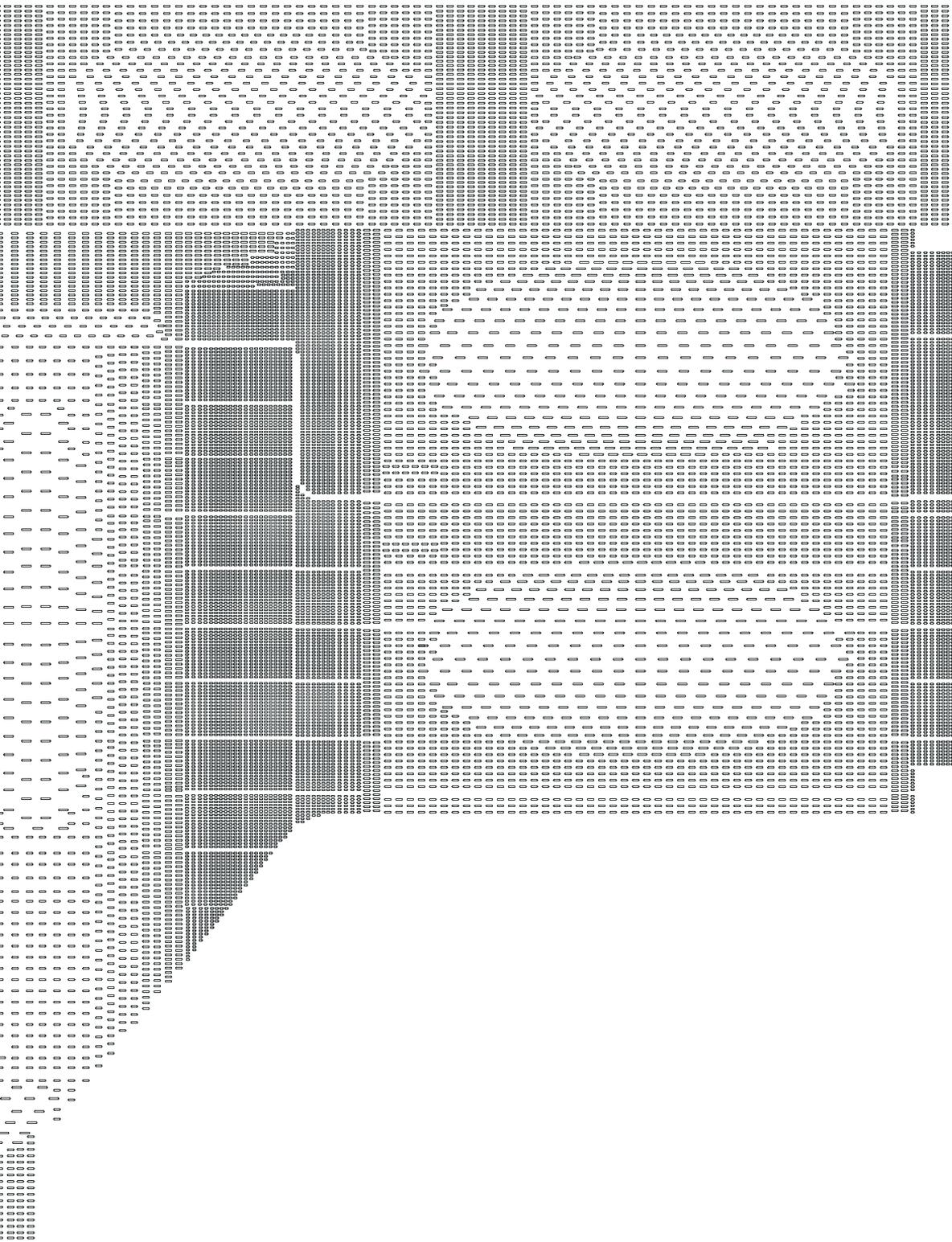
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Seven prototypes

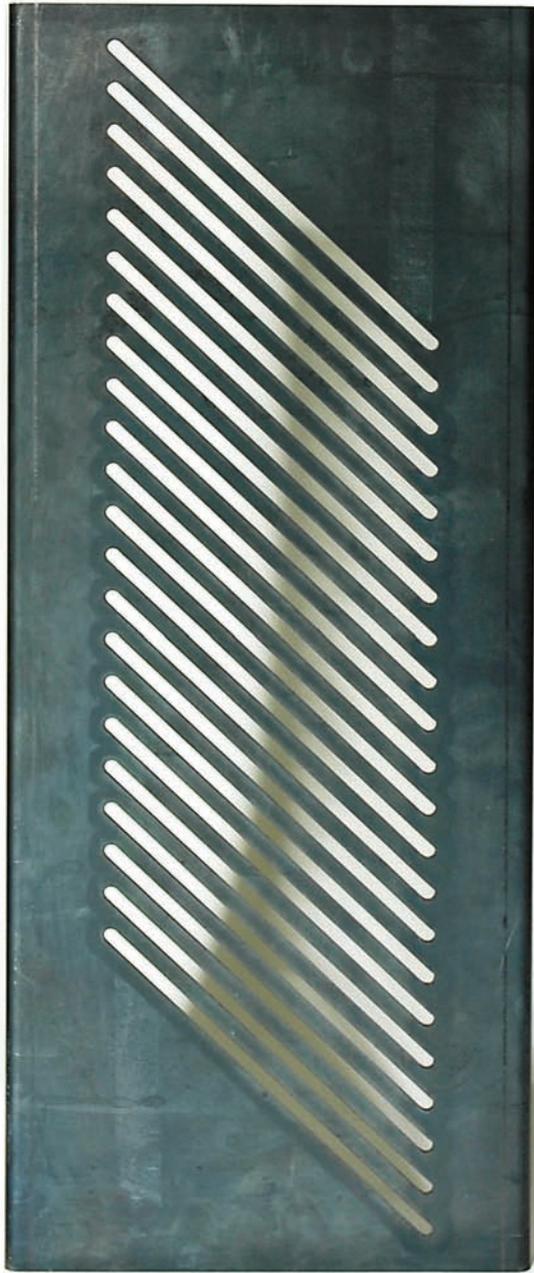
These seven prototypes from Marble Fairbanks represent a portion of the assemblies they have designed and tested. Full-scale mock-ups are part of every architecture office's practice; their evaluation is arguably the most direct way that design can be assessed. In this way, prototypes are evidence of a practice's thinking about the relation of materials, production economies, performance, and aesthetic effects. Architecture's development is dynamically linked to methods of construction; as the effects of fluid economies and information management are absorbed by the practice, opportunities arise in the space between the traditional categories of documentation and construction: fabrication, in which the link between design process and final product can be made most direct. While there are many examples of an architecture of customization through the master builder tradition (Carlo Scarpa's work comes to mind) it is only recently that a widespread application of customized fabrication under the architect's influence becomes possible. Isn't an opportunity just a rupture where new things can enter? Yet, the opportunity to use advanced fabrication techniques is not automatic. It arises from an understanding of a project's full operational schema. If we accept that architecture coordinates both material and immaterial phenomena, then effectiveness will be based upon a combination of situational awareness and dexterity. The degree to which a practice is able to understand and communicate the implications and potentials of fabrication is the degree to which it can transcend simple efficacy to become an instrument of thinking. – LB



