arcCA
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works/sectors issue
05.4

Wetlands Information Center:
Rinehart Herbst

sustainability

"360": San Francisco's Billion-Dollar Solar Public-Works Project

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The UC Merced Debate

Los Altos Neutra

Introducing "... and Counting"

Content

arcCA 05.4

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Comment

We live in innovative times. I carry in my pocket more music than I could fit in my car trunk when I was in college. The rental car tells me, in a languid purr, the best route to Pasadena. A friend at Pfizer describes technology, now in development, that would allow real-time monitoring of my vital functions via my cell phone. (Or would that be my tri-corder?)

People love this stuff—except, perhaps, when it comes to buildings. Why is that?

Maybe it would help to ask of the innovations described above: What, in fact, is new here, and what's not? In each case, something people already value—listening to music, being able to find Pasadena, knowing that one's heart is beating properly—is facilitated by the innovation.

The same happens in architecture, sometimes: innovation helps achieve an already valued quality. Special glazing keeps the room cozy in winter; a novel structure forms a grand, civic span. People value the innovation for what it makes possible: coziness, or an uplifted spirit. Elsewhere, innovation in architecture doesn't support—or even respect—people's values. It doesn't make things good, it just makes them different.

Now, sometimes difference is itself a positive value. I, for example, would be delighted if my five-year-old would agree to listen to a different CD in the car. That would be OK.

But it's not OK when difference leads to a loss of qualities that people, for good reason, value. It's not OK when an architect replaces desirable qualities of entry (shelter from the rain, for instance) with an "innovative" "sign" of "entry." It's not OK when the museum architect, in service of an "innovative" formal scheme, places the vitrines too low to see them. It's not OK—forgive me, friends—when a whole townful of architects replaces the gracious, traditional bay window with a smaller and less spatially integrated rectangular bay, just to assert our non-Victorian-ness.

But my purpose is not to pit New against Old; it's to suggest that we measure innovation not on a scale of difference, but on a scale of provision and integration. Louis Kahn made an observation about a stair, which went something like this: A stair should have a landing, and at the landing there should be a window, and a chair, and a bookshelf, so that the old person can ascend the stair with the child and can stop and say, "I've always wanted to look at this book," and not have to admit that he can't make it up the stairs in one go.

Kahn's buildings don't look the way this passage sounds, but he thought of his innovations—the windows at Exeter, the vaults in Ft. Worth—in this way: as an integration of "ands." How much value can I integrate in this moment? Can I design a device that fits comfortably in my pocket, delights the touch, can be controlled with one hand, and holds all the music it used to take four orange crates to carry?

I mention these things, because our current issue is on "sustainability," an idea that carries within it a conundrum. It seeks to maintain valuable things the way they are (breathable, potable, non-toxic) but requires innovative thinking to do so. Such innovative thinking, rather than novel forms, makes a progressive architecture.

Tim Culvahouse, AIA, editor

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Mending Webs:

how to think about ecological / green / sustainable design

when we can't even agree

on a name for it

"The Mended Spider Web series came about during a six-week period in June and July of 1998 which I spent on Pörtö, a Finnish island in the Baltic Sea. In the forest and around the house where I was living I searched for broken spider webs which I repaired using red sewing thread. All of the patches were made by inserting thread segments directly into the web, one at a time. Sometimes the thread was starched, making it stiffer and easier to work with. The short threads were held in place by the stickiness of the spider web itself, dipping the tips into white glue reinforced longer threads. I fixed the holes until it could no longer bear the weight of the thread. In the process, I often caused further damage when the tweezers got tangled in the web or when my hands brushed up against it by accident. The morning after my first patch job, I discovered a pile of red threads lying on the ground below the web. At first I assumed the wind had blown them out; on closer inspection, it became clear that the spider had repaired the web to perfect condition using its own methods, throwing out the threads in the process. My repairs were always rejected by the spider and discarded, usually at night, even in webs that looked abandoned."

—artist Nina Katchadourian

M. Susan Ubbelohde

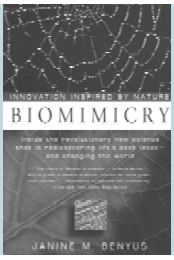
The Mended Spider Web Series by artist Nina Katchadourian contemplates the relationship between the human made and the rest of the natural world. Her red threads, discarded each morning, ask how we are to act in the world in order to mend rather than tear. At heart, this is the complication of designing ecologically. Without a spider to fix our mistakes, how do we evaluate what we've done? How do we know what to do?

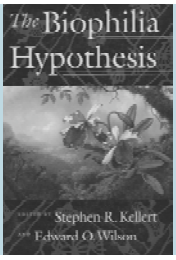
NATURE

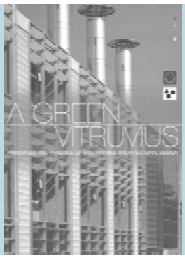
Turning directly to nature as a source of information and intelligence forms a strong theme in the sustainable literature. Scientists are now working on methods of manufacturing fibers based on the silk produced by spiders for their webs. As Janine Benyus writes in *Biomimicry,* "If we could learn to do what the spider does, we could take a soluble raw material that is infinitely renewable and make a super strong water-insoluble fiber with negligible energy inputs and no toxic outputs." By considering nature as a model for processes rather than form, Benyus argues we can find the path to ecological design and invention.

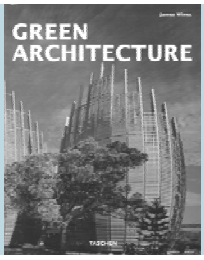
In *Green Architecture* (2000), James Wines

Nina Katchadourian, *Fish II,* (1999). Image used courtesy of the artist and Catharine Clark Gallery, San Francisco.









expands on biomimicry in relation to architecture, but he is also keen to probe the architectural possibilities in the end of the industrial age and the beginning of the "earth-centric" era. Wines describes nature as "primal, metamorphic, and endlessly ambiguous. The mission ... is to recover those fragile threads of connectedness with nature that have been lost for most of this century." Part of this mission is not only to learn from nature, but to realize once again that people like nature and are better off when not separated from it by the built environment.

The Biophilia Hypothesis, edited by Kellert and Wilson, argues that "human identity and personal fulfillment somehow depend on our relationship to nature." For architecture to be sustainable, it will also need to reconnect the inhabitants with the natural world outside. Biophilia poses a course of action that architects understand immediately and can choose to follow in pursuit of sustainable design. But reconnecting with the natural world does not guarantee an ecological building or development. How else might we discover what to do?

POINTS, PRINCIPLES, COMMANDMENTS, AND PRECEPTS

While Wines critiques the "tendency of the design profession to restrict 'green' to checklists of moral responsibility," he himself includes such a checklist, which reminds us to make smaller buildings, use harvested lumber, situate buildings to make use of solar energy, and so forth. Benyus, as well, includes the "ten commandments of the redwood clan" to assist us in action. In doing so they recognize the long-standing history of the architectural treatise and a truth about how we practice.

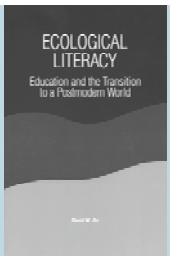
From the *Ten Books of Architecture* by Vitruvius 2,000 years ago, to Le Corbusier's *Les 5 Points d'une Architecture Nouvelle* of 1926, the treatise guides the designer toward appropriate action by stating a set of principles and then, often, backing them up with specific examples. Situated somewhere between guidelines and commandments, such lists feel potent with good ethics and design possibilities but are hard to translate into specific action. Most are phrased in the vocative: make nature visible, rely on natural energy flows, match technology to need, and so on. To put these commandments into practice relies on a different type of architectural text: the guidebook or handbook. Mendler and Odell's *HOK Guidebook to Sustainable Design* in the United States and *A Green Vitruvius* serve us well in bridging the gap between intention and action, general principle and on-the-ground job organization and design process. Leaving the why and what to previous texts, these guidebooks assist with organizing the minutiae of the how.

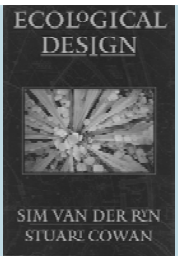
Which still leaves evaluation. To have some measure of our successes and failures, in lieu of the spider judging our webs overnight, we can turn in two directions: the accounting methods and the checklists.

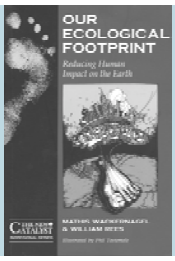
EVALUATING SUSTAINABILITY

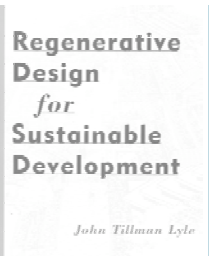
In many codes, like California's Title 24, there is a choice between the performance path, which asks the building overall to meet a performance goal, and the prescriptive path, which checks on the compliance of the component parts of the building. We can find the same characteristic division in sustainability evaluation.

The performance path delves into the complex arena of whole system performance, accounting for the entire ecological impact of a building. Conceptually, it is based in large part on the ecosystem work of Odum and Odum in the 1950s. To date, such systems of sustainable evaluation tend to inform the larger conversation rather than find use in practice in the United States. *Our Ecological Footprint,* by Wackernagel and Rees, is a method for calculating the amount of land and resources required to support a given development or community. Life Cycle Assessment methods (LCA) and the accounting for greenhouse gas emissions (GHG) are gaining currency outside the U.S. Much of Europe, as signatories to the Kyoto Protocol, evaluate building performance in terms of carbon emissions or GHG emissions, a metric ignored or bypassed here.









