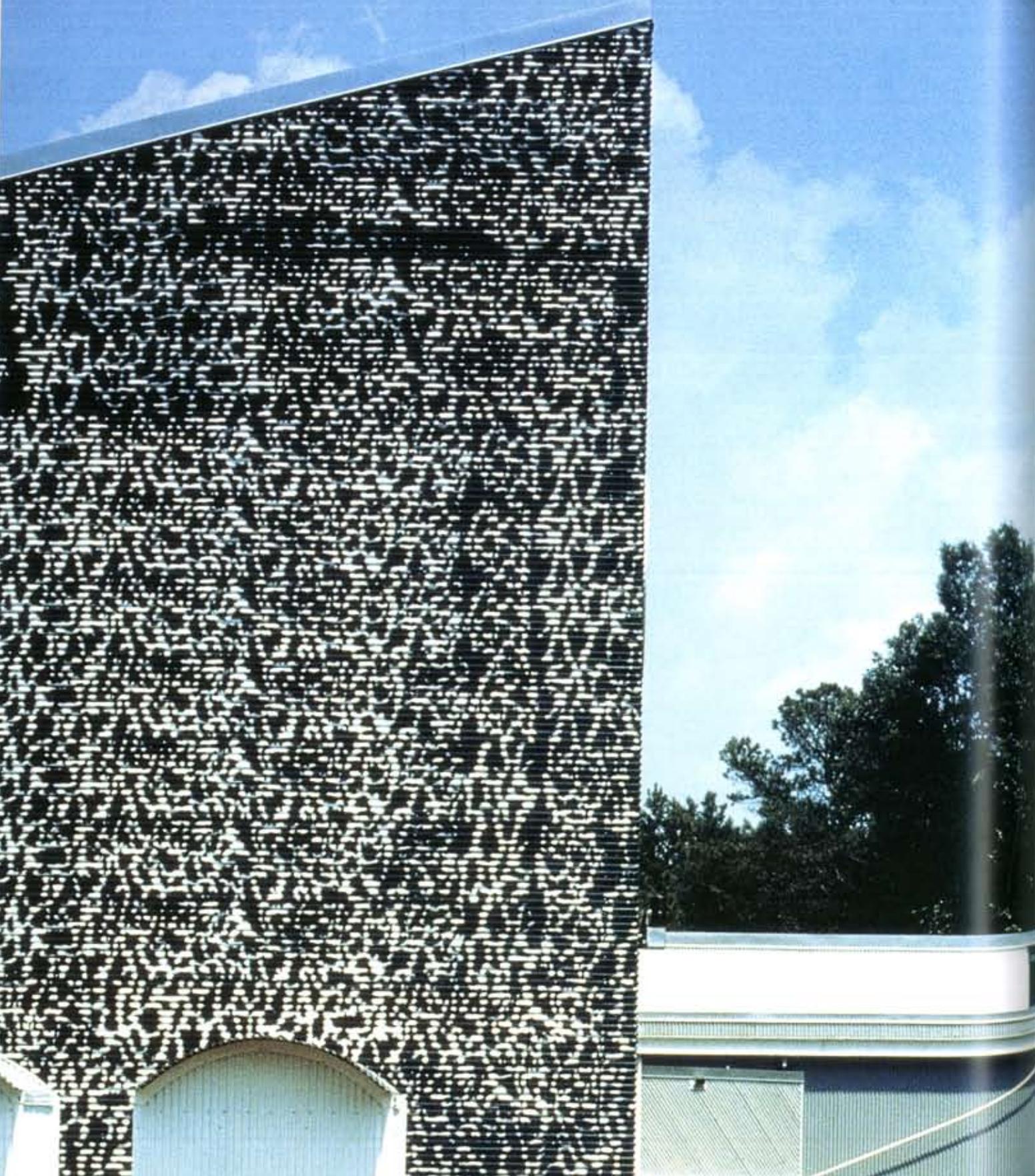


EDITED BY TOSHIKO MORI

immaterial | **ultramaterial**

architecture, design, and materials



ROUNDTABLE DISCUSSION *with mack scogin, merrill elam,
sheila kennedy, and laurie hawkinson*

This discussion brought together four architects who take material innovation seriously, though they do not take a similar approach to process. In a conversation led by Toshiko Mori, they exchanged perspectives on how practice itself must change to support the creative use of new materials. In terms of material research and professional practice, we are facing a paradigm shift. These architects forge individual paths for their research and practice to cope with this uncertain yet exciting future direction for architects.