Cantilevered stair tread, Vertical Townhouse



Radii studies for handrails, Vertical Townhouse



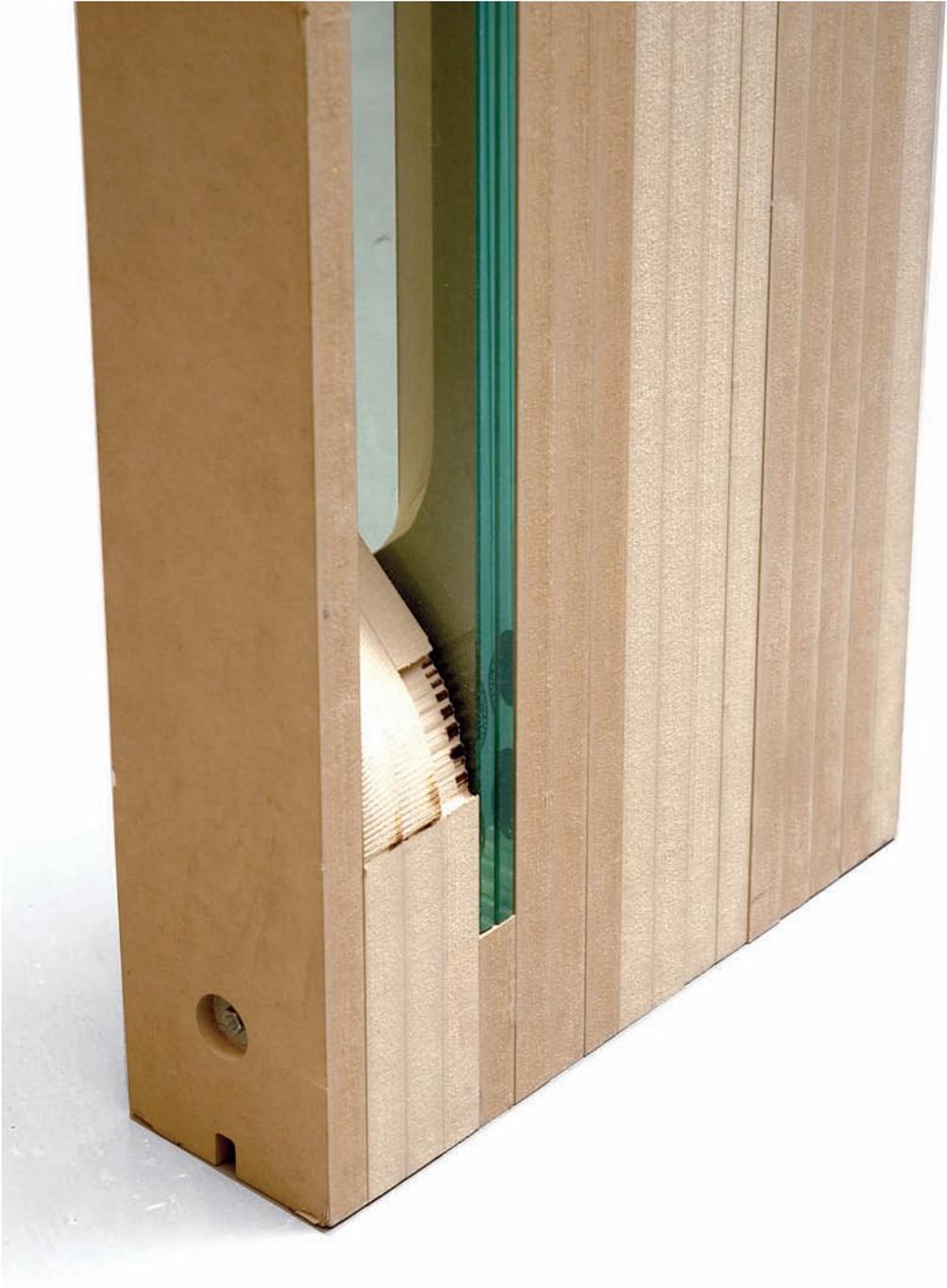
Radiator cover, Thirteenth Street Townhouse



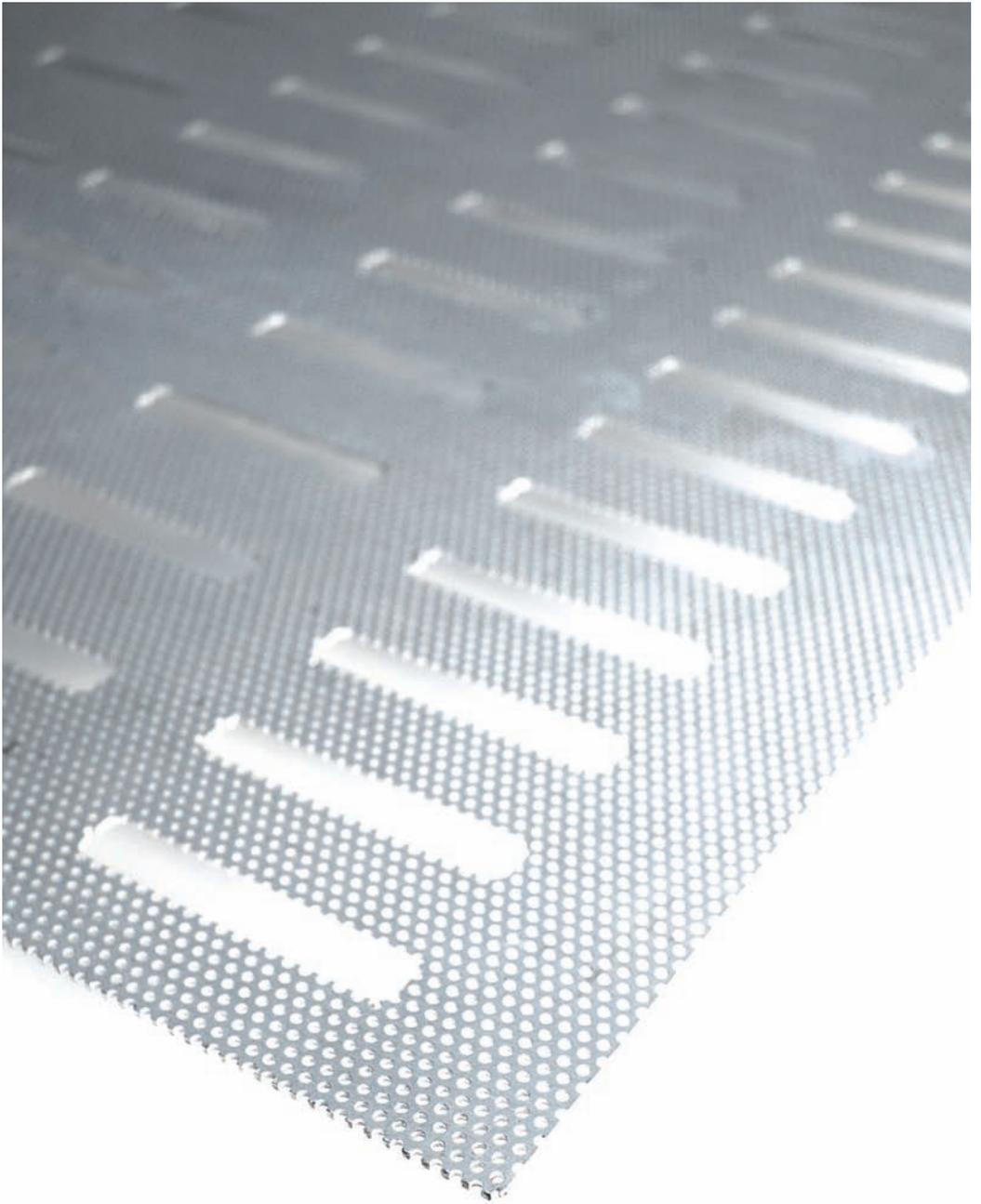
Milling study for folding wall, Vertical Townhouse



Steel frame for glass intersection, Cooper Union Engineering Design Lab



Wall, Slide Library, Columbia University



Perforation panel, Sciuscia

Since Technology operates within the framework of industry and finance and since any cost reduction achieved must first of all be exploited for the benefit of private industry, it will only be able to provide cheaper and more varied dwelling if the government increases private industry's interest in dwelling construction by increased welfare measures. If the minimum dwelling is to be realized at rent levels which the population can afford, the government must be requested to: (1) prevent waste of public funds for apartments of excessive size... for which an upper limit of apartment size must be established (2) reduce the initial costs of roads and utilities (3) provide the building sites and remove them from the hands of speculators (4) liberalize as far as possible the zoning regulations and building codes.