The prescriptive path, in the form of checklists, tells us how to achieve each component of sustainable design and rewards us for each individually. The more parts, the more "sustainable" the design. LEED (Leadership in Energy and Environmental Design), developed and managed by the U.S. Green Building Council, is the most broadly used metric for sustainable building in the United States. To the same extent that LEED has enticed building owners in the public and private sectors to ask for sustainable design, it has attempted to streamline and simplify the knowledge and expertise required to use the checklist. A highly flawed system, often without respect for technical accuracy, LEED has nevertheless achieved the market transformation for inclusion of sustainable concerns in the United States building industry, which previous efforts had not.

LEED is joined in use by local evaluation systems, such as BUILT GREEN, the Colorado Residential Rating System, and Certified Green for Eco-Hotels. LEED is also being challenged by alternatives such as Green Globes, a web-based building performance tool from Canada reworked for U.S. application. Similarly, a number of evaluation and assessment systems have been developed outside the U.S., such as BREEAM (Building Research Establishment Environmental Assessment Method) in Great Britain.

Ironically, the prescriptive assessment systems such as LEED downplay the rigor and expertise necessary to achieve a sustainable building and simultaneously distance ecological concerns from design. When daylighting becomes a spreadsheet calculation, when energy flow is disengaged from thermal comfort, when the sustainable aspects of a building and site become invisible and unexperienced, bad design can be, and is now, certified as sustainable.

WILDERNESS GETS A PERFECT SCORE

In 1969, Malcolm Wells published *Gentle Architecture,* in which he proposed that we could measure our buildings against wilderness, because we know that wilderness is sustainable. In his "Wilderness Based Checklist for Design and Construction," positive points or negative points are awarded on fifteen measures of performance, including "creates pure air," "creates pure water," "stores solar energy," "maintains itself," "matches nature's pace," and "is beautiful." Wilderness receives the maximum possible of 1,500 points.

In 1969, well before the OPEC embargo, Chernobyl, and measured evidence of global warming, and without the science of the last thirty-five years, Wells seemed far on the margins of architectural thought and practice. How could one ask a building to grow food for the inhabitants? Or store rainwater? Or provide habitat for wildlife? Better yet, why? From the vantage point of 2005, Wells's checklist seems almost mainstream, nearly a blueprint for LEED or Green Globes.

But our comfort with the Wilderness Based Checklist is misleading. Wells is challenging us to engage in sustainable issues as a set of ends, not means; as a set of ethics, not tradeoffs; as a means of being responsible, rather than marketable. As such, his "checklist" reaches toward the "ecological sustainability" defined by David Orr in *Ecological Literacy* (1992), rather than settling for "technological sustainability." Wells gathers the advantages of biomimicy and biophilia and tells us we can, indeed, assess what we are doing, both pragmatically and ethically. Above all, Wells reminds us that being beautiful is just as important as any other performance metric.

Williamson, Radford, and Bennetts make this case eloquently in their highly intelligent *Understanding Sustainable Design:* "Sustainable designing means taking responsibility to anticipate the wide consequences of a building proposal .... Rather than prescribe a limited range of sustainable building solutions, we should support an increased richness and diversity of solutions crafted in joy and care." The most convincing sustainable design is that which we value enough to maintain, reuse, reinhabit, and pass on to future generations. The most sustainable design must start as good design. ◉

Substance over Superfice:

EHDD's F10 House

Zachary R. Heineman

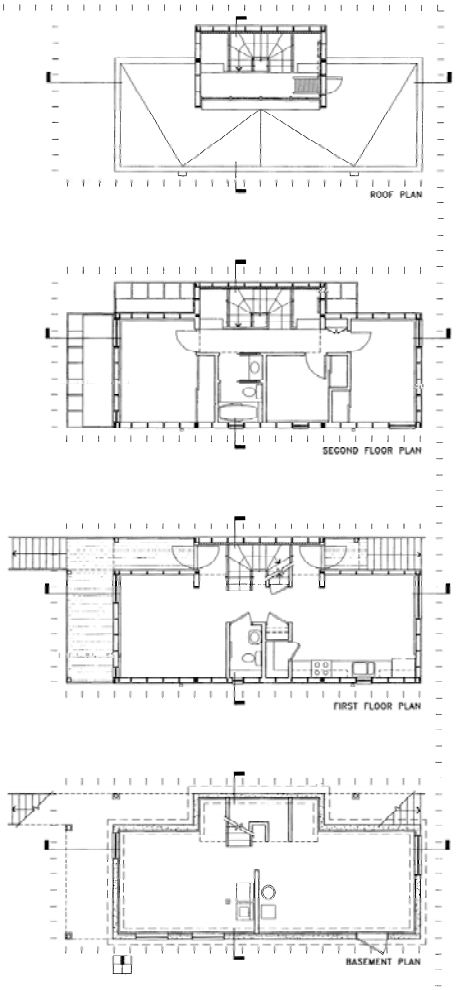
Marc L'Italien is tired of hearing about "green" architecture as if it should be in its own category (which it often is). He generally stays away from the term, leaning instead toward "high-performance design," which he and his team at EHDD Architecture employed in creating the F10 house. "It's all about efficiency," he says.

Designed for a competition sponsored by the City of Chicago, and built as one of the winners, the F10 house is named for its intention of reducing the typical environmental life-cycle impact of an American house by a factor of ten. In addition to efficiency, the house exudes an elegant simplicity that plays out in numerous ways. The house manages to distinguish itself from the neighbors not by dramatic design moves, but instead through subtle gestures that refer to, as well as redefine, the locale's urban form.

Many of the house's features read like a laundry list of typical green tactics: fly-ash foundation, sod roof, cork floor, cellulose insulation, recycled carpet, low-VOC finishes, and dual-flush toilets, to name a few. In addition to the expected, however, there is ample innovation.

In plan, the two-story, 1,234-square-foot

F10 House, photography by Doug Snower



F10 House plans

structure could be mistaken for a typical rowhouse; in section, the logic of its two intersecting rectangular solids becomes clear. By locating the stair in its own shaft, the architects created an unimpeded vertical space that functions as a "solar chimney," facilitating the flow of air through the structure: up and out in the summer, down in the winter. South-facing clerestory windows at the top of the chimney allow natural light to cascade down through the white painted stairway core.

L'Italien believes green design at its core is "about using common sense, not about all the bells and whistles." The philosophy that EHDD built into F10 is about substance over superfice, about comprehensive solutions rather than ones that simply pay lip service to the concept. And L'Italien is quick to point out that the challenge with F10 was to create a house that was both green and affordable, two goals that are not inherently contradictory, but are rarely found in tandem. Staying within the budget meant eschewing expensive recycled materials and leaning more toward typical materials used in an intelligent manner. For example, 2'-x-6' certified timber is set two feet on center to minimize construction waste.

Inherent to the house is the idea that truly productive environmental architecture may demand convincing clients not only to build green, but to live green as well. "It's not just about spec-ing recycled carpet in a 10,000-square-foot house," L'Italien says. "It's about helping the client make the right decisions." The right decisions, he believes, are easier to make if the benefits are clear and the changes are well-designed and convenient. Still, it is reasonable to expect that some behavior shift may be necessary. L'Italien points to the recycling movement: At one point the idea of using different waste bins was considered "crazy"; now it is commonplace. "The end result may be changing the way you do things, changing the way you live a little bit."

The design of the house emerged from an analysis not only of green building techniques, but also of human behavior. For example, in American culture, air conditioning is typically left on when residents leave the house, so they can return to a cool interior. In order to remain comfortable during the summer months, F10 places some demands on its owner. Upon returning home on a hot August day, the clerestory windows must be opened and a whole-house fan turned on. The large fan is not meant to run constantly; instead it facilitates the process of rapidly excising warm air from the interior (the owner runs it for about five minutes). According to L'Italien, during the summer months when the temperature was ninety-three degrees outside, the house still measured seventy-two degrees inside.

The process works in reverse during the winter, with the clerestory windows allowing light energy—allowed in by the lower sun angle—to enter the house. The goal of harnessing this energy led to the development of one of the most iconic elements of the house: a wall of water bottles that create a thermal mass, storing the sun's energy during the day and releasing it during the night. The large bottles (SmartWater with the labels steamed off) are held to the wall using wire brackets that would typically be

seen attached to a bike frame. In this case, they are screwed directly into the wall. The point of the wall was to create a visual statement that would illustrate the concept of thermal mass in a display house that was equal parts education tool and habitation structure. "It is more aesthetic than functional," he admits, given that the clear bottles are not ideal for absorbing heat and are supplemented by a basement boiler that feeds baseboard heaters throughout the house.

Once selected to be built, F10 was subject to many real world considerations, and the design team was forced to "value-engineer" extensively. The clerestory windows at the top of the shaft, for instance, were initially intended to be operated with electric switches, minimizing the effort the owner would need to expend. Now, opening the windows requires cranking with an extension pole. "Cost is an issue," L'Italien says. "Right now, there is a premium to be paid for green design." The construction cost of F10 was around $200,000, although under Chicago's affordable housing program, the F10 sold for $145,000 (with the difference made up through subsidies). L'Italien points out that many of the costs could be reduced through repetitive production, eliminating, for example, the need to cut large amounts of siding on site.

As a response to the repetitive developer housing that constitutes thousands of units built each year in Chicago, the design considers social factors as well as sustainable ones; the construction of the front porch was a reaction to slab-on-grade construction typically used for infill housing, as well as "dark interiors," the excess of "beige" exteriors, "paper-thin historicism" without precedent, and "residential behemoths" that are the norm more than they are the exception. A 600-square-foot basement, built to contain the boiler and a washer and dryer, brought the first floor off the ground, making a front porch logical. The porch, built from sustainable Ipe wood with a long life expectancy, was one element that the architects were able to shepherd through the value-engineering process.

Although the house has what some might consider a European look, particularly in its use of color, L'Italien says that his influences were purely American: Joseph Esherick (one of the firm's founders) and William Wurster, to name two. Their influence is apparent in some of the detailing, such as a window positioned tightly against an interior wall and ceiling. "Often, a window that lets in a lot of light puts the wall in silhouette," he says. "But using these auxiliary surfaces allows for a great deal of reflected light."