Toshiko Mori I have to make a few comments about Mack Scogin and Merrill Elam, as I have admired their work for many years. They describe the processes of practice as embedded in the facility of architecture, and they extend practical discourse beyond simple use of specific materials. Rather, they use tactile and sensory materials and observe the extraordinary in the ordinary. They discover wonders in common materials—in terms of context, site, program, and in the tectonic—and that is what is so extraordinary about their work. We are used to theorizing architecture, using words to describe it, but their architectural language goes beyond the words they use—it is sensory and tactile: things are heavy or light, rough or smooth. We have often been deprived of this sort of language in recent discussion of architecture.

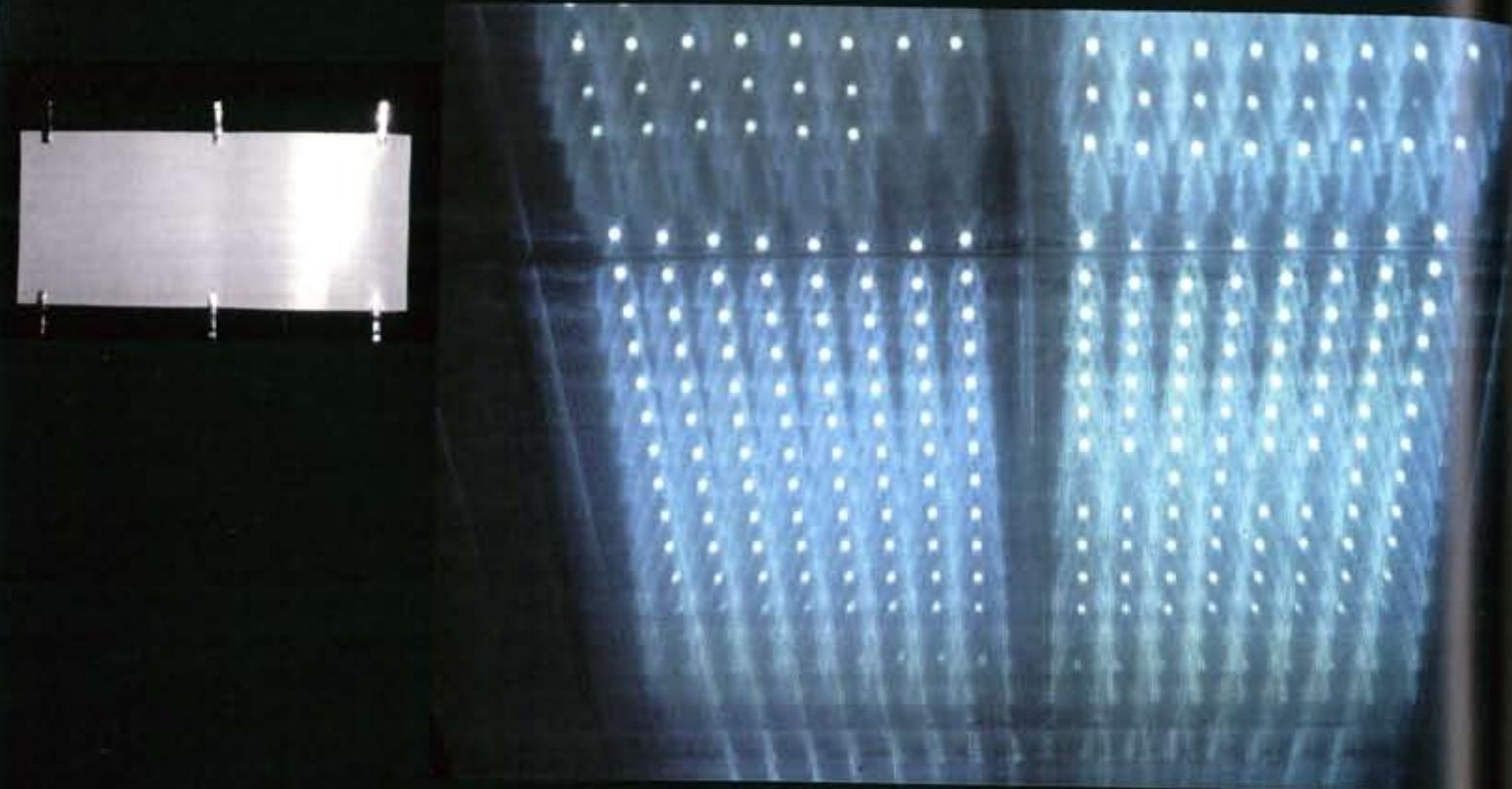
That's why their practice is exuberant and looks like so much fun—because for them architecture is about discovering something new every day. The humble way in which they describe their mode of operation as “anxious and guessing” shows how the process of discovering life fuses their lifestyle and practice.