– Walter Gropius, *“The Sociological Basis of Minimum Housing”*

Marble Fairbanks: a Generational Shift

Ultra Moderne Becomes Ultra Managed

Michael Bell

Architecture operates between the city and production; it is naturally drawn to this position, between visible activities and equally intangible ones. As novel methods of design, production, and distribution continue to have an effect at every scale, practices have adapted to expanding and deepening technologies of communication and production. A shift develops: city as static *form* has been replaced by city as plastic *shape*: deformable, transient, volatile. In response, efforts to engage the city have increasingly turned to its temporal aspects to register this vitality. This essay offers a framework by which the shifting relationship between the city and architecture can be registered according to two contrasting models of the management of time, each of which proposes a relationship that informs the production of subjectivity. One, a model predicated on resistance to change, Robert Smithson's *crystalline*; the other, an immersive and connective engagement with the effects of time. Marble Fairbanks and their contemporaries have enjoined the latter while remaining mindful of the former in their activities; indeed, an effective practice increasingly operates as much in the management of time, policy and finance as in masterly detailing. – LB

The Ultra *Moderne* City: Outside of Time

When Robert Smithson published the essay “Ultra *Moderne*: The Century Apartments” in *Arts* magazine in 1969, he described the Century apartment house on Manhattan’s Central Park West as an architecture whose surfaces were “topographic maps” and “interminable landscapes,” adding, “The symmetrical patterns in some Ultra *Moderne* walls seem devised to baffle and to prove the notion of a demi-urge.” For Smithson, the symmetry of the Ultra *Moderne*, coupled with the crystalline repetition of pattern in the Century’s façade, constituted a suppression of change — time, manifest either as material or pattern, was withheld from a subject’s comprehension and, more so, withheld from their occupation.

The Ultra *Moderne* left the place of organic life suspended — even unacknowledged. What Smithson saw in the façade of the Century was in some sense a cruel tautology, and indeed in a semiotic model, many interpretations of Smithson’s sculpture and writings have focused on the role that self-referential symbols play in his work. But of course the model at play was drawn more from physics, and from a subject that intuited material properties, than from linguistics. Even though its semiotic content was leveraged to instigate the search for meaning, Smithson’s project was ultimately based in theories of material and entropy: in then-contemporary urbanism he saw material entropy as a sign or a weakened signal of that which was being repressed or withheld from lived experience. Our bodies occupied the leftover spaces outside of material time, including those spaces largely outside of, or more accurately parallel to, the patterns — the autonomous mathematics — of time that he saw in the Century’s crystalline façade. Our bodies became newly alienated, yet also precariously primordial, in this parallel world. Apart from the life of urban and architectural material (and presumably from the capital investment that precedes and imbues their formation), Smithson’s urban subjects walked *beside* rather than within the contemporary urban world. Though at some level alienated, their bodies were also returned to a privileged pre-capital state — they were adjacent to the Ultra *Moderne* and its potentially cruel methods, not *within* or totally subjugated to them.

Smithson surely found existential liberty in the dulled, yet still apparent cleft the Ultra *Moderne* tore

within the urban world. Rather than engage the productive landscape — that is, one ruled by capital investment and labor processes — of New Jersey’s and New York City’s factories, Smithson found sublime freedom amidst the entropy of the failed industrial landscapes — or more accurately, at the junction of industrial and organic systems. The formal and architectural attributes of the city Smithson encountered had become increasingly fragmented, and visually inchoate, by the time he wrote his major essays in the 1960s. Yet within this fragmentation, many theorists of the city, including Smithson, had long seen an opposite tendency: trade, labor, financial, media and production systems in the United States had become increasingly unified and in many ways self-perpetuating and mathematically uniform — crystalline in their self-replication and manifest lifeless forms of urban space. These were the tautologies. It was human attention that was being manufactured, and worked upon, more than human bodies. More than formulating the actual content of major media and communication systems, it was the suppression of content and the management of attention that was the ultimate project. The Ultra *Moderne* was not only a formal genre, with a semiotic presence, but also a wider phenomenon of a world in which bodies were hardly acknowledged while attention was dissected and managed towards ends disconnected from those of the subjects themselves. The perpetually repetitive call and signal of television programming, of advertising and branding, occurred against a backdrop that was not the literal façade of the Century, but a wider and more pervasive spectacle that possessed the Century’s Ultra *Moderne* characteristics. Timelessness for Smithson was the site of contemporary life — our organic presence, and its requisite modalities of perpetual change, had been drained against this bloodless plateau. The project at hand was to perceive and if possible recover a way to occupy time, both the primordial time of the body’s own organic life and that of the inorganic life of material now suspended in urban formations, in architecture, in cities, and in the wider field of urban extensions — in physical things.

The Ultra *Managed* City: Entering Time

During the two years prior to September 11, 2001, New York City began the urban planning that would form the core of its bid for the Summer Olympics in 2012. The urban planning was led by Alexander

Garvin, while NYC2012, a private entity formed with the city's backing, was led by Daniel Doctoroff. The bid did not succeed — London eventually was chosen as the host city — but the planning by NYC2012 represented an extraordinary milestone not only in how cities are imagined and planned — managed — but also in how the process of popular public approval for urban redevelopment is garnered. NYC2012 presented a fourteen-day series of calibrated and intricately coordinated events as a time-based, distributed, and highly qualitative mapping of the future Olympics. Spread across a networked transportation diagram spanning all five boroughs, it enabled one to imagine the event(s) ahead of time — indeed *in* time. The Olympics was approached as a regional project. Diagrammed more than designed, and presented as a form of becoming rather than a final entity, the networked mapping of the proposal included Smithson's New Jersey Meadowlands as well as the outer reaches of Queens, Brooklyn, Staten Island, and the Bronx. With its dedicated transportation systems and new public infrastructure, the Olympics was presented as a form of *lived* transportation—it only made sense in time and from the standpoint of the passenger, whether athlete or spectator. It represented what might be the first temporal-based planning, designed not only to engage large-scale public imagination, but also to garner public approval. It was the time-based aspect of the planning that made it palpable and believable. In many ways it was an “anti-monumental” plan — based more on managing space in time than on representing space — yet the planning also attempted to gain the stature of a semiotic monument in the public's imagination. The role of transitional and occupied time was central to the planning and to how the public would receive and embrace the proposal.

The NYC2012 proposal was at its very core a time-based management of events: while it involved the production of major architectural and urban hardware (as programmatic nodes), it was also conceptualized as a time-based monetary project (projecting tax increment financing, a new bond proposal for transportation, et cetera). The NYC2012 bid, if it had succeeded, would have situated the Olympics both as a redevelopment catalyst — which is the norm for Olympic planning — and as a time-based, distributed event. Largely based in the movement promised by new infrastructure systems, but also calculated as a total system that would move people, affect real estate values, sustain political constituencies,

and lead to long-term urban development, it represented a new and tremendously sophisticated form of managing rather than designing urban space. The idea was that these networks would later become permanent aspects and tributaries of urban life in the city — affecting its growth for decades, if not for a century, to come. The entire proposal was a network more than a form. The NYC2012 plan for the Olympics was sewn and woven into lapsed time, making use of undervalued real estate and of sites that Smithson may have encountered in his walking tours of the city. The network was designed to reconnect undervalued sites and to create new economic value within New York City's material — i.e., architectural and urban — landscapes.