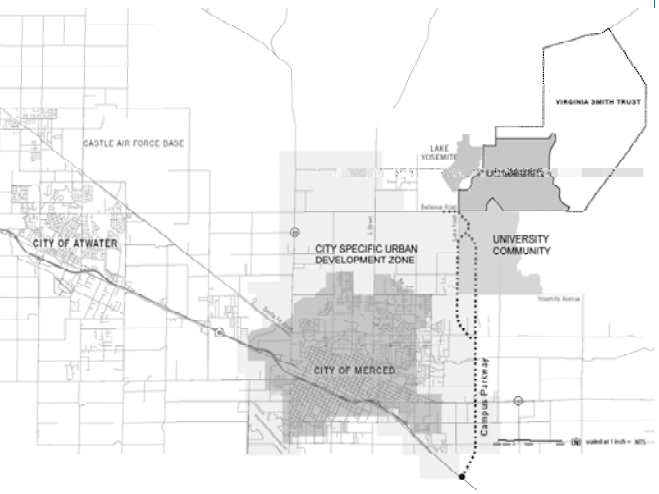
The architects considered four primary categories when conceiving the F10 house: size reduction, impact reduction, improved efficiency, and potential reuse. L'Italien feels that their greatest failure was in the last category, primarily as a result of the short timeframe, as well as value engineering that inevitably occurred. They had originally worked with the idea of demountable parts, which would have meant, for example, attaching the siding with a metal clip system, rather than traditional fasteners.

The siding of the house is fiber cement board (Hardie board), cut into wide strips that were tightly butted. From a 4'-x-8' sheet, they could get several wide strips; the remainder was cut thin and used on the exterior of the solar chimney, giving it a subtle differentiation. Left uncapped, the siding would begin to fray, so the architects developed a metal corner flashing, painted to match the red stain that gives F10 its distinctive color. The lack of a corner blocking piece differentiates the house from its neighbors.

To reinforce the point that green design is simply good design, L'Italien submitted the F10 house for two different AIA awards: one specifically for green architecture, the other for overall design excellence. In the project statement submitted for the Distinguished Building Award, EHDD writes, "We believe that, eventually, all buildings designed by mindful designers will be green."

Although the house was intended to be prototypical, L'Italien is the first to emphasize that much of what they did was not particularly innovative, but simply common-sense thinking. "What we did was, in some sense, not radical at all," he says. "We went back to methods that were commonplace before the turn of the century, employing, for example, tall spaces and building fans." But despite the extensive design effort put toward maximizing natural ventilation, the building department made them put outlets under the windows (for air conditioners), as required by code. This does not bother L'Italien at all. "If someone wants to put in air conditioners, that's up to them," he says. "But we are confident that our solutions make it unnecessary." ◉

The UC Merced Debate



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Places

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left: diagram Skidmore, Owings & Merrill LLP

below: Christopher Grubbs, rendered aerial view of academic core

New Campuses for New Communities: The University and Exurbia

Richard Bender and John Parman

Universities and colleges can be great forces for urbanity in their communities (and vice versa). Just how this potential is integrated into a community, however, has been the subject of various interpretations through history. Today, in America, there is a tendency to think that the university campus must be a place apart. Likewise, on campus, there is a tendency among university administrators to think that every new academic or institutional "need" must be translated into a new building campaign.

There are other options. While models like Jefferson's University of Virginia and venerable Ivy League campuses still shape our sense of an appropriate setting for academic life, an even older root—going back to Bologna, Padua, and Paris—situates the academy within the *polis* and makes it an integral part of everyday life. The urbanity of this model reflects the historic tendency of towns and cities to mix uses in a fine-grained way that creates and enlivens culture as well as stimulates the local economy. For many such institutions, a more intensive mix of uses may also reflect financial necessity, leading them to seek partners in their communities with whom to integrate facilities.

The need for alternatives to a territorial, facilities-oriented approach to campus planning was brought home to us in the late 1990s with the financial collapse of the American Center in Paris. Following the completion of a magnificent building designed by Frank Gehry, its director publicly reflected on how he had thought he was building a $40-million asset, when in fact he had built a $6-million-a-year liability.

Universities have learned from their own past to the extent that they are developing more flexible buildings today and often forming new partnerships to share the cost with others, including developers. Urban universities are also increasingly looking beyond their own campus boundaries to grow. Arizona State University, for example, is expanding across metropolitan Phoenix, while Harvard is shifting its science and technology faculties to a new campus across the Charles River. Bard College has established a study and research center in Manhattan, just as ASU, with its main campus in Tempe, is moving into downtown Phoenix. All of these developments point to a recognition that these institutions realize their futures lie at least partly in looking beyond traditional campus boundaries, integrating university programs with those of the city at large.

Such a rethinking of seemingly fundamental tenets of American campus design is particularly relevant today as "learning" becomes a lifelong, year-round pursuit. Postsecondary education is now a necessary accompaniment of adult life, enabling people to ramp up skills, get needed credentials, and finally move from work to the rest of life. Given this, the idea of building a traditional university or college campus may be more and more of a distraction from what real investment in higher education is coming to mean.

THE RISE OF EXURBIA

A rethinking of what a campus is may prove especially beneficial in "exurbia." This is the name recently given to sprawling new communities like Mesa, Arizona, which are frequently home to as many people as older cities like St. Louis. Such locales evince all the forms of the twentieth-century American suburb, but without any sense of being tied to an original center. They are a logical next step from what Joel Kotkin and others have noted about U.S. demography: that since 1960, more than 90 percent of all population growth in America's metropolitan areas has taken place in suburbia.[1]

Another social critic, David Brooks, attributes the rightward shift in American politics to exurbia, which he contends is not simply an "opting out" of the city, but also a more utopian impulse to reinvent the city, in the tradition of new towns from Ebenezer Howard forward.[2]

Exurbia may only be passing through a suburban stage on the way to becoming a new metropolis. But universities and colleges may contribute to this transition by helping to give it much-needed cultural and civic life.

MISSED OPPORTUNITY

Despite the potential benefits that a rethinking of the relation between campus and city might entail, most large university systems continue to build according to old models. A good example is the construction of a tenth campus of the University of California, now underway in Merced. Merced is one of a chain of towns and small cities extending south from Sacramento to Bakersfield in the state's vast Central Valley. This formerly agricultural area is today developing according to the classic exurban scenario, and all indications are that it will become California's third megalopolis by 2050. As a result of this growth, the population of formerly sleepy Merced is expected to rise to 200,000 in the next forty years.

As the setting for a new urban agglomeration, the Central Valley has several things going for it. Older patterns of infrastructure and commerce already link its towns with a major highway (California 99) and several north-south rail lines, one of which the state may rebuild to accommodate high-speed passenger service. Furthermore, its older town centers, largely developed in the early twentieth century, offer attractive grids of tree-lined residential streets and tidy, if underutilized, commercial cores. Yet, instead of seizing on the potential offered by this pattern of existing settlement, with its transportation and communications infrastructure already in place, UC chose to locate its new campus (for an eventual population of some 30,000 students) on open ranchland some six miles out of town.

The University of California has a history of locating its new campuses on open land. Its oldest campus, at Berkeley, was founded when the university moved out of its original headquarters in downtown Oakland. Built on grazing land in a town that was mostly a summer refuge for San Franciscans, UC Berkeley was eventually surrounded by a new city that grew up around it.

The real antecedents for UC Merced are, however, the UC campuses developed in the 1950s and 1960s, like Santa Cruz and San Diego. Both were organized around separate, inward-looking academic/residential colleges. Both were also deliberately held at a distance from surrounding cities, a strategy that has proved especially problematic at Santa Cruz, where it has largely eliminated any possibility to share facilities with the larger community.

The design of the Merced campus, following a skillful overall design by a team led by John Kriken of Skidmore, Owings & Merrill, San Francisco, largely adheres to this traditional territorial model.[3] It proposes a tree-lined street grid, recognizing this as a pattern of Central Valley towns, as well as an effective way to make a compact and urbane campus that can mitigate the area's extremely hot summers and cold, windy winters. But at Merced the distance between the existing town and the new campus appears to impede initial opportunities for synergy between the campus and the Merced community. With its implications for extended infrastructure, travel time, energy use, and pollution, six miles is just too far.

If planners had looked further back, past UC's suburban precedents of the 1950s and '60s, they might have discovered models that specifically anticipated ways that a campus and a community might better evolve together. But this would undoubtedly have involved building closer to town, or even in town, and the political leaders of the multicampus UC system did not want to take on the problem of assembling land in an area where patterns of development had already been established. Instead, they opted to site the new campus on "empty," supposedly trouble-free, land that they were able to obtain relatively easily. As it has turned out, however, environmental problems related to the presence of vernal pools and other environmental constraints have now contributed to a nearly decade-long delay in construction.

Today they have also led to the first phase of the campus being located on an adjoining former golf course, an area not included in its original 2001 master plan. One other obvious problem with the chosen site was the lack of any surrounding amenities. To make up for this, however, a new General Plan for the City of Merced, produced in parallel with that for the campus, calls for a series of planned residential developments between the existing town and the site of the campus, anchored by a "town center"—a private shopping area.

Meanwhile, although the opportunity was constantly pointed out during the planning process, the town and the university both failed to engage each other and find concrete ways they could benefit from the other's presence. Libraries, museums, med-

ical facilities, playfields, stadiums, and even things like utilities and police and fire services were all potential candidates for joint development. By banking land for future growth, they could both have gained from the rise in Merced land values.

From a regional standpoint, the decision was similarly flawed. If a site had been selected that was more closely related to Highway 99 and the north-south rail corridors that historically linked the Central Valley towns, it might have better fulfilled UC Merced's potential to serve the whole region, not just one part of it. Indeed, in the runup to the opening of the new campus, the university has opened academic subcenters in other valley towns and cities, and it has become clear that many students will commute from their homes up and down the valley. Given such an existing pattern, it is ironic that the final decision focuses all the state's resources in one out-of-the-way location.