Yet their practice is actually a sophisticated process of continuous analysis and synthesis, honed by thoroughly trained minds that engage both the senses and the intellect. Once you see their buildings, the experience goes beyond the brain. Cognition happens through the body, and that is what we all strive to achieve as architects. Their language of architecture is beyond explanation; it's visceral. And it enlarges the discourse of materiality beyond the simple application of concrete or steel.



Facing page: Mack Scogin Merrill Elam Architects, Clayton County
Headquarters Library, Jonesboro, Georgia, 1988

Left: Mack Scogin Merrill Elam Architects, Atlanta Pavilion, Atlanta, Georgia, 1994



Moiré Mesh Ceiling Kennedy & Violich Architecture, 2000–ongoing

As much as 35 percent of the volume of contemporary building typologies is dedicated to heating, ventilation, and air conditioning systems. The Moiré Mesh Ceiling integrates specular optical properties with infrastructure delivery to create a minimum-volume ceiling system that is simultaneously finished surface, light fixture, and air grill. The design amplifies functional and perceptual effects in a sandwich construct where the material performance of the whole is greater than the sum of the parts. The woven mesh is an acoustic surface that allows for air passage. A quilt of aggregated LEDs linked

to a processor provides ubiquitous light programming. The distance between the LEDs and the mesh surface is designed to create a dynamic moiré field effect dependant upon viewer position. From below, the ceiling surface appears completely opaque, while diagonal views render the surface translucent and permit glimpses to the hollow space above. Through the moiré effect, the LED lights appear to stretch in three dimensions, creating the illusion of spatial depth in a thin surface.

In many ways the practices of Laurie Hawkinson and Sheila Kennedy also engage with tactility; their work considers the marginal and the unusual, and discovers new relationships between object and site. They both have been active in rethinking the way we use traditional materials and in devising new ones.

Sheila Kennedy I would like to pose for discussion a material predicament that's captured the interest of my partner, Frano Violich, and myself. There is a new intensity in the integration of media and materials, a condition that began in the nineteenth century with the interest in conductivity, as electricity was first being understood in science and popular culture.

But certainly we are seeing, with nanostructures and solid-state technologies, the possibility of an even more integral relationship among the organization of light, information, thermal controls, and material properties. This creates an interesting situation for architects, producing all sorts of predicaments, as it calls into question many of the cultural values that we might associate with materials.

Mori In your practice, material sometimes precedes the project. . .

Mack Scogin That's one thing that is a little different in the way that we look at materials and the way Sheila does. We don't generate any material research, other than what comes out of a project—the project comes first. And most of the work we do in proposing new or slightly different materials is really just an alteration of existing systems. For example, we make a funny-shaped brick. And Merrill's big on painting buildings. (laughter)

Mori Your famous black brick. . .

Kennedy I think that's a great idea. It's simple things like that that allow architects to create new uses for materials. On a number of occasions, we've used materials that are normally used in one context in another—perhaps it is normally used on a roof and you simply use it on the side of the building.

Scogin In one case we wanted a building that had a lot of texture and depth to it. It's kind of a slick shape, but we wanted something on the shape that was not slick—that was quite rough and rusticated. We actually started out using slate—throwaway pieces from the slate quarry. When they quarry the slate

in big slabs, the end pieces are rough, and they cut those off and throw them away. But they're amazing shapes, and we were going to take that stuff and stack it just like stone. I don't know how to describe it—it's a very unusual pattern. (laughter) But it is that type of thing we do, in terms of our material research. I don't even think you would call it research; it's sort of—

Mori Necessity.

Scogin Necessity—material necessity, that's what it is. And we've done a lot of that, frankly, because most of our buildings are incredibly inexpensive, and we have to milk the architecture out of them somehow. (laughter) And, so Merrill paints corrugated metal—typical corrugated metal with a pattern on it.

Kennedy Inventing ways to make a building affordable is important; it's the difference sometimes between seeing ideas built or not.