The Olympics planning was a model of a new, and I would argue, emerging urban form that could be called the Ultra Managed City. At its outset, this new city, and more than likely a new architecture that is emerging within it, is one of both repose, and a newly found dynamism — it promises pleasure far more than work, it suggests lacunas or time-out zones and simultaneous easy occupancy of momentum. The Olympics planning opened access to realms of lapsed time — spilled time — that are newly ready for innocent occupation(s) — sport, recreation, efficient high level professional work. But one must ask if this apparent moment of elastic growth in otherwise previously inert spaces precedes a darker extraction of power, and of wealth, via new dimensions of space and time. Spaces that Smithson found un-saleable — legally un-titled — and too remote, if not invisible (and thus unfit for occupation) — did Ultra Moderne architecture purposely baffle the predators of time to protect space — withholding architecture's value from speculators, from investors, and from a tyranny of over programming— from the Ultra Managed?

Marble Fairbanks: Ultra Managed

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The architecture of Marble Fairbanks arrives as a corollary of these organizational systems. In this context the promise of Marble Fairbanks' architectural production is both literally tangential and also central — or, one should say, covalent and embedded. Marble Fairbanks were not commissioned to contribute to the Olympics planning, and they have never positioned themselves in direct relation to Smithson's writings, yet they are operating in a realm between these two extremely different and dominant versions

of New York City — between the Ultra Moderne and Ultra Managed city.

New York is a city whose promise has long been based in the sublime reading of a repetitive and standardized grid, coupled with the networks — the subway, the freeways, and the Port Authorities bridges — that constitute its attenuated industrial landscape. New York’s crystalline form surmounts a network of dynamic systems that sustain its presence. Market movements, biological movements, prehistoric river basins and the water sources — all have been managed to sustain the brokered spaces of the city’s regularized interior streets and spaces. New York is a city whose future promise, however, seems to be increasingly situated within the newly liberal — that is, flexible — forms of networked passage that sustain the center. Rather than fix Manhattan against an invisible backdrop that sustains its regularity, architects are increasingly viewing the city as a part of its larger network. In this regard Marble Fairbanks’ work emerges and realizes itself as embedded in the wide range of processes that sustain architecture but that have routinely been suppressed in the final form architecture takes. Marble Fairbanks’ work parallels and broadens the work done at Columbia’s Graduate School of Architecture, Planning and Preservation, where professors and students have long operated within design theories that privilege the role of the network over its nodes and the role of formalization over form. For the generation of architects who have emerged in the past decade, it is increasingly the succession of events and spaces — not as a positivistic codification of place, but as a dynamic mode of unstable emergent use — that is important. Stan Allen’s work was crucial in establishing this reading of New York City, in particular Allen’s joint project for the Croton River Aqueduct done with Jessie Reiser, Nanako Umemoto, and Polly Apfelbaum. The Ultra Managed City is emerging and with it a form of Ultra Managed Architecture. Marble Fairbanks, part of that generational shift, are aggressively pursuing its potential.

Physical Site: Physical Sight
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Robert Smithson was nothing if not an expert on New York City’s planning: his writings painstakingly chronicle his personal movements by bus, car, and train. His walks on foot and the paths he took were essential to his knowledge and discovery of New York’s metropolitan landscape. Smithson relied on — even

stressed — a plaintive description of elapsed time and the sublime aspects of facing what was then surely a subjectless city. Smithson has had a tremendous impact on theorists of the city today, but not as a didactic force for planning new programs nor as a registered footnote. His work instead has provided a foothold from which to survey and “see” a city that has long been driven by invisible forces and by unwitnessed forms of power — by a semiotic/visual obsession with form rather than formalization. Smithson has served as a predecessor to those diagnoses of the city — by theorists from Reinhold Martin to Lars Lerup and Albert Pope — that began with, rather than suppressed, the vast and uncharted spaces opened up within, and drawn beside, the self-reflexive, self-representative systems of the late twentieth-century city. Among contemporary thinkers, Marble Fairbanks have relied on Martin as a colleague and as a theorist of network systems — of new modes of managing time and production to engage the history of production as inhabited change — but more importantly they have relied on Martin to reveal a predatory reading of network systems.

Marble Fairbanks would perhaps see their role as creators of managed, rather than formed, space. Their site is more and more the Ultra Managed City — a city in which time-based practices are increasingly not only the normal mode of understanding urban space, but also the basis of space within which we produce our own professional practices (indeed, all our practices). Yet it is not clear what role material plays in their work: surely it is something to be managed as well — i.e., tooled, lathed, shaped. But the role of material for Smithson was to guarantee that seeing was based in a physical rather than overtly visual comprehension of space and time. Smithson’s precarious Ultra Moderne space, and the darkness it could portend, had the potential to allow sight to recover lost energy within what appeared to be (but was not actually) inert material. Marble Fairbanks are using materials and relying on their various properties, but unlike Smithson they do not use material as a repository or indicator of potential or lapsed time. Smithson saw the latent energy in material and in material forms despite the overt characteristics of energy loss and a concomitant emotional loss and despair that this brought forth. This generation of architects — if understood through Marble Fairbanks — does not share the physical readings of material that Smithson found both alluring and dangerous.

A Generation Changes Our View of the Factory and of Production?

To place Marble Fairbanks in a wider generational milieu, one must also look at the work of Greg Lynn, Stan Allen, Karl Chu, Evan Douglass, Kolatan/MacDonald, Bill Massie, and SHoP. All are working towards a reading and a production of architecture as engaged in time — as *IN* time. They are doing so with an art form that, at its roots, is more historically linked to themes of timelessness, i.e., more to permanence than transience. If taken at their word, these firms would say that the seemingly enigmatic forms of their works are not intended to offer visual clues, semiotic meaning, or behaviorist directives to their users: these works do not create distant/segregate reading subjects.

They of course are treading on ground that is dangerously close to any number of mid-century forms of behavioral sciences — inscribing subjectivity as a mode of action or ergonomic tasks often related to form, movement and elapsed time. Smithson and the generation of architects who were his peers would have spurned this tendency to encode space with action. John Hejduk, Peter Eisenman, Aldo Rossi, and Raimund Abraham, among many others, produced work that did not so much engage production as stand beside it. Smithson himself of course never attempted to create art showing biological change — the closest he came to expressing visible change was at a glacial/geologic scale in his earthworks such as *Spiral Jetty* — but he instead revealed the prehistoric aspects that are concurrent with our contemporary lives. His work, posited as an agent of retroactive logic and coherence, was at its largest scale a microcosm of the great milieu of physical history, and a counter to the managerial systems that material simultaneously evades and corroborates.

Thus the Century façade was both a new form of modern mathematics and simultaneously an incantation of the deep/distant histories of material and our own bodies. The mimetic aspect of standing in front of the Century Apartments revealed little: the thwarted mirroring showed the Century as a self-reflexive system and our bodies as biologically autonomous in relation to the architecture and its corollary city. Smithson produced art as an intuiting device rather than as a mirroring representation — by comprehending the elusive and temporary processes that precipitate the construction of the city, his art left

these processes materially inert in the formal sense but inorganically alive, even if entropic. Smithson's subjects retained their otherness in relation to the city — this otherness was heightened actually — yet their work as subjects was to recover immanent movements in the stillness of that lapsed distance between subject and city. But Smithson never attempted to capitalize on the value of recovered time: you could not occupy the time, though you could intuit its potential.

If Smithson's position seems untenable today — at least to many and surely to Marble Fairbanks — it has served as the ground from which a new ethics can be produced. The distance between subject and city has secured a place within which to build a form of subjectivity. I think work by Marble Fairbanks and this recent generation of architects has relied on a form of frustration with artists such as Smithson and with a wider lack of faith in a broadly existential project. There is a sea change at hand and Marble Fairbanks are a major part of it. In that light, it's not difficult to understand why Smithson's project of observation and partial occupation would lose its appeal.