AN AMERICAN "NEW TOWN"?

Ironically, UC Davis—the one campus that most obviously reflects the University of California's land-grant heritage (for years, one of its great strengths was agriculture and natural resources-related research)—comes closest to being the model that might have provided the most sensible basis for a design that could have served both UC Merced and the larger Central Valley community.

Adjacent to a rail corridor that links the Bay Area to Sacramento, Davis also falls within a fast-developing "exurban" corridor—one that extends east along I-80 from Vallejo to Sacramento, and beyond to Roseville (along I-80) and Placerville (along US50). Like the Merced campus, the Davis campus was originally laid out on a grid pattern; unlike Merced, the Davis campus was conceived as a loose extension of the adjacent town. Even the creek that runs through it helps connect them.

The Davis example was not the only alternative that could have been seized upon as a precedent. Before the Merced site was chosen, the larger Central Valley city of Fresno had proposed that the core of the new campus occupy a section of its early-twentieth-century downtown, the Fourth Street Mall. This area had been a center of prosperity in the pre-freeway era, but for many years it had been bypassed, as suburban development spread to the northeast. In addition to many underutilized properties, it offered good proximity to an existing train station and good access from Highway 99.

Those with experience of European campuses might recognize the Bologna model in such a plan to reinhabit an older urban area. In the US, the benefits of such a strategy have also been reaped in Manhattan, where NYU has for years renovated industrial lofts as classrooms and student residences, and in a broader sense has adapted itself to the urban fabric of that city. DePaul has also followed this strategy in Chicago's Loop. In other historic European towns like Siena, a further benefit is that the university can play the role of custodian of important elements of its historic fabric, while locating other parts of its program, like laboratories and athletic facilities, outside the town's historic zone.

Looking farther afield, it is possible to see an even more relevant example. In the 1960s, about the same time that UC Santa Cruz was being developed, the French new town of Cergy-Pontoise was being created outside of Paris. The town was to incorporate several existing villages, but universities were planned to be among its earliest new elements. Today these institutions include ESSEC, one of the leading business and management schools in Europe. A technical university was also created, and it now supports many of the high-tech companies that have relocated to the region. They were initially brought in as a way to provide jobs that would induce people to move there or "reverse commute" from central Paris—part of a regional strategy that also saw the development of the RER line passing through Paris to connect new towns to Central Paris, Orly, and Charles de Gaulle International Airport.

Like Merced, Cergy-Pontoise is located on the fringe of a major urban center. The great amount of farmland that surrounds it and its proximity to the large Vexin regional park are also similar to the position of Merced—also surrounded by farmland, and which often refers to itself as a gateway to nearby recreation areas in the Sierra foothills and Yosemite National Park.

The success of these planning initiatives forty years ago has now become fully evident.[4] Cergy-Pontoise today has a population of close to 200,000 people, along with 25,000 university students. Moreover, the recent development of high-

Main Street brings town uses into the campus; drawing by Christopher Grubbs

speed rail service to the UK has situated Cergy-Pontoise along a linear network of towns that are becoming proximate to London as well as Paris, underscoring its role in an expanded regional economy. Businesses in the town are already connected to this corridor's fiber-optic line, which runs along the National Highway right-of-way next to the technical university at Cergy-Pontoise.

EVOLVING EXURBIA

Unlike the development of most new US communities, of course, the building of Cergy-Pontoise involved a major initial public investment in physical and social infrastructure. Indeed, part of the goal of the new-town effort around Paris was to shift the center of development pressure away from its historic center.

In comparison to the French model, such peripheral development in the U.S. usually emerges "in reverse." The private sector usually leads the way—with low-density projects coming first, followed typically by privately-developed shopping malls. If there is an existing town, as there is in Merced, it often must compete with—and may ultimately be undermined by—this piecemeal development. The choice of where to locate a major public university could, however, have been regarded as a strategic intervention to encourage a more sensible and coherent (and less costly and destructive) pattern of development. While the planning of the UC Merced campus aimed within its own boundaries for this kind of coherence, it missed it entirely in terms of what the campus could do for Merced, and vice versa. This was equally true for the Merced General Plan—which suggests that both entities failed to understand the exurban phenomenon.

Exurbia has tended to grow on an ad-hoc basis as an agglomeration of "planned communities" that are relatively low density and car dependent, with few public or community spaces. Schools and churches are often the first civic buildings, and cultural life often begins with them, along with shopping and movies. In this context, a university or college campus could help provide the missing elements—the "collegial" and cultural settings that support the civic and cultural life of the community—along with opportunities for education and training. One example of such a relationship can be found in

the community of Cypress-Fairchild (actually a school district) outside Houston, where the local government partnered with a community-college district to develop a campus whose civic, cultural, learning, and recreational facilities serve a population that runs the gamut from toddlers (and their moms) to younger postsecondary students, adult workers, and the retirees who enroll in its Senior Academy—one of its fastest growing programs.

One characteristic of these exurban campuses is the way they seek to capitalize on the interplay between learning and a broader community of learners—and vice versa. Another is how their physical form evolves in relation to their communities. In this sense, Cy-Fair College is both a college, albeit with a broader constituency than most universities, and a town center.

NEED FOR STEWARDSHIP

The last point reflects on what should be an important concern for campus planners generally: that, in developing a university or college in an exurban context, it may be particularly important to tailor development to where a community is in its lifecycle. Following such a tenet, what would have made more sense in a place like Merced than to utilize already-existing, undervalued resources as a way to build together toward a common future?

In fifty years, UC Merced may come to seem a part of its community. By then, the population of the town may, in classic exurban style, "fill in" the agricultural land between the new campus and the existing town. It may even grow right up to its gates, so to speak, and create the same problems of boundaries and edges that cause such difficulties between other UC campuses and their surrounding neighborhoods. But until then the town will not gain much from the presence of the campus, and the campus will not gain much from the town. The region, similarly, will be only poorly served.

This may be the most salient point today—that towns or cities and their colleges or universities need to see each other as partners. Both need to share a sense of stewardship. As Frederic Law Olmsted put it, a campus needs to provide settings for learning for its students that reflect "the work of disciplined mind." In exurbia, especially early on in its development, doing so may be particularly valuable. Ebenezer Howard, who we might think of as one of the fathers of exurbia, saw new towns as an opportunity to build a new civilization. In a real sense, the campuses of the new exurban universities and colleges, UC Merced among them, are opportunities to bring the benefits of the city to areas that are ready to embrace them, but in a new form.

NOTES

1. Joel Kotkin's books include *The New Geography: How the Digital Revolution is Reshaping the American Landscape* (New York; Random House, 2000). His *The City: A Global History* will be published in April by Modern Library Chronicles.
2. David Brooks, "Take a Ride to Exurbia," *The New York Times,* November 9, 2004.
3. John Lund Kriken, "Principles of Campus Master Planning," *Planning for Higher Education,* July-August 2004; and University of California Office of the President: *Long Range Development Plan: The University of California, Merced, Public Draft,* August 2001.
4. Bertrand Warnier, "Cergy-Pontoise: Du Projet à la Realité," *Atlas Commente* (Heyden, Belgium: Pierre Mardaga Editions, 2004).

UC Merced—Time Will Tell

Christopher Adams and John L. Kriken

As the campus planner and lead campus design consultant for the new University of California, Merced, we wish to comment on the Spring 2005 article "New Campuses for New Communities: The University and Exurbia," by Richard Bender and John Parman (*Places,* Vol. 17, No. 1, pp. 54-59). Among other things, this article dismisses the idea of a campus as "more and more of a distraction to what real investment in higher education is coming to mean." Such provocative questioning is an important aspect of our profession, and, contrary to some of their assertions, the new UC Merced campus reflects this kind of investigation.

Contrary to Bender and Parman's argument about the changing needs of university campus design, we believe that a UC campus remains a distinct and single place, in the sense described by

Frances Halsband in the same issue. The University of California has a basic mission in the state for research and historically has served as the primary public institution for residentially-focused undergraduate education. A UC campus is more than individual buildings to be inserted into the fabric of a town; it requires quasi-industrial districts for research, large playing fields, and significant land reserves for the housing of students and faculty.

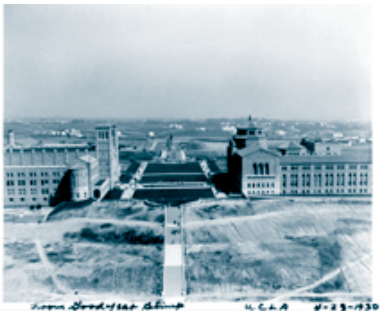
The program for UC Merced was based on a study of the space requirements of public and private research universities throughout the United States. At such institutions, academic space needs are a function of number of faculty, not students. In converting space needs into land coverage, we considered elevator demand at class changes; building and safety codes, particularly for laboratories; and the surcharge for remodeling high-rise spaces, all of which led us to mid-rise coverage. Because a university is always changing, we provided land for construction staging at all levels of growth. Our observation of UC campuses over the last half century led us to provide generous reserves for faculty housing to allow Merced to remain competitive in recruiting faculty, regardless of the cost of housing in the adjacent community. Finally, parking demand, even at campuses with good public transportation, led us to provide realistic amounts of space for surface parking and eventually for parking structures. (For example, UC Berkeley is considering increasing its parking from approximately 7,700 spaces to 9,000, despite its location on a BART line and at the confluence of a number of bus lines.) The resulting total land area requirements were beyond what any city in California's San Joaquin Valley could accommodate.