In our practice we have begun a working group to focus on the design and research of new materials. This research is very exciting for us. The architectural imagination is well suited to take on interdisciplinary problems and coordinate

strategies for idea production and fabrication in architecture. And sometimes—for example, with our Chameleon Cloth—you end up with a material so intriguing that it generates a project in your mind, an idea that you wouldn't have had if you didn't have prior contact with that material and its properties. So sometimes ideas about the material and its performance lead to the project.

Mori Laurie, can you talk to us about the fantastic ferry terminal—the first terminal built in New York harbor in how many years?

Laurie Hawkinson The Wall Street Ferry Terminal is the first terminal built in Manhattan in more than fifty years. Now there's this great impetus to support waterborne transit, because it is less expensive and can be done more quickly than building a subway.

Mori I call you "the industrial scavengers," because you appropriate different industrial building precedents and material uses for other buildings, producing the impression of amazingly large-scale buildings for smaller projects. You use inexpensive materials in normal production. But the size of the

industrial buildings you use as a reference and how you use materials and detail in your new buildings give a sufficient scale to command a civic presence within Manhattan. How are you using industrial materials, and how do you scale them within the larger urban context?

Hawkinson A lot of what you are describing as "scavenging" is budget-driven. This is what Mack is saying—that often the budgets given to architects come from a hypothetical feasibility study. And, for instance, a new project might involve 200 million square feet for an office building, but with the low cost per square foot, all you can build is—what do they call it?—"plain vanilla." But whether a client's budget is \$200 a square foot for a curtain wall or \$800, we are always up against a budget. Working within these parameters pushes us—this is one way we got to certain industrial materials. We were trying to find materials that would actually hold up over time. Not being able to afford materials of higher quality, such as stainless steel, for instance, forced us to look for ways we could push not just the material but also its presence and how it might have an architectural effect in and on a building.

Mori It seems to me that the role of architecture was previously determined by working within a preestablished context; there was a certain means of innovation and operation. Or there are other kinds of limits embedded within materials—and by making things highly visible—perhaps it reduces the ability for them to be silent. What's the limit to which the visibility of something is actually reducing its ability to become part of the larger context? Are there other kinds of limitations on what one can do?

Kennedy That's a tough one. The dynamics of time can be engaged. The duration of light or information media allows the same surface to be silent and part of the background at times and materially present at other times. Such surfaces are like chameleons—their ability to change over time enables them to have more than one defining characteristic.

But every time you try to innovate a material in architecture, you are taking a huge risk. By working with a manufacturer who will produce that material, we share the responsibilities and are able to test the viability of a material's performance or maintenance over time.

Scogin You can't experiment. You have to be absolutely sure that a product is going to work, unless a client is willing to invest in an experiment that may or may not work. And so there are tremendous limitations on what you can do. In terms of the exterior of a building, it's extremely difficult to take risks.

We had that house up in Maine. It's got these silly panels on it; it's got 35,000 stainless steel screws, and I don't know how many miles of joints that are just caulked. Well, you know—30 degrees below zero in the winter and 85 degrees in the summer—one could say that that was really a risk. But since we had a carpenter who was willing to try it, and we had a builder who did it perfectly, it has never been a problem. But it's probably something I'd never try again, because it is just too risky. (laughter) A lot of people call and ask about those kinds of things, and I've tried to discourage them, frankly, because it's risky. I don't know if that is the kind of risk you are talking about. But I can't tell you how embarrassing it is when you try a material detail and it doesn't work—it's really bad. (laughter)

Kennedy I want to take a slightly more optimistic note. I think that some issues about building are really market-driven, and the fact that the bottom dropped out of the NASDAQ recently is only going to underscore the need to reassess what a building skin can be and what its long-term life cycle will cost. It's my opinion that we will be driven by market forces to reevaluate a lot of architectural building materials and standards. In fact, one of our clients, New York City's EDC, is now requiring that we use photovoltaic and solid-state lighting in the design of the East River Ferry Terminals because it just makes sense. Solid-state technologies that can operate continuously for more than ten years are more durable than many conventional building products. So there's a demand for this out there, and in a short period of time, that demand will be translated to the institutional and private sectors.

I was recently in Washington, D.C., at a congressional hearing on opto-electronics technology. The government is going to sponsor a major research initiative through challenge grants that will be distributed to leading universities.