Produced vs. Production

The questions raised in the context of this new generation that is embracing the organic and supple qualities of time are not without immediate consequence for architecture today: a new arena is again being configured between production and design. Territory — a new (post-Smithson) Passaic, a new industrial Cincinnati, a new Birmingham — is being produced that spans international borders, and spaces that have long lain fallow as the cast-offs of prior production, class struggles, and economic regimes are being recoded and revised by a new generation. The architects I refer to here are literally doing this by reentering aspects of factory production that were discarded by an earlier generation of architects. A Richard Meier building, despite its constructed image, never truly embraced production or tectonics — it produced instead an image of the tectonic, and in its excessive cost it surely suppressed the ethics of labor and equity that one assumes tectonics would be concerned with.

The spaces that Smithson walked through are still there today, but architects are quickly reconfiguring how they interact with high- and low-end industry. Here Marble Fairbanks and others are finding a new

tectonics and entering a new realm of ethics in relation to labor. We are not standing outside the factory as Smithson did, but have reentered the zone of production. In doing so we are reentering capital realms that were the engines of twentieth-century urbanism, of architecture, and of modernization — the engines that produced the dizzying spectacle of modern life, but also its entropic by-products both as spaces/territories and as objects/things. As new borders are drawn between around old economic entities, new territories emerge.

At the moment, the network of theories that has sustained our first dive into new production is being written within philosophies of practices rather than the forms (see Michel Foucault, Henri Lefebvre, the Situationists, etc.) and within time-based theories of immanence, i.e., becoming, rather than metaphysics and origins (see Henri Bergson, Gilles Deleuze, Gottfried Leibniz, etc.). This is how Marble Fairbanks are moving forward, steadfast in their reliance on practices and diagrams. These new groups of architects who engage production are finding new ergonomic malleability in spaces within time, yet they must surely be discovering the inverse as well: that contradictory readings of time-based practices could be dangerously extracting space and time from the domains that formerly appeared to be uncharted — and thereby open to an untitled future. Should architecture enter this milieu? Can architecture compete with the endlessly small subdivisions and mathematics of futures markets, derivatives, and capital's liquidity? Or will our best attempts at integration into time pale, creating a lapsed form of time's passage and thus a new monument to lost time? Marble Fairbanks has been able to deflect criticism of the form their work takes and its sometimes over programming, instead pointing towards the role of performance — program and use — and of production, i.e., the factory processes and manufacturing techniques. Marble Fairbanks seek to surf, in some sense to manage, and ultimately to graft their work onto the economies they take part in — but it's hard not to believe that alienation will soon reassert itself in new ways and in new urban/architectural forms. It is also hard not to believe that a new crisis of urban master planning will emerge. Can we manage space to avoid such a crisis?

Despite New York City's recent loss of the Olympics bid to London, NYC2012 founder Doctoroff still influences more real estate development than perhaps

anyone in the city's history including Robert Moses. His rise as a force in urban planning and the work done by Garvin in redevelopment have coincided with a rapid incorporation of Global Information Systems (GIS) and other computer-based urban planning/analysis tools. However you view the potentially historic role of Doctoroff — and it surely promises to be tremendous in scale at this time — it must be understood within this greater acceptance of time-based mapping as a widespread and fully public technique of demonstrating the qualitative rather than quantitative dimensions of urban space or, one should say, of urban time. This is master planning (surely it must be seen as such), yet it may be more generous and opportune to call it the master managing of a city, as a means to at least momentarily sidestep the ideological and ethical questions of centralized power that have been so assailed in the past thirty years.

Ultra Managed: Post Ethical

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If we view Smithson as engaged in an ethical practice that secured havens in the inert recesses of material, how should we see today's city? Is it a Post Ethical City? A city that is ultra managed and endlessly — not infinitely — flexible? Is it an evolutionary space that need not covet time as a sanctuary to be withheld from the predations of production because here no crisis ever exists — they are all addressed instantly before damage is caused? From behind the glowing CRTs that fill our offices and extending well into an amazing new world of production, we architects are not turning back to the Ultra Moderne, but questions are emerging about what it is we have decided to take on. These questions are going to be as unique and unprecedented as the organic spaces we hope our designs will offer. Does the Ultra Managed City or Post Ethical City represent a new and more severe foreclosure of time in smaller increments that does not so much liberalize time and space but foreclose it into the hands of an elite few.

Is the Ultra Managed City one that drains space of its generative bodies as it moves production to new off-site realms? Why did Frank Gehry continually tell us that he was collaborating with a steel fabricator in the Midwest from his office in Los Angeles? Is it important that our fabricators are usually in remote locations? Evan Douglass produced his recent installation of Jean Prouvé's mass production prototypes at Columbia University by way of a North Carolina CNC milling plant. The literal distance between Douglass and

the mill seemed to be in counterpoint to the metal and human sweat of Prouvé's presumably urban factory. Architects today are quickly reconfiguring how they interact with high- and low-end industrial production sources, and in doing so we are re-entering the capital realms that were the engines of twentieth century urbanism and tectonics. Felix Guattari's essay "Regimes, Pathways, Subjects" claims that the spate of then new technologies that reinvented production in the postwar era led to the same "monstrous realms of alienation" that had existed prior to these innovations. Can we expect something different from the innovations that we are again embracing? Guattari of course was at some level correct, but he also stated that one of the reasons for this alienation was that the new waves of technology did not increase an individual's ability to enter into the producing world: while the technology did allow a wider and more democratic choice of what had been produced, it did not allow people to become producers themselves. How does our new wave of technology affect what is produced and for whom? How does it affect the production of a much wider reading of territory? And how does it differ from earlier modes of embracing as well as evading production — of creating production as a kind of spectacular menace that defines our actions by defining our field of operation and of vision?

The Fragmented City: a Coda For a City That Defined a Generation
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One of the more tragic circumstances of life within contemporary cities is how a shift in semiotic and symbolic content can achieve a shift in the broader and deeper wellsprings of both private and public human life. The term "vulgar" — having long ago lost its ability to spike concern or to assure a semblance of righteous reaction — may be useless at this juncture as a basis for action against the manipulations of private life, but some new term must surely rise to fill that role.

Within the latter-day spectacle — mutated and more pervasive than that of Guy Debord — everyone's stake in the city is at risk, not just the subjects of this latter-day and uncharted spectacle, but also the very producers of it. The instrumental codes that infiltrate every level of public and private life are today at best frail. As the new spectacle instigates its own replication and mimetic behavior in all of us, the shifts it seeks to declare in meaning, in social patterns, and ultimately in consumption constitute a near miss —

a half-accident that leaves consumer products bought and almost paid for; attention diverted, yet not fully manipulated; and dollars in motion, but increasingly pooled in the "hands of the few." As life is drained by the incessant hyperbole of trademarked content that assaults daily life, the networks that publicly declare victory must feel in their gut something far from self-assurance.

Everyone is vulnerable: the deregulated networks, from telecommunications and media to finance and trade, are running at full steam, yet no one feels that security is a given. No assets are safely stored away. As market practices are naturalized and untethered from nineteenth and twentieth century critiques based in equity or moral and ethical judgment (and as architects increasingly theorize and attempt to surf these markets), on what grounds does the production of the Post Ethical City base itself? The primary arguments against the free market city of the twentieth century were largely based within socialist or Marxist philosophies or within practices of resistance — which of course constituted a basis from which to challenge those individuals deemed to be morally irresponsible or unworthy of the gains tendered by the liquidity of market systems. The weak had a promise of recourse: Power derived from disproportionate aggregations of capital or from non-responsive or non-representative forms of state control was understood as morally inferior — and worthy of critique, if not outright reorganization. The weaker constituents might suffer still and fail at this task, yet by withholding their anger and expressing indignation, they remained a tool to show moral superiority and to possibly hinder oppression. Is there a role for indignation by which the non-moneyed — the NON-rich — can assert power against the economically mighty in the Post Ethical City? Is there a new political left for architecture, or has the crisis of post- 9/11 security infantilized our other social crises? Has the time-based mechanics of 9/11 shown that the future of urban territory is indeed based IN time as well as in spectacular forms of semiotic manipulation?