In proposing the integration of the new campus into the core of Merced, Bender and Parman make significant assumptions about the city's eagerness to welcome the University with its power to reshape the community in pursuit of its academic mission. This proposal also assumes that the University has the administrative and financial resources to acquire the hundreds of separately owned parcels that the new campus would ultimately require. As Halsband noted, when faced with a campus pushing outward, "neighborhoods are likely to push back—and often with good reason, since these neighborhoods themselves have evolved into historic districts, with their own memorable and distinctive qualities of space and architecture." Merced's older neighborhood, with their tree-shaded street grid, provided us with a model to emulate, not to destroy.

Bender and Parman cite the examples of UC campuses built in the 1960s at Santa Cruz and San Diego, which, we agree, suffer from their degree of separation from their host communities. Instead, we studied UC Davis, Chico State University, and the Claremont Colleges, as well as older East Coast institutions in small cities, to see what worked and what didn't. From these examples, we learned that a successful town/gown interface requires close and continuous proximity on at least one edge of both the campus and the town and that car and truck traffic should go around, not through, this interface.

Our solution, which was developed in concert with Merced County planners, places the campus at the border of a new community at the edge of the existing city, within a grid of streets—which would organize development of both. A town center, within the county's plan and also shown in the campus master plan, forms the heart of the interface. Museums, performing arts facilities, and sports venues will be built at this interface, while other university operations, such as the storage of hazardous materials and certain kinds of research, will be located away from the town. Even further away, a reserve for future research facilities—perhaps for something that cannot even be imagined now—is provided. (Who would have imagined a cyclotron when Berkeley was established in 1878?) We planned that traffic would not separate the campus from the adjacent community, but instead would connect to a new loop road around Merced, which had been initiated prior to the decision on campus location.

In the *long* run (which is the only way to consider a university master plan), we believe that Merced, the campus, and Merced, the town, will develop jointly as a thriving and exciting community. It will take a while (see photo of UCLA in 1930), but we urge Bender and Parman to come back and take a look. ◉



UCLA, 1930

Caring For Places: Questioning

Donlyn Lyndon, FAIA, editor, *Places*

Pedestrian oriented retail weaves the campus and town center together; drawing by Christopher Grubbs

Opening questions and turning attention are central purposes of our journal. We are concerned with the design of places—with examining decisions that affect the quality of our lives because they change the things that stand around us. The circumstances of daily life, one might say, are always being altered—it's a fact of life. The days change, the seasons change, the landscape changes, we change; why shouldn't places change? They should. They will.

How is change directed and by whom? Whom does it affect, and by what values is it measured? There are also questions of what can be done at any given time, and how we can turn attention to strategies for change that bring benefits to many—to the "have nots" as well as the "haves"; to subsequent generations, not only to "nows." Change may be inexorable, but its nature seldom is.

Places has also sought to be a source of dialogue, and for this reason we initiated our "To Rally Discussion" section. Christopher Adams and John Kriken make good use of this section to question assertions made in our previous issue on "Considering the Place of Campus." They argue, with care, in favor of decisions made as chief planner and lead design consultant for the new University of California campus at Merced. Many of these are wise decisions, but they are set within a framework that is questionable. Among the premises that can be questioned are the supposition that UC's presence in the Central Valley needed to take the form of a single, integrated campus, and that its design and construction should follow the dictates of more commercial kinds of development: lowest available land cost, least complicated process, and most predictable result within the boundaries of the contract. More particularly, they argue persuasively for a vision of "town" facing "gown" across a traffic-less boundary. But that town will be of their own making, beyond the reach of the city that currently exists.

Merced, meanwhile, is left to its own inadequate devices as it copes with the influx of traffic, new populations, and its already heavy load of the underemployed and ill-housed. Like the profiteering developers before them, the university has chosen to move out into the farmlands, consume their apparent emptiness, and leave the troublesome city behind. By contrast, Frances Halsband, guest editor of the campus issue, argues that universities could well become the most enlightened developers/redevelopers of our cities. "Their mission statements suggest interest in educating the public (especially state universities!), in advancing knowledge, building on history and culture, and providing a forum for discussion—all good ideas for cities."

This issue, "Retrofitting Suburbia," reports on the many ways low-density, existing places are being reconceived to accommodate higher levels of civic amenity, meet the needs of differing populations and interests, and provide more engaging and effective systems of access (like walking). These are projects that seek an appropriate complexity and that chart new territories in areas previously abandoned by the market. They are a small sampling, but a welcome sign of growing interest in working with (rather than stepping away from) the complexities of the existing.

The projects and articles presented here argue vigorously that thoughtful adjustment should be at the center, not the periphery, of our concerns. They also remind us that to retrofit is not only to reinvest, but also to relive the places that we have. They argue implicitly against the incredible misuse of resources that comes from constantly moving into new areas beyond our previous investments, consuming more "empty" land and neglecting what's left behind. Wasting places is a habit we can no longer afford. Finding opportunity is a skill we must nourish. ◉


WARNING
The Bush Energy Plan Kills
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"360":

San Francisco's Billion-Dollar Solar Public-Works Project

Paul Fenn and Michael P. Kuchkovsky

San Francisco's billion-dollar investment in a solar-energy infrastructure over the next three years will fundamentally change its built urban environment. Architects could take a leading role in this process, both in designing the new infrastructure as a ubiquitous presence in the City, and also in re-conceptualizing individual building designs around local conditions and needs, harnessing location-specific energy resources such as sunlight and wind, and combining them to serve uses such as hospitals, fire stations, server farms, or machine shops.

For over thirty years, visionary physicists and economists have posited a solar hydrogen future for America and the world. Following the change from burning trees to mining coal, and from coal to oil and gas combustion in the twentieth century, they have posited a third transformation that will liberate our way of life from climate crisis, fossil fuel wars, and nuclear proliferation.

Ironically, since the 1970s and early '80s, the entire world has busily copied California's brief but dramatic wind power leadership under Gov. Jerry Brown; but California's vision of solarizing the power grid has never occurred on the scale imagined

City Lights Books photo montage, by authors

Brisbane windmills

by the leaders of Appropriate Technology and the New Alchemy. Until recently, the only monuments to California's worldwide leadership in alternative energy were a few wind turbine farms and experimental desert solar collectors. The lack of progress was caused not by price competition or technological innovation, but by politics and money. It was not until California and other states passed laws authorizing municipalities to purchase power and develop green-energy resources during California's 2001 Energy Crisis that public works projects were prepared to deliver the solar hydrogen option today.

In California alone, over forty cities, including some of the largest, are now completing plans to develop solar technologies on a scale heretofore only imagined. In particular, the City of San Francisco is poised to use its community's aggregate purchasing power to build the world's largest solar photovoltaic power network, installing not just one large installation but an integrated network linking hundreds of large solar facilities, which, together with wind turbines, fuel cells, power storage systems, and other conservation and efficiency technologies, will power over 300,000 apartments. By 2009, the City will have rolled out a bomb-proof, blackout-proof energy infrastructure, transforming the urban environment in much the same way that the first municipal water and sewer systems transformed the modern city.

In keeping with its high-tech leadership role, the City of San Francisco will provide a first platform for the long-awaited solar hydrogen economy: not just talk about it, but build it, starting next year. Over the next decade, solar and other green power technologies will become as much a fixture of the San Francisco environment as the Golden Gate Bridge; blue glass, until now a curiosity, will appear like some new, surrealistic fish cartoon on every horizon.

Solar is a classic, municipal-type infrastructure. It was not the private market, but municipal revenue bonds, which delivered the nation's water and sewer systems, its toll bridges, tunnels, power dams. Municipal revenue bonds make possible large-scale projects that take decades to pay back capital investments. In San Francisco, the money is coming from two sources—both developed by Oakland-based Local Power (local.org): a state law allowing "Community Choice" of power, passed in 2002, and an "H Bond" authority passed by San Francisco voters in 2001—a revenue bond authority not unlike the bonding authorities used to finance and build the major bridges and tunnels of virtually every city in the world.

The solar hydrogen economy is in this sense not historically unique, but falls under the rubric of municipal public-works projects. In the past, sewers were built to stop cholera and other diseases, bridges to ease urban congestion, and power dams to grow industrial manufacturing power. Today, a melting North Pole, nuclear proliferation, and energy wars are the crisis, and re-engineering of the power grid the lowest hanging fruit among available solutions.

Power production is ground zero of the energy crisis, because of both its size and its unique susceptibility to public policy. Electricity production is the largest single cause of greenhouse gas emissions causing climate change. Power plants produce two-thirds of the gases behind the nation's urban child asthma epidemic and two-thirds of all nuclear materials. Among the other major causes, automobiles and the manufacturing industry are slower to change because of weak government powers—not so with the electricity industry.

San Francisco's leadership among coastal U.S. cities is a forthright solution to the many energy crises of our time. Now ground zero in the "Community Choice" movement, its political leaders are preparing a plan and a competitive bidding process for the largest green-power, public-works project in world history: a "Hoover Dam of solar." Rivaling the now booming German and Japanese solar industries in scale and financial commitment, the new infrastructure will remove 360 megawatts of electrical load

from an entire urban community that now consumes 650-850 megawatts on any given day—**over a third of San Francisco's aggregate electricity footprint will be physically replaced in just three years with ubiquitous solar and other green power technologies.** Under the plan, over half of all power sold in San Francisco will be locally green powered within twelve years.

Just as "all politics is local," so ultimately are its problems and solutions; what the Congress and President could not achieve for the Kyoto Treaty, San Francisco's mayor and city council just might. Combining renewable and fuel-free generation systems with power storage, heat recovery, cogeneration, and hybrid applications, San Francisco's 360 MW Local Power network will fundamentally change the way San Franciscans get their power—permanently. Phase I will encompass 31 megawatts of solar photovoltaic cells installed throughout the City over three years—three times larger than the world's largest existing network. This is the equivalent of 200 to 300 SAFEWAY-scale rooftops distributed on both city-owned and privately-owned buildings. The solar facilities alone will provide enough power for 31,000 city apartments in the afternoon.