Despite the risks in creating and using new materials, the intellectual rewards are greater; there are many interesting opportunities. I feel that architectural education—the architectural imagination that we all share—is going to be a valuable resource to bring to bear in this emerging situation that is already affecting us all.

Nader Tehrani How are they funding this research? Is it through scientific labs? Or is it making it into the architectural schools? Because another tendency, when the NASDAQ falls, is to retract and concentrate on risk management, which is the opposite of what you are describing. So how is this being done? Is it through grants?

Kennedy Some is done through grants, some through direct commissions. So it can be financed through a variety of mechanisms. In the case of the government, the Department of Energy will distribute the research funds. It may seem counterintuitive, but a focus that only minimizes risk doesn't offer the government or manufacturers the best position for success.



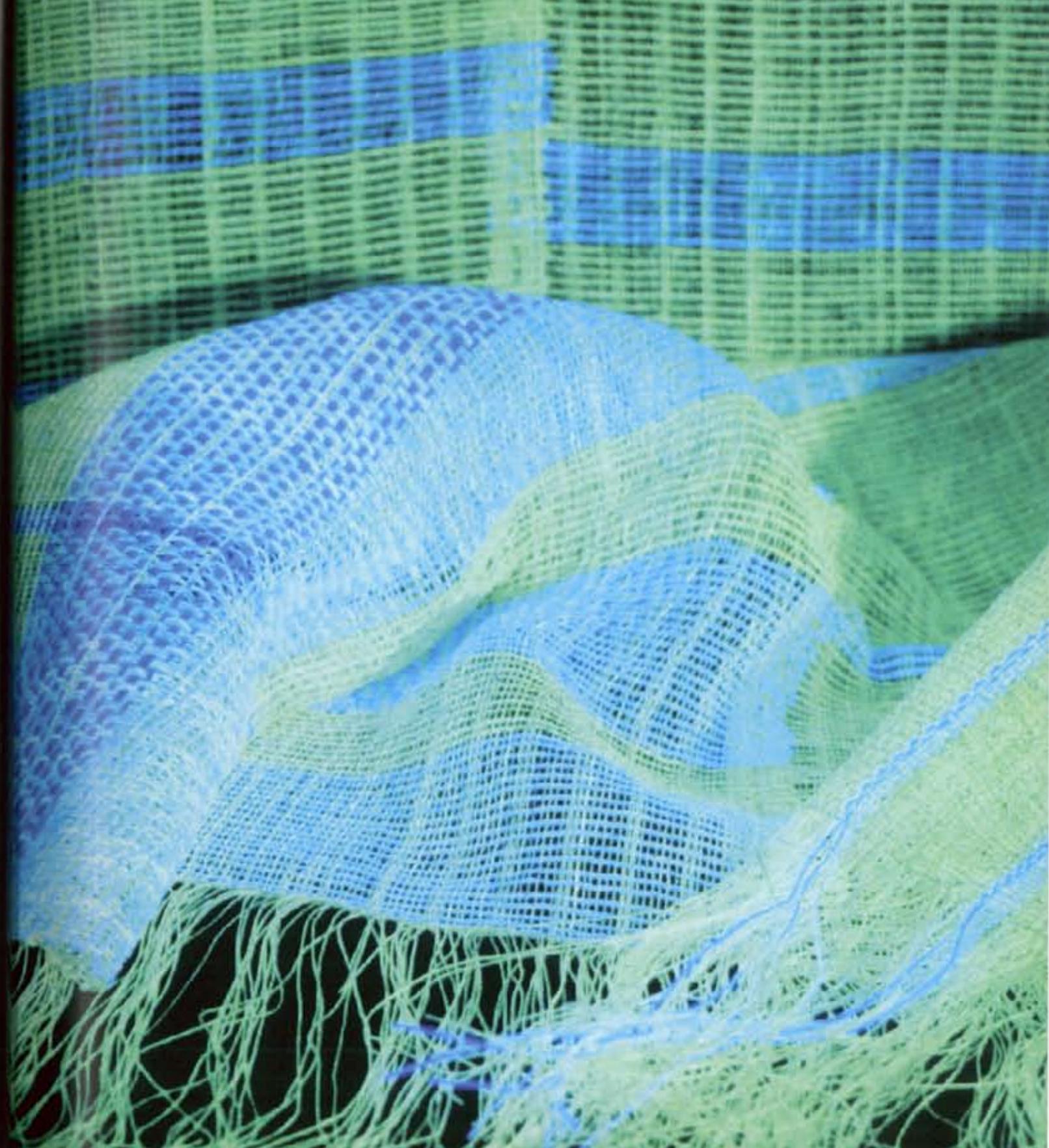
Light Information Desk
Kennedy & Violich Architecture
2001