Prime-time television has long mimed our (and its own producers') self pity with its mocking confusion of the high and low, and it presumes that the wider populace actually buys into both the narcissism and the parody and denigration of our lives. Of course if this were true, then where would anger, frustration, or some form of righteous indignation come from today?

An earlier generation of architects engaged a critique of the symbols of the spectacle, eschewing its financial or material mechanics. Venturi, Eisenman, Graves, Stern, and Moore all engaged the linguistics of the sign and produced critical architectures from the semiotic systems of the spectacle. Those who engaged material — Rafael Moneo or Steven Holl, in particular — did so with a focus on the stillness of form and the intrinsic weight of material: they revealed in their work a crisis of production, but withheld a large-scale labor- or capital-based solution. There is a new shift at play in today's generation, one that has moved back towards the factory and the realms of managed power that the generation before them felt they had to steel themselves against. It remains to be seen how Marble Fairbanks, or we as a new generation, will navigate this once again new realm, but it does seem clear that everyone is vulnerable. Still, we have no option but to engage. In that spirit Marble Fairbanks' formidable work is both brave and path breaking.

The new capitalist passion would sweep up everything in its path... The spirit of enlightenment, which marked the advent of this second figure of capitalist subjectivity, is necessarily accompanied by an utterly hopeless fetishization of profit.

– Felix Guattari, “Regimes, Pathways, Subjects”

Design Q&A Revisited

In 1972 Charles Eames responded to a questionnaire which subsequently formed the basis for an exhibition and a film that outlined their approach to design. Accompanying his concise, even terse, responses to the 28 questions was a diagram of three overlapping figures. It demonstrated how the Eameses had positioned their practice at the intersection of the interests of society, the client, and the designer positing that it was this dynamic confluence that offered all participants the most opportunity to work with “conviction.” In part, it is this idea of a responsive practice that has kept their project so fresh to our contemporary sensibilities.

Marble Fairbanks was spontaneously asked to revisit the original questions from the *Design Q&A*, using them to reflect on the Eameses as more than branded design personalities, but as originators of concepts. The hope is that these questions can perform as an inventory by which we might reflect on our continued interest in Charles & Ray Eames, and in their complex and occasionally contradictory ideas on industry, utility, function, material, and ethics. – LB

What is design?

Scott Marble: Design is directed and intentional. Design also incorporates the intentions of many individuals operating systematically at many scales often far removed from what it actually produces. Designing is a discrete and precise activity that for us has the goal of propelling collective processes forward.

Karen Fairbanks: There is an economy to design that responds to precision and maybe even certain efficiencies, yet our ambition is for design to expand, be generative and participate in a larger ecology.

Is design an expression of art or an art form?

SM: No.

KF: Design addresses needs and needs can be broadly defined. I wouldn't exclude art, but design is broader than art.

Is design a craft for industrial purposes?

SM: Absolutely, industrial processes themselves might be more important to design than many others. If these are not considered a design issue industry is at a disadvantage that then gets transferred to the architect. This is why systems are so important to consider when we design; as they have become more pervasive in our lives we can't help but engage them if we are going to work effectively as designers.

KF: The use of the word craft is interesting, because as architects, we utilize materials and processes that are produced by and for industry.

What are the boundaries of design?

KF: The boundaries are defined by how you conceive of a design process, how you envision your approach. But today, we design everything, we design our food, we design nature, we design...

SM: There are no boundaries to design today.

KF: There are no boundaries to what can be designed, but there can be boundaries in your methods and your process.

SM: In a broader sense, there are things that are designed intentionally and those that emerge more organically, but they are both design.

Is design a discipline which concerns itself with only one part of the environment?

KF: No.

SM: No.

Is design the creation of an individual?

KF: Not here.

Or a creation of the group?

SM: It is a collective process. This has become even more the case since the time of the Eameses practice to today. Collaborative processes are becoming more important due primarily to the growth of communication and the obvious advantages of collective intelligence. Perhaps less realized, in innovative ways, in architecture than in other disciplines, but it is catching on.

Is there a design ethic?

KF: The design ethic is to move forward and work optimistically.

Does design imply the idea of products that are necessarily useful?

KF: The word product is interesting here because sometimes we design a process, sometimes we design an effect; it is not just products. Useful needs to be defined in the broadest way possible.

SM: The utility of the result of design is wide open today. Sometimes seemingly useless products can eventually become the most useful.

Is it able to cooperate in the creation of works reserved solely for pleasure?

KF: Yes.

SM: Yes.

Ought form to derive from the analysis of function?

KF: It should transcend the analysis of function.

SM: Form should respond to function but the analysis of function is a complex issue today. Architectural function has a historical association of literally determining form but if we redefine function to include more subtle use patterns and not just fixed program, like a kitchen or a bedroom, the definition starts to expand the concerns of architecture to include other disciplines, especially psychology, and the behavioral and neurosciences among others. We are interested in architecture that reflects this awareness. Our challenge is to develop techniques to utilize the vast amount of new information to analyze, track, and anticipate use patterns.

Can the computer substitute for the designer?

KF: Computers are still directed by a designer, and with that direction they expand design possibilities, performing many tasks more efficiently and effectively.

SM: At this point the efforts to make computers organic has fallen short of being able to contextualize peripheral information while executing a specific task. The classic example of this being that IBM supercomputer Deeper Blue can defeat Grandmaster Garry Kasparov in a game of chess but doesn't have the common sense to come in out of the rain. Computers are excellent at limited expert operations, but there are aspects of human design intelligence that will likely never be transferable into code.

Does design imply industrial manufacture?

SM: This is tied to the post-war efforts to utilize industry for design. This has a renewed urgency today with the rapid growth of digital production in almost all industries.

KF: In a broader definition of design it might be possible to work within a process that doesn't involve industry, but in architecture, we are always engaged in industrial processes.

Is design an element of industrial policy?

KF: Policy affects design, but we must also consider that policy itself is designed.

SM: If the question asks whether design is part policy making, it absolutely is because the scale that design now operates at is so broad. It has grown to include the design of the industrial system itself which includes policy; the design of a discrete element (or product) is only one part of the larger system.

KF: Today we would recognize that the result of design is not just products but also a process and its system.

Ought design care about lowering costs?

KF: Design should care about improving quality. Higher costs do not necessarily lead to better design. We are interested in processes that lead to higher quality and more invention without adding cost.

SM: It is also fundamental that design be concerned with costs not just as an issue of money, but also as an ecological issue, both social and environmental.

Does the creation of design admit constraint?

SM: Whether we admit it, design is subject to constraint. Designing material objects is a reductive process. While its implications and influences are broader now than ever today, the act of designing has to be reductive to be productive. Good design is inclusive, but at some point the designer has to make very particular decisions in order to realize something in the material world. The process from ideas to product must be reductive.

KF: I would describe this as a process that requires continual focusing, that throughout the design process there is a focusing and refocusing in the direction and scale of design decisions – this is a non-linear process with many variables.

SM: Design wants to be comprehensive, but some basic assessments about the physical performance of materials must be subject to a series of decisions and these are arrived at through reductive means.

What constraints?