Most architects agree that less research has been done on incorporating photovoltaics into existing buildings and that it is a more expensive and difficult process than incorporating photovoltaics into new construction. Yet the vast majority of any solar power built on the scale of San Francisco's Local Power network will come from solar panels placed on *existing buildings*. Therefore, much of the research needed to implement the solar component of this legislation will have to focus on the reengineering of built urban environments. Kiss and Cathcart Architects and others have begun this process of devising economical and aesthetic structures to incorporate photovoltaics into existing buildings. Michael Jantzen's designs incorporate wind-powered generators into elegant, open structures that also provide shade and some shelter. Many groups, including the International Energy Association with its TASK program and European Cooperation in the Field of Scientific and Technical Research (COST) have conducted extensive research on this subject.

Unlike typical twentieth-century public-works infrastructure, which imposed grid patterns and earthmovers in a dominance of nature, this new infrastructure will obey nature. Solar panels must be placed to maximize both sun exposure and to match energy use among residents and businesses physically close to the facility. Thus, the selection of locations will depend on algorithms as complex as sites chosen for antennas in PCS, WiFi, or 3G wireless phone networks. San Francisco's Local Power network reverses the old pattern of distant hidden megaliths connected by transcendent power lines, replacing it with visible, new, local energy systems that will inevitably revive the traditional architectural criterion of location. As the traditional watermill targeted high-flow waterfalls, San Francisco's Local Power network will physically match sun, wind, tide, and wave to shop, kitchen, and venue—adapted to local conditions and maximizing the integration of related infrastructural resources and human needs.

In addition to the 200 to 300 warehouse-scale solar photovoltaic facilities in San Francisco neighborhoods, San Francisco's Local Power network will include 72 megawatts of other green distributed generation, potentially including hydrogen fuel cells or hydrogen combustion turbines. Alternately, the introduction of wind turbines designed for dense urban areas, if carefully placed to minimize bird kills, noise, and visual impacts, could provide this component of the City's plan. Hydrogen electrolysis facilities will have to be physically located near major solar facilities that power them. Again, the urban environment will witness a new kind of gas station—hydrogen storage tanks and power generators that emit no smoke whatsoever—only steam. Indeed, the City of Anchor Steam will find a new metaphor for its famous fog to hover above the splashes of blue glass.

When the Hoover Dam was bid out to California construction companies in the early twentieth century, nothing of its scale had ever before been attempted. Having designed and built it without precedent, Bechtel was transformed from a typical construction company into the giant it is today. The energy crisis is a major opportunity for the designers and builders of the urban environment. In San Francisco, this opportunity is now upon us. Renewable energy sources will soon be the only game in town. Architects would be wise to adapt their design principles to this fact and to lead in giving shape to San Francisco's new power system as it transforms the urban sphere. ◉


PVC:

The Controversy Summarized

Marian Keeler

THE BUZZ

At a recent green building conference, a colleague mentioned the amount of "noise" in the air with regard to PVC and its place in the world of architecture and building materials. So much is being circulated these days on the health impacts (real or fabricated?), durability (supported by LCA or not?), and environmental concerns (radical misperceptions or valid science?) that it is difficult to tease out the truth. As far as my friend is concerned, the basic question is settled, over, done with, kaput. Science has proven PVC's negative impacts, and we should now move with the flow of the market to new developments in healthful building materials.

We know, for example, that the chlorine component of PVC (poly-vinyl chloride), making up almost 60% of the PVC molecule, can lead to the production of dioxin, the most carcinogenic substance known to humankind, during manufacture or combustion.[i] We know that ethylene-dichloride and vinyl chloride, both PVC precursors, are toxic and carcinogenic. We know that the plasticizers, or phthalates, used in vinyl building materials to make them pliable and soft, have been the subject of stud-

Photos: Ragina Johnson

ies that show abnormal genital development in male humans as well as rising asthma rates in children through exposure to household dust.[ii] Phthalates, in addition to being a reproductive toxicant, are also considered semi-volatile organic compounds and harmful indoor air pollutants. In addition, we know that vinyl needs other harmful additives, such as lead and cadmium, in order to be transformed into viable products.

For every bit of exhaustive science from the anti-PVC camp, there is a corresponding rebuttal from manufacturers, suppliers, and trade organizations representing the PVC industry. These groups have funded their own studies and have pointed to other precedents to formulate a basis for the claims that PVC-containing materials pose little or no threat to the environment or to health. The Vinyl Institute states that vinyl (curiously, not PVC) is not as energy-intensive to manufacture as other plastics and is easily recycled and safely land-filled. They also claim that dioxin emissions are not affected by the amount of vinyl materials in our environment, but rather are the result of inadequate incinerator operating conditions.

WHAT'S AT STAKE?

Clearly, the controversy is brewing, with each camp claiming dueling studies. Ultimately, it is up to us as architects and design professionals to specify PVC-containing products or not. As architects, we are obligated to ensure reasonable life safety in our buildings. To do so, we need to know what is at stake: what PVC is and how it affects the human body and the environment.

Let's first understand the distinction between the useful catch phrase "vinyl" and PVC. Not all "vinyls" are PVC. Pure PVC is almost 60% chlorine, and from this chlorine molecule springs the root of the difficulty. Healthy Building Network cites certain other vinyls that are similar to PVC but without the chlorine, all petro-chemically based but as yet unstudied to the same depth as PVC, and possibly more environmentally benign: ethylene vinyl acetate (EVA); polyethylene vinyl acetate (PEVA), a copolymer of polyethylene and EVA; polyvinyl acetate (PVA); and polyvinyl butyral (PVB), used in safety glass films. Many of these are being substituted for PVC in various products.[iii]

PVC'S STRUCTURE

PVC's molecular structure consists of strings of vinyl chloride monomers (VCM), each made up of three hydrogen atoms, one chlorine atom, and two carbon atoms. The source materials for these monomers are oil and salt. Through electrolysis of the sodium chloride, a chlorine molecule is produced. By combining the chlorine with ethylene, produced from oil, we get ethylene dichloride. This element is heated at high temperatures to create VCM, and with the addition of heat stabilizers and fillers such as lead and of plasticizers, or phthalates, it attains its workable form, either rigid or flexible, for such materials as resilient flooring, carpet backing, wall covering, wall guards, window frames, siding, furnishings, cable and wiring sheaths, piping, shower curtains, raincoats, car interiors, medical devices, drug delivery systems, food packaging, and children's toys. You will even find vinyl in hip modernist home furnishing stores: those cool tote bags, welcome mats, and placemats. Cheap, lightweight, and workable, PVC has been hailed as the miracle plastic since its invention in 1872 as a destination for chlorine waste from the acetylene gas lamp industry.[iv] Taking pigment well, with a degree of saturation that designers like, it is literally the "fabric of our lives."

HUMAN HEALTH

The fabric of our lives, however, is really the web of our food chain, water cycle, and physical environment. When we add to that web a burden of bio-accumulative toxic by-products like dioxin, lead, various phthalates, and heavy-metal stabilizers, we begin to toy with environmental balance and to affect human health. Throughout the life cycles of the versatile PVC products we use, their by-products, additives, and precursors can lead to serious health impacts—among them cancer, endocrine disruption, endometriosis, neurological damage, birth defects, impaired child development, and reproductive and immune system damage.[v] The additives used to make PVC a viable product flake, off-gas, or leach out over time and can cause cancer, asthma, and lead poisoning.[vi]

Some of the chemicals of most concern in this debate are persistent bio-accumulative toxic chemicals, known as PBTs. "Persistent" means that they do not break down rapidly in the environment and may also travel far from their source. "Bio-accu-

mulative" refers to the tendency of the chemicals to accumulate in the fat tissues of living organisms, concentrating in more and more potent doses as they go up the food chain from plants to fish to humans. PBTs come under the umbrella of persistent organic pollutants, or POPs. Parties and signatories to the UN Stockholm Convention mounted an international treaty in 2001, signed by the U.S. and ratified in 2004, to restrict and reduce the production and use of POPs (four of which relate to PVC production) throughout the world. According to the Convention, "POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife. POPs circulate globally and can cause damage wherever they travel."[vii] That Inuits and other remote cultures, who live thousands of miles from industrial settings, are now showing levels of dioxin in their blood is proof of the pervasiveness. The concept of a body's chemical burden, deciphered in blood, tissue, or breast milk, made headlines when Bill Moyers had his own blood tested, revealing some surprising results.[viii]

ENVIRONMENTAL BURDEN

The burden to the environment is no less dramatic. Residents of the low-income communities located around the clusters of PVC-manufacturing plants end up with several times the normal amount of chemicals in their bodies as a result. Because PVC is difficult to recycle among plastics (a single PVC bottle will contaminate "100,000 (PET) bottles, rendering the entire stock unusable for making new bottles or products of similar quality."), it ends up in landfills or incinerators where it leaches phthalates, lead, and other harmful additives to groundwater and the air. Further down the PVC life cycle, at disposal, PVC produces toxic residues equal to its weight.[xi] Charges of environmental racism have been leveled at PVC-producing factories and incineration facilities that for the most part are located in the poorest regions of the South.[xii] Chemist Michael Braungart, co-founder of MBDC, McDonough Braungart Design Chemistry, in Charlottesville, Virginia, notes, "It costs five times more to dispose of this waste than to manufacture PVC. It socializes the risk and privatizes the profit."[xiii]

Over 30 countries, 62 Spanish cities, and many members of the EU, including Norway, Germany and Austria, have placed limits on some aspect of PVC, ranging from packaging, food wrap, building materials, use of plasticizers in children's toys, vinyl incineration, manufacture, and recycling, by 2003. Denmark is working toward minimizing the use of PVC in building materials, restricting the use of stabilizers and phthalates, and even going so far as to levy a tax on both PVC and phthalates. In the 1990s, the international environmentalist and activist group, Greenpeace, suggested that we begin a global phase-out of PVC, heating the debate even further.[xv]