The Light Information Desk combines the material properties of acrylic polymer, the mobile characteristics of furniture, and the transmissive properties of lighting and communications infrastructure. The intelligent organization of light intersects with the potential to take computation into the built environment, allowing information exchange to become a function of architectural surfaces. A personalized digital profile may extend from the computer screen into the proximate environment of the workplace. Served by fiber-optic relays and a series of solid-state components, the transparent acrylic surface functions as a light guide to transport light (color) and information through the desk in response to a diverse series of work tasks. The luminosity of the Light Information Desk creates an energy efficient ambient lighting that supports reduced external light loads. This results in a more strategic use of illumination over an entire office building, producing long- and short-term savings and significant reduction of environmental impacts.



Give Back Curtain
Kennedy & Violich Architecture
2000-ongoing

The Give Back Curtain is part of a series of techno-fabric designs that extend the modern architectural tradition of the portable screen. The Give Back Curtain brings to a pliable fabric matrix the capacity to conduct and deliver light through a fabrication process that integrates photoluminescent pigments in synthetic or natural fibers. Sunlight or fluorescent light is absorbed by the fabric and then given back as visible colored light. Unlike traditional woven fabrics, the Give Back Curtain is a dynamic medium. The cloth produces a pattern of specific temporal characteristics that changes color and figuration over time. A lacework of semiconductors can be woven into the fabric to control light input and extend light delivery. Applications include increasing light intensity by bundling and folding fabric surfaces, and transporting light physically through luminous privacy enclosures in residential, commercial, and workplace settings.



Mori After World War II, there was this whole movement in the 1950s, exemplified by Case Study houses in California, modernist houses in New Canaan, and new houses in Sarasota, Florida. They were all experimental, and the architects were highly creative with materials. And if you look closely at those houses, they were inexpensive and roughly put together: some leaked, some did not last long, and they

were actually more like prototypes. It seems to me that the four of you do that type of visionary work. But even though you put forward these experiments, you are also very responsible in terms of the performance of the buildings: you detail everything to last. We learned some lessons from those earlier generations, so that the experimentation you do is slightly different—more calculated.

Hawkinson Rudolph Schindler's Kings Road House is a really early example, and it's very rough. I love that house, but at the same time it is incredibly funky. A lot of experiments were done in this house not just to use material for material's sake, but were related to the way one lived: you could sleep outdoors, natural light could come in, or you

could have a fireplace that was both inside and out. Or the kitchen might be for two people. So the experiments had a kind of agenda related to use.

Kennedy The thing that is interesting is that by redefining program, Schindler redefines the role of the architect. It's not clear in my mind that the role of the architect is only to design buildings—I probably don't want to say that here! (laughter) Could we imagine a broader palette of activities? Could we imagine architects creating new programs and applications for materials? Could we imagine architects being involved in different global platforms that influence cultural production? It could be very liberating. The first job I had after I graduated from school was to design lines of lighting. Architects are able to enter into any one of the other sets of related design disciplines and make a contribution.

Hawkinson I think there's a certain power that, potentially, the architect can garner if one makes associations to the process of fabrication and to the people who are actually making the material. You're no longer subject to the middle person who has an incredible



Smith-Miller + Hawkinson Architects, Pier 11, Wall Street Ferry Pier

amount of power and control—the construction manager. Right? (laughter) It allows the architect to go around this person and establish relationships with manufacturers, while also advancing the process of rapid prototyping, or expediting the shop drawing. I'm very optimistic about this type of arrangement, and I find it incredibly exciting. When I walked around today to see what you guys are doing here in the basement—I really think that's the future of our profession.

Mori Mack, do you think that professional practice is going to change soon? Or is our society conservative and resistant in terms of letting architects supervise the other trades?

Scogin No, I would second what Laurie just said. I think there is a definitive future for the profession of architecture right now in this realm of empowerment—of more authority, more input. Architects are now able to envision and realize a structure that was not realizable just a few years ago. And they are beginning to understand that to make those things, they've got to work closely with the people who literally put things together. And they have also realized that the only way to do that is to bypass or reinvent the process that's out there now.