KF: Constraints have been the motivation for many of our design decisions, the specific constraints depend on the project. Since architecture is subject to material production it is always engaged with constraints; but which aspects of those will push the project in the most interesting way is different for each project.

SM: One of the things that is increasingly important today is the development of new materials and fabrication techniques. There is sometimes a belief that you can form anything, especially with the use of computer technology. When that condition of endless potential and possibilities exists constraint becomes even more important. We try to innovate through the physical limitations of technology (the size of bits, the functioning of equipment, etc.) even as it potential expands.

Does design obey laws?

KF: Should design obey laws?

Are there tendencies and schools in design?

SM: Historically, there were more unified theories of design resulting in a perception of an epoch. Today, there is more of a multiplicity of positions or tendencies than ever before constantly being negotiated by very particular discussions and debates.

KF: Like a Petri dish, small-scale experiments create discussions... While it might seem as though there were singular pervasive schools in the past, there were many micro-experiments and positions that were not recognized or given a voice. What is different today is that the boundaries are much more fluid and information, knowledge about those experiments are not as bound to location.

Ought the final product bear the trademark of the designer? of the research office?

SM: We do not emphasize this but branding is a significant part of the success for a lot of practices.

KF: It is inevitable that we have tendencies in our design, but we do not begin there. We are interested in a process, or approach, that emphasizes a method of arriving at, rather than a focusing on, a product, and then thinking beyond the product itself towards its effects.

What is the relation of design to the world of fashion (current trends)?

SM: It is completely entrenched in it primarily through media. There was a period, as recent as when we were in graduate school, when there was resistance to the effects of media on architecture. At this point to ignore its impact is to ignore a significant global force. The approach today would be to utilize it – to take advantage of its effectiveness.

KF: There is slowness to architecture, its ability to have a duration that makes it different from fashion. While architecture is embedded in trends and fashion it also has a responsibility to be more than current.

Is design ephemeral?

SM: The effects of architecture should be ephemeral. Maybe the effects of architecture are more important than architecture today. The interest in permanence is an economic concern, but I would say that the intensity of architecture is more important than its longevity. Think of the Blur building, it exists, it makes a mark, and then it disappears. Sciuscia, the restaurant we recently designed, was one of our most publicized projects. It was designed and built in three months, it lasted eighteen months and now it is gone. Is that a problem? No.

Ought it tend towards the ephemeral or towards permanence?

KF: There are different needs. Sometimes change is what is needed.

SM: Our work has to do with designing change into the architecture. Permanence, in a monumental sense, is less of an issue today. Responsiveness is much more important.

To whom does design address itself: to the greatest number (the masses)? to the specialists or the enlightened amateur? to a privileged social class?

SM: At times it will address the elite class and at other time, the masses. In our work we address the broadest range of constituents as possible without hierarchy. Much of our current work is for public or non-profit organizations which we will approach the same as we would a wealthy private sector client.

KF: Design addresses the world community today. We are interested in working in areas of the greatest need. Sometimes a project, system, or design originates with an elite client, but that may also enable it to be brought to a wider public.

Can public action aid the advancement of design?

KF: Yes. Public recognition that design matters can play an important role in improving the environment.

After having answered all of these questions, do you feel you have been able to practice the profession of "design" under satisfactory conditions, or even optimum conditions?

SM: Satisfactory, but not optimum. Architects in the United States do not really practice under optimum conditions. Practices that are interested in promoting diligent, innovative design are too often subject to bureaucratic regulations that emphasize risk aversion at all costs. Real innovation is risky. That said, one makes one's opportunities. Our involvement in teaching has been one way to keep focused and diligent. KF: Teaching has been a way for our practice to expand even when conditions are not optimal.

Have you ever been forced to accept compromises?

SM: We try not to compromise.

KF: When you are building, there is always negotiation, but I would not call it compromise.

What do you feel is the primary condition for the practice of design and its propagation?

KF: A desire and belief in expanding experiences.

SM: The role of money and economic structures to exert control over design has been foregrounded recently. But even individuals who promote this awareness would never want architecture to be uncritically complicit with motives of pure profit. The renewed awareness of the role of capital in the construction of the built environment has allowed architects to work with it as opposed to just being subject to it. We try to operate with a new type of optimistic, innovative entrepreneurial spirit that can be used to achieve goals beyond just economic profit.

KF: Propagation is based upon recognition of the value of good design. So, in a way, good design can lead to more good design.

What is the future of design?

SM: A radical move towards the collective. A move away from the genius architect toward collaboration.

KF: Global design.

Charles Eames was born in St. Louis, Missouri in 1907 and, after studying architecture for two years at Washington University and traveling in Europe, returned to St. Louis in 1930 to open an architectural practice of his own. Seven years before, the famous Finnish architect Eliel Saarinen had arrived at the University of Michigan. While in Ann Arbor, Saarinen became acquainted with the Booth family who offered him design responsibilities for the new Cranbrook Academy of Art. After moving to Cranbrook, Saarinen saw Eames' work published and, in 1938, offered him a Fellowship. Two years later, Charles Eames became Head of the Industrial Design Department.

Charles met Ray Kaiser at Cranbrook. Five years younger than Charles, Ray was an accomplished artist and founding member of the American Abstract Artists group who had studied painting with Hans Hoffmann in New York prior to coming to Michigan. When Charles and Eero Saarinen were working on their 100 studies to initiate the designs for the Museum of Modern Art Organic Furniture Competition in 1940, Ray worked with them to develop the proposals that were subsequently awarded first prize in each of the two main categories. The designs did not go into production. World War II was imminent, and the procedures for molding plywood into complex curvatures and cycle welding for bonding of metal to wood had not yet been perfected.

Charles Eames and Ray Kaiser were married in 1941. In the same year they moved to Los Angeles, where they continued the research and testing of molded plywood construction that they had initiated with Colonel Edward S. Evans of Evans Product Company in Michigan. George Nelson introduced the Eameses to the Herman Miller Furniture Company and, in 1946, when their designs for molded plywood furniture were ready for production, the company bought the distribution rights as Evans did not have the capability of mass marketing. Three years later, as Charles & Ray Eames completed their Case Study House #8 in Santa Monica, Herman Miller took over the complete manufacturing rights for the molded plywood furniture and a manufacturing plant was built in Zeeland, Michigan. The Office of Charles & Ray Eames continued to work on the design of furniture for almost forty years and Herman Miller has been the sole manufacturer of all Eames furniture in the United States.

Alongside their designs for furniture, Charles & Ray Eames developed an office which promoted design in many ways. Through programs of design research, materials investigation and technological innovation, they worked in the fields of architecture and interior design, exhibition and graphic design, product development and film making. They encouraged collaborations across the disciplines and designed new ways of working that connected industry and design.

Marble Fairbanks is an architecture, design and research studio founded by Scott Marble and Karen Fairbanks in 1990. Marble Fairbanks has received many local, national, and international honors and design awards including: a Progressive Architecture award for the Chicago School; American Architecture Awards for Tenri Cultural Institute, Vertical Townhouse, and Open Loft; an ar+d Award from The Architectural Review Magazine for MoMA ticket booths and entry; AIA awards for several projects; selection for the “forty under forty” award recognizing the top forty designers and architects under the age of forty; and their recent selection into the New York City Department of Design and Construction’s Design Excellence Program. Marble Fairbanks received a research grant from the New York State Council of the Arts for the proposal “New Media in Learning Environments,” supporting work that has elaborated on their interest in technology and alternative learning organizations. The partners were New York Foundation for the Arts Fellows in Architecture in 1988, 1994, and 2004. They were selected as Young Architects in 1992 and as Emerging Voices in 1998 by the Architectural League of New York. In 2004 they were the Max Fisher Visiting Professors at the University of Michigan. The work of Marble Fairbanks has been published extensively and exhibited around the world including at the Architectural Association in London, the Nara Prefectural Museum of Art in Japan and the Museum of Modern Art in New York where their drawings are part of the museum’s permanent collection. The partners lecture extensively on their work and have been jurors and peer reviewers for many professional and educational reviews around the country.