KAISER PERMANENTE'S ROLE

One of the major players in the PVC transition is Oakland, California-based Kaiser Permanente, the nation's largest HMO, serving the healthcare needs of 8.3 million members in nine states and the District of Columbia. Founded in 1945, Kaiser Permanente has a long track record of leadership in innovation and has initiated a major culture change in line with their philosophy of healthcare: "thrive." Two major environmental mandates are supported by George Halvorson, the CEO of Kaiser Permanente. The first is the identification and reduction of toxic materials throughout its organization, from mercury in thermometers to PVC in building materials. The second policy, a pledge to adhere to the 12 POP reductions of the Stockholm Treaty, is also in line with Kaiser Permanente's philosophy of preventative medicine. In addition, Kaiser has agreed to pilot test the new "Green Guide for Health Care" (GGHC), a voluntary self-certification system for health care facilities released in 2004 by the Center for Maximum Potential Building Systems and sponsored by Health Care Without Harm and U.S. Environmental Protection Agency, among others.[xvi]

One of GGHC's rating points addresses the PVC-reduction issue head-on by calling for the elimination of materials in a building's exterior or structural systems, interior finishes, or mechanical/electrical systems that release PBTs in their life cycle. PVC is included in this credit as the biggest of a number of chlorinated plastics that release dioxin.[xvii] Other industries have joined the camp: in 1984, the U.S. Navy replaced PVC-coated cables with a PVC-free alternative; Nike has worked toward eliminating PVC from its shoe line. Many local firefighters

groups have asked designers to stop specifying PVC-containing products, because the combustion of PVC adds another lethal level to the blazes they battle;[xviii] NASA has banned PVC in the construction of its shuttle fleet, and the London Underground has banned halogenated cables (containing chlorine) in their system due to similar fire concerns. Because PVC is so prevalent in medical products (27% of all disposable plastic medical products), several health care facilities are performing PVC audits in order to begin to eliminate PVC-containing materials.[xix] Many European environmental-labeling systems, including Germany's 20-year-old Blue Angel, and "Nature Plus," in Germany, Austria, Switzerland, and Holland, are steering toward a "no PVC" policy for products.[xx]

Noteworthy architectural projects such as London's Tate Gallery and the 2000 Sydney Olympics precinct also called for PVC minimization. The first building to be awarded the Green Star rating (Australia's green building rating system), by developer Canberra International Airport, was significant because of its PVC avoidance. The Australian Green Building Council allocates a point in Green Star to PVC reduction in buildings. By relying on precedent and transparency, they have deflected the volleys of criticism and have implemented the credit thanks to the hefty amount of PVC-free alternatives, says Che Wall, Director of Green Building Council of Australia.[xxi] A few LEED® registered projects have opted not to use PVC materials, even though no specific credit guides the process and in spite of the fact that a special USGBC PVC Technical Advisory Committee issued a draft report in late 2004 taking the side of industry on PVC elimination. The issue is still alive within the USGBC community, apace with the bubbling controversy worldwide.[xxii]

ALTERNATIVES TO PVC

Happily, the building materials industry has responded with ingenuity to the call for alternative plastics. From the perspective of a green building practitioner, this is good news about a niche that has long needed filling. One interesting PVC-free newcomer to the materials world is PVB, polyvinyl butyral, a safety film used in glazing for commercial office buildings and in windshield coatings. Post-consumer recycling technology allows PVB, a product that would be for the most part either landfilled or burned, to be recaptured to produce carpet backing. Developed by Tandus and spurred by Kaiser Permanente's demand for a PVC-free carpet backing, this carpet meets the demanding 01350 IAQ standards,[xxiii] has more than half post-consumer recycled content, and allows both backing and fiber to be recycled together as a closed-loop technical nutrient back into more carpet backing. This recycling technology is something carpet manufacturer Collins & Aikman, a subsidiary of Tandus, has pioneered for over a decade.

Certain linoleums, cork, rubber, and chlorine-free plastics like polyolefins can be substituted for PVC-resilient sheet and tile flooring. Kaiser is a leader in this area as well, having eliminated PVC flooring from their standards in favor of Nora rubber flooring and Amtico's non-chlorine resilient tile, Stratica. In the area of wall coverings, wall protection, window treatment and acoustical ceiling tiles, several PVC-free products incorporate paper and other plastics as feedstock. Building service products and systems such as piping, cable and conduit, and roofing and waterproofing membranes all have their non-PVC parallels. Designers will find Healthy Building Network (www.healthybuilding.net) a PVC-free treasure trove, providing an exhaustive list of PVC alternatives in CSI format as well as a wide-ranging list of PVC-free resilient flooring alternatives such as cork and linoleum. Healthcare Without Harm (http://www.noharm.org/pvcDehp/reducing-PVC) also has a PVC-free materials database. Greenpeace has its own database and in 1996 issued a report entitled "Building the Future: A Guide to Building Without PVC," citing several alternatives to PVC building materials. (http://archive.greenpeace.org/toxics/reports/btf.html) In 1994, *Environmental Building News* published what is still considered a comprehensive assessment of the PVC controversy, an analysis of its life cycle, and a selection of PVC-free alternatives.[xxiv]

HOW THE PLASTICS INDUSTRY HAS RESPONDED

Much progress has been made since the early days of PVC production. Improved incinerator scrubbers can now reduce 99% of hydrochloride emissions from the incineration of PVC-containing materials. PVC manufacturers and makers of PVC-containing build-

ing materials are working with the U.S. EPA to continue to reduce dioxin emissions.[xxv] According to the Vinyl Institute's website: "The vinyl industry's dioxin emissions are a very small part of overall emissions, constituting less than one-half of one percent of the total emissions to air, water, and land as identified by the EPA. The vinyl industry emits about 12.6 grams of dioxin a year, compared to the EPA's recent estimate of nearly 3,000 grams a year from known sources."[xxvi] PVC-specific recycling efforts are being conducted to encourage further reductions in PVC manufacturing.

What is perceived as an inconclusive nature of the USGBC's draft report and other scientific data has served to round out the argument in support of PVC. In the eyes of the industry, a low-cost, versatile material is being persecuted for the as yet undetermined potential for harm. Bracing for more pressure from the environmental movement, however, some manufacturers have moved toward PVC transformation and have weighted their R&D and market outlooks accordingly. Moving to newer plastics whose benefits or harm have not begun to be assessed is a way of hedging bets in an uncertain future. In the meantime, resilient flooring manufacturers withdrew from a high-profile lawsuit filed by them in New York State in response to what was claimed as discrimination against PVC. The resilient flooring trade industry's suit was part of an effort to call PVC materials "green" and qualify a building for tax credits. Their withdrawal was framed as a victory by both sides, though the suit was never litigated or settled. [xxvii]

CONCLUSION

As design professionals, we'll need to make up our own minds as to the validity of the conflicting messages we manage to extract from the noise. Emerging from the pervasive clamor of today's PVC debate is yet another buzz, the voice of the precautionary principle.[xxviii] In brief, the precautionary principle means to do no harm, much in the same way as Hippocrates' physician's oath. Principle 15 of the Rio Declaration on Environment and Development of 1992 states: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."[xxix] Several cities, including San Francisco, the first city in the U.S. to do so, have adopted the precautionary principle as part of their environmental policy.[xxx] The precautionary principle is not new and, in part because of its longevity, it will likely be the tool that transcends finger pointing and the spectacle of opposing scientists duking it out on the world's PVC podia. It will assuredly be the measure by which we guide, not squelch, the technological ingenuity we so value in our culture. ◉

RESOURCES:

Health Care Without Harm, www.noharm.org

Green Guide for Health Care, www.gghc.org

Kaiser Permanente, www.kaiserpermanente.org

Healthy Building Network list of scientific data on PVC and its "Must Reads" www.healthybuilding.net/pvc/must_reads.html and www.healthybuilding.net/pvc/resources.html

Joe Thornton, PhD, "Environmental Impacts of Polyvinyl Chloride (PVC) Building Materials," a briefing paper for the Healthy Building Network

Blue Vinyl, Sundance Film Festival award-winning documentary on the PVC life cycle, by Judith Helfand and Dan Gold, www.bluevinyl.org

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iii "HBN Sorting Out the Vinyls—When is Vinyl not PVC?" www.healthybuilding.net.

iv. http://inventors.about.com/library/inventors/blpvc.htm and www.pslc.ws/mactest/pvc.htm.

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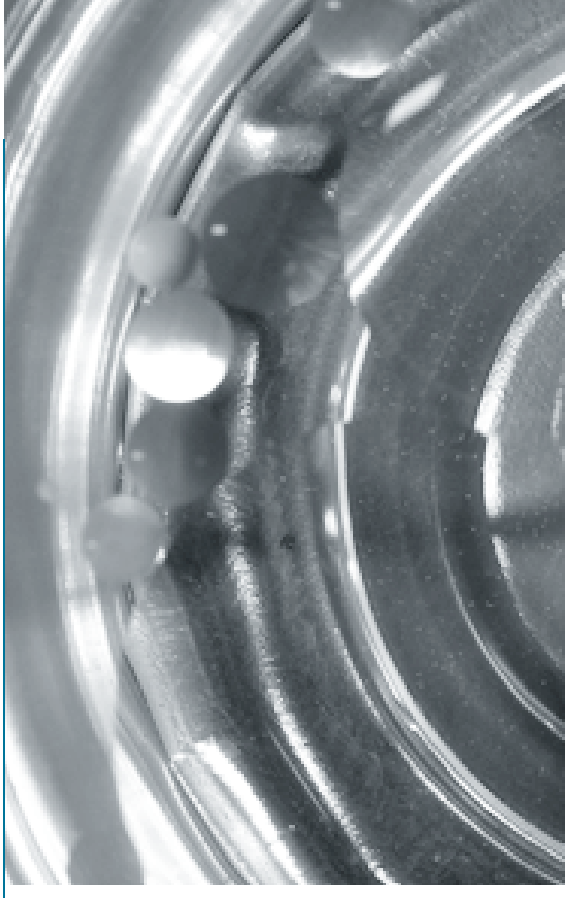

vii. http://www.pops.int/.

viii. "Trade Secrets: A Moyers Report," www.pbs.org/tradesecrets/problem/bodyburden.html and "Inside Bay Area, A Body's Burden: our Chemical Legacy," published originally in *The Oakland Tribune*, www.insidebayarea.com/bodyburden.

ix. Vinyl Chloride, CAS No.75-01-4, first listed in the First Annual Report on Carcinogens, EHIS 9th Report on Carcinogens, revised January 2001.

x. "PVC Bad News Comes in Three's: The Poison Plastic, Health Hazards and the Looming Waste Crisis" Authors: Michael Belliveau, Environmental Health Strategy Center (EHSC) Stephen Lester, Center for Health, Environment and Justice (CHEJ), 12/04.

x. Beverly Thorpe, Clean Production Action, www.cleanproduction.org, in a presentation March 7, 2003 in Toronto.

xi. http://www.emagazine.com/view/?250 as well as www.northjersey.com/page.php?qstr=eXJpcnk3ZjczN2Y3dnFlZUVFeXk4NyZmZ2JlbDdmN3ZxZWVFRXl5NjM4MDY1OCZ5cmlyeTdmNzE3Zjd2cWVlRUV5eTI or http://www.twnside.org.sg/title/1882-cn.htm or www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/vinyl_chloride/index_e.html

xii. http://www.healthybuilding.net/news/braungart-020705.html and www.braungart.com/

xiii. www.soldana.dk/eng/emballagedirektivet.htm as well as "PVC-Free Future: A Review of Restrictions and PVC-free Policies Worldwide," a list compiled by *Greenpeace International* 9th edition, June 2003 and 8th edition, August 2001.

xiv. www.ecvm.org/code/page.cfm?id_page=193&id_presse=9.

xv. "Heathcare without Harm and Green Guide to Healthcare Rating System," November 22, 2004, www.noharm.org, www.gghc.org.

xvii. Letters to Healthy Building Conference attendees from: Fire Brigade Union, UK, 9/30/96, San Francisco Fire Department, 2/1/00, International Association of Firefighters, 4/14/98.

xviii. Healthcare Without Harm: www.noharm.org/pvcDehp/reducingPVC.

xix. www.natureplus.org.

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xxi. For more information on the USGBC's draft TAC report on PVC and the controversy it has generated, refer to: www.usgbc.org/Docs/LEED_tsac/USGBC_TSAC_PVC_Draft_Report_12-17-04.pdf [this link no longer active] here's an alternate: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=153] and www.oikos.com/news/2005/01.html#USGBC Refer also to: www.vinylinfo.org/pressmaterials/press-releases/122204-USGBC.html for the Vinyl Institute's perspective on the USGBC draft report and to http://www.healthybuilding.net/usgbc/tsac.html for critiques from the Healthy Building Network and a range of technical analysts, corporations and NGO representatives.

xxii. Special Environmental Requirements Specification Section may be downloaded at: www.ciwmb.ca.gov/greenbuilding/Specs/Section01350

xxiii. Refer to: http://archive.greenpeace.org/toxics/reports/btf.html and http://archive.greenpeace.org/toxics/pvcdatabase/productalt.html.

xxiv. *Environmental Building News*, January/February 1994, Feature Article, Volume 3, Number 1, "Should We Phase Out PVC?" www.buildinggreen.com/auth/article.cfm?filename=030101b.xml.

xxv. Vinyl Institute Website: www.vinylinfo.org/, Vinyl and the Environment.

xxvi. Vinyl Institute Website: www.vinylinfo.org/, Vinyl and Health.

xxvii. Affidavit of Judith Schreiber, Senior Public Health Scientist with the New York State Attorney General's Office from the case Resilient Floor Covering Institute v. New York State (2003), http://www.ewire.com/display.cfm/Wire_ID/1623 and http://www.rfci.com/

xxviii. http://en.wikipedia.org/wiki/Precautionary_principle

xxix. An international treaty in 1987 arising from the Montreal Protocol www.un.org/documents/ga/conf151/aconf15126-1annex1.htm and www.unep.org/Documents.Multilingual/Default.asp?ArticleID=1163&DocumentID=78&l=en

xxx. www.sfenvironment.com/articles_pr/2003/article/110003_3.htm

. . . and Counting

David Meckel, FAIA

Number of green buildings certified by the US Green Building Council (usgbc.org) as of October 11, 2005: 331 *(USGBC)*.

Number of these buildings that are in California: 46 *(USGBC)*.

Number of LEED Platinum buildings in California: 5 *(USGBC)*.

Location of largest LEED Platinum building in the world: ITC Limited Headquarters in Gurgaon, India *(Engineering News Record)*.

Number of building industry professionals who have earned Leadership in Energy and Environmental Design (LEED) professional accreditation as of June 28, 2005: over 20,000 *(USGBC)*.

Number of correct answers needed to pass the 73 question LEED exam: 39 *(USGBC)*.

Percentage of US energy use by buildings: 40;
Percentage of US electric energy use by buildings: 70 *(2002 Buildings Energy Datebook)*.

Percentage of global population represented by the US: 5;
Percentage of global energy use by the US: 25 *(2002 Buildings Energy Datebook)*.

Largest energy end use in residential buildings: space heating at 33%;
Largest energy end use in commercial buildings: lighting at 24% *(2002 Buildings Energy Datebook)*.

Rank of California in the world as a consumer of gasoline: number 2 (the U.S. as a whole is number 1) *(California Energy Commission)*.

Per capita daily water use in California's central valley: 300 gallons per person;
Per capita daily water use by some of California central coast residents: 50 gallons per person *(Association of California Water Agencies (ACWA))*.

Average amount of water used to manufacture a new car: 39,090 gallons;
Amount of water needed to produce one ton of steel: 62,600 gallons *(US Environmental Protection Agency)*.

Average weight of waste resulting from the construction of a single-family home: 4 pounds per square foot of constructed floor area *(2002 Buildings Energy Datebook)*.

Terms that most architects didn't need in social settings prior to LEED: cellulose insulation with borates, embodied energy, fly ash, geothermal heat exchange, hydrochlorofluorocarbon, pervious paving, stack-effect, thermal bridge, volatile organic compounds, and xeriscape *(McGraw-Hill Construction)*.

Some web sites with green in the url: greenerbuildings.com, greenclips.com, greenhomebuilding.com, greenhomeguide.com, greenfuseenergy.com, greendesign.net, globalgreen.org, buildinggreen.com, igreenbuild.com *(AIACC)*.

Overheard during a LEED panel discussion in Los Angeles: "Don't try to push sustainability with a developer who drives a Hummer." ◉

Continuation

the Illustrations of Carlos Diniz

Peter Dodge, FAIA

Carlos Diniz was one of the greatest architectural draftsman/illustrators of the last half of the twentieth century. In a wide range of mediums he created extraordinary drawings—superb images of architecture and the places the architecture occupied, from small residences to aerial views of great urban expanses like New York or of the desert surrounding Las Vegas. Chuck Bassett, a famous design principal at Skidmore Owings and Merrill, said this about Carlos's work: "Beautiful, technically correct drawings in the finest tradition of the architectural draftsman, assiduously researched, carefully detailed in every part, permitting the mind and eye to examine a sweeping, topographical view of London, or a busy street scene, or an intimate corner of dining terrace with nary a false note or the intrusion of arbitrary license."

In his professional career, which spanned more than four decades, he exquisitely executed more than 2,500 commissions, many of them of some of the most famous buildings of the times for a wide range of prominent architectural firms. I first met Carlos when we were both studying graphics and industrial design at Art Center School in Los Angeles in 1948. From there, he worked in several

Carlos Diniz, Bank of America Building

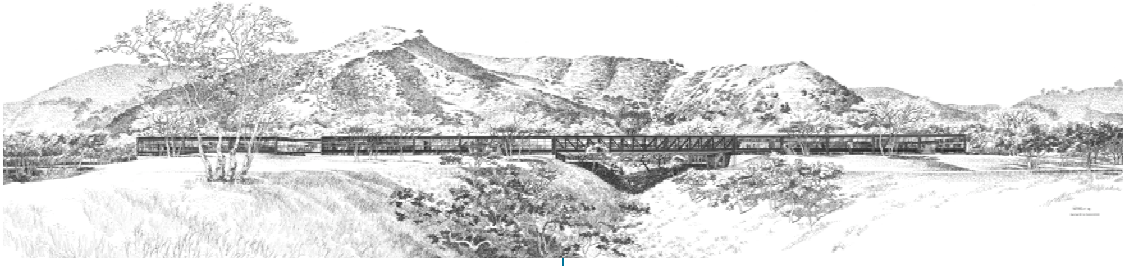


Plate 1: Carlos Diniz, Art Center

architectural offices, ending up at Victor Gruen from 1952 to 1957, where he learned some of the everlasting basics, such as drawing the conceptual images and illustrations of shopping centers and city plans.

In 1962, after he had started his own studio, Minoru Yamasaki hired him to become a part of the team designing the World Trade Center in New York. Around the same time, he was hired to work with SOM on the Bank of America Building in San Francisco. He also illustrated SOM's designs for the U.S. Embassy in Moscow. Then there was Faneuil Hall in Boston for Ben Thompson.

Carlos and I got to work together in the early '70s on Praia Grande, an Esherick Homsey Dodge and Davis design of an 8,000-unit destination resort complex on the southern coast of Portugal. His drawings for this complex were astounding. A coup in the Portuguese government ended that project for everyone. Another set of dazzling drawings for an unbuilt project was created for the Nevada Pyramids in Las Vegas.

A few of the many other world-renowned projects that first came to fame through Carlos's