Smith-Miller + Hawkinson Architects, Pier 11, Wall Street Ferry Pier





Smith-Miller + Hawkinson Architects, Canopy, La Guardia Airport

18 Frank Gehry's the classic example, at this point, of how to make that happen. He has invented a new type of practice out of a desire to realize his design work. It involves technology and an entire restructuring of the practice of architecture—legally, contractually—and a redefinition of the relationship between owner, architect, and contractor. What's exciting about it is that you realize that you can do some new type of architecture, but to make it happen, you've got to reinvent the profession. It is such a great example because you realize that the product—or the building, or the piece of architecture—is what drives it all. It pays off; it's

exciting to the public. It is work that inspires change: cultural change, economic change, and political change. It has invigorated the whole discussion around the evolution of practice. So I agree with both Laurie and Sheila: it is a great future for architects. But it's not just about materials; it's also about design and structure—it's the whole creative process that is actually driving it.

What Sheila's work suggests is that you can go about this in a number of different ways. The thing that sets us apart as architects is this structured, creative thinking that other people don't bring to it—that's our ace. That's what empowers us for the future.

Marco Steinberg Let me play devil's advocate. I question whether Gehry is the right model, given the resources he's working with. He's actually quite privileged: the sub-contractors he's working with are willing to take on liability. These issues of risk, innovation, and direct influence in the process are ultimately liability issues. But is it generally feasible for a sole-proprietor architect to have sufficient leverage to take on such liabilities?

Scogin I don't think it has anything to do with scale. I've seen people like Nader and Sheila making things and entering into the profession in ways that that haven't been done before. You have to invent the processes; you have to invent the contracts. And you have to find ways to take on the liability. When I was in architecture school, you were taught to do it this way; this is the way to do it. These are the invariable other ways, but why would you bother with other ways? Now, I think the attitude in young practitioners I see is that they're figuring out ways to accomplish these things. They don't have to operate like Frank Gehry—they find their own way.

Tehrani I wanted to get back to Marco's question. I'm not sure how Sheila and Frano are doing it, but in our case, we are losing a tremendous amount of money. And we're exposing ourselves in ways that ultimately and probably—

Audience Just like Schindler. (laughter)

Tehrani And I only want to become rich. (laughter) So I'm wondering, are there ways to get institutional support, whether through the AIA or other kinds of institutionalized frameworks to change practice?

Mori The last time Gehry was here, I had a conversation with him about transforming practice. He said that we should mobilize and insure ourselves. He actually does believe it; he wants to institute that. And I think that's fabulous. If we don't get together and do something about it, insurance companies and lawyers are going to take over our profession. "Why should we give them extra money?" is his attitude. I think, and he is absolutely right.

Ron Witte I want to go back to Sheila's earlier observation. The issue of the crisis, I think, is one that has more or less gone away. And that's because technology operates to synthesize. A very simple example: AutoCAD lets me draw something, and it lets me send that file to a fabricator. It also lets me attach a certain amount of quantitative information to that thing, which could include economy. And I could, with the push of a button, more or less—I could send all of that information to two or three points. And all of that information gets processed—one hopes—simultaneously. So before the economist can tell me that this is a bad idea, the fabricator has told me it can be done. There's nothing magic about AutoCAD, but there are things like that which enable the Gehry model or other models to flow through, in all kinds of iterations. So for me the crisis is gone, and that's what leads to optimism.

Kennedy No, for me the crisis is not gone. (laughter) But maybe the word "crisis" is too theatrical. I really mean a predicament of value when we think about materials. And if you think about material strategies in architecture that persist today, there is room for expan-

sion! There's a kind of postmodernist elevation of low materials, as exemplified in the research of Scott Brown and Venturi. Then there's another approach, seen in Peter Zumthor's thermal baths, where materials are used to evoke the authenticity of an experience. But although the materials are natural stone, it is highly artificial how they're put together. So it's a really interesting moment right now in the culture of material history. I enjoy being in it because I think that we can shift and push those values. I don't think they're static. The whole set of terms that we inherited from modernism is thus completely up for grabs: natural, artificial, culture, technology, materiality, media. These terms are coming together, and it makes them very interesting and unstable. That's what I mean by "crisis of materiality." So where I agree with Ron is that each person, as an architect, probably needs to deal with that shifting terrain and articulate a path for themselves, in their work and in their own position vis-à-vis materials. Because we can't take materials and their cultural properties for granted.