Scott Marble received a Master of Architecture degree from the Graduate School of Architecture Planning and Preservation at Columbia University and a Bachelor of Environmental Design degree from Texas A&M University. He co-edited the book *Architecture and Body*, published by Rizzoli. Scott has been a visiting faculty member at Syracuse University, Rensselaer Polytechnic Institute and the University of Michigan. He is currently Adjunct Professor and the editor of Abstract at Columbia University’s GSAPP.

Karen Fairbanks is Chair of the Department of Architecture for Barnard and Columbia Colleges and Associate Professor of Professional Practice at Barnard College. She has a Master of Architecture degree from the Graduate School of Architecture Planning and Preservation at Columbia University and Bachelor of Science in Architecture degree from the University of Michigan. Karen has been a visiting faculty member at Parsons School of Design, Rensselaer Polytechnic Institute and the University of Michigan.

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nally, members of Marble Fairbanks, past and present, who have been formative to the development of the work, in particular, Todd Rouhe and Jake Nishimura whose talent and dedication are evident in almost every project in this book.

Contributors

Michael Bell is Associate Professor at Columbia University's Graduate School of Architecture, Planning, and Preservation. He is the principal of Michael Bell Architecture and the author of *Space Replaces Us* and *16 Houses: Designing the Public Private House*, and editor of *Slow Space* with Sze Tsung Leong.

Luke Bulman is a founder of Thumb Projects, a graphic design office working on projects in the area of design and culture. He has taught at the architecture programs of Barnard College, Rice School of Architecture, and was the Walter B. Sanders Fellow in Architecture at the University of Michigan A. Alfred Taubman College of Architecture + Urban Planning in 2003–04.

Reinhold Martin is Assistant Professor at Columbia University's Graduate School of Architecture, Planning, and Preservation. He is also an editor of the journal *Grey Room* and author of *The Organizational Complex: Architecture, Media, and Corporate Space*.

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*The Cooper Union Louis and Jeanette Brooks
Engineering Design Center*

New York, New York

Client: Albert Nerken School of Engineering, The
Cooper Union

Design Team: Scott Marble, Karen Fairbanks,
David Riebe, Rebecca Carpenter, Jenny Wu,
Todd Rouhe, Scott Paterson, Mari Fujita,
Jake Nishimura

MEP Engineer: Arup

Design and Digital Technology: CyberSites, Inc.

General Contractor: Noah & David

Steel Fabricator: Product & Design

CNC Millwork: Bjork Carle Woodworking

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Vertical Townhouse

New York, New York

Client: Elliot Greene

Design Team: Scott Marble, Karen Fairbanks,
David Riebe, Rebecca Carpenter, Todd Rouhe,
Jake Nishimura

Structural Engineer: Office of Structural Design

General Contractor: Foundations

Steel Fabricator: Product & Design

AV Consultant: Innovative Audio

Photography: Arch Photo – Eduard Hueber;
Michael Moran

Open Loft

New York, New York

Client: Richard and Cecelia Burbridge

Design Team: Scott Marble, Karen Fairbanks,
Todd Rouhe, David Riebe, Jake Nishimura,
Marisa Yiu, Megan Feehan

Structural Engineer: Office of Structural Design

General Contractor: On The Level

Steel Fabricator: Product & Design

Photography: Arch Photo – Eduard Hueber

Arverne: Housing on the Edge

New York, New York

Design Team: Scott Marble, Karen Fairbanks,
Todd Rouhe, Jake Nishimura, Maya Galbis,
Laia Massague, Benjamin Hummitzsch

Project Sponsors: The Architectural League of New
York and Columbia University Graduate School
of Architecture as a parallel research proposal
to a Request for Proposal issued by the New York

City Department of Housing and Preservation and
Development

Chicago Public Schools International

Design Competition

Chicago, Illinois

Client: Chicago Public Schools

Design Team: Scott Marble, Karen Fairbanks,
Todd Rouhe, Jake Nishimura, Lars Fischer,
Benjamin Hummitzsch, Maud Cassaignau,
Danny Sze, Phil Speranza, Julia Mandell,
Kevin Finn, Mike Russo

Consulting Engineers: Arup

Sustainable Design Consultants: Kiss and
Cathcart Architecture

Project Sponsors: Chicago Public Schools,
Mayor's Office for People with Disabilities,
Business and Professional People for the Public
Interest, Leadership for Quality Education, Small
Schools Coalition, National Endowment for the Arts

FIT Design Competition

New York, New York

Client: Fashion Institute of Technology

Design Team: Scott Marble, Karen Fairbanks,
Todd Rouhe, Jake Nishimura, Jolie Kerns,
Anne Timmerman, Stacey Jacovini, Kevin Cimini,
Gavri Slasky

Consulting Engineers: Arup

Model Photography: Gregory Goode Photography

Sciuscia

New York, New York

Client: Gianfranco and Paula Sorrentino

Design Team: Scott Marble, Karen Fairbanks,
Todd Rouhe, Jake Nishimura, Stacey Jacovini,
Naomi Touger

General Contractor: Kelleran & Associates, Inc.

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Amar Sen	Megan Feehan
Erhmei Yuan	Maya Galbis
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Project index

A central feature of Marble Fairbanks' office, the wall presented over the next five pages is an abbreviated index of the office's work carried out since its inception. This wall has acted as an organizational device to display and refer to work; it has also served as a device to sequence the office's work for presentation at lectures and conferences.



MOMA Satellite Kiosk

Thirteenth Street Residence

Second Street Townhouses

Westchester Fairfield Hebrew Academy

Altschul Auditorium

Kansas National Diet Library

Photographic Center of Harlem

Evanston Library



Chicago Public School

MOMA Ticket Booths

St. Petersburg Business Center

Vertical Townhouse
page 52

Housing Ecologies
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Evanston Library

Nara Convention Center

Our Children's Foundation

Cardiff Opera House

Chicago Suburban House

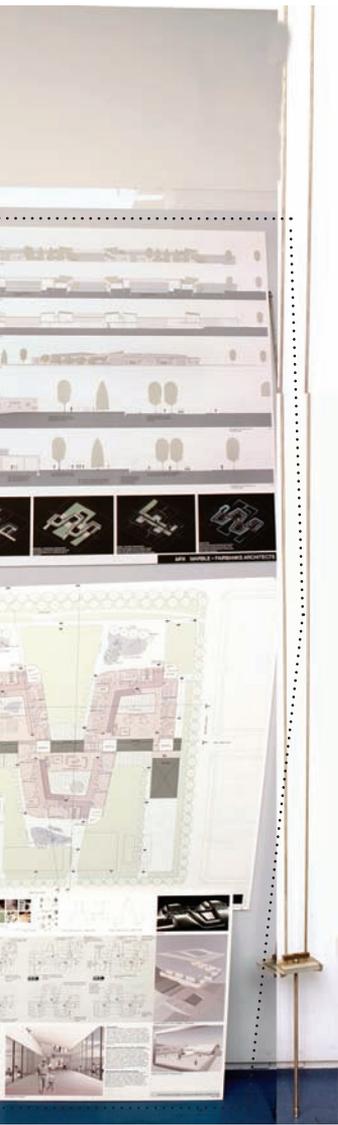


Matteson Library

FIT Campus extension
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Chicago School
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The Charles & Ray Eames Lecturers

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2003 Farshid Moussavi and Alejandro Zaera Polo
2004 Scott Marble and Karen Fairbanks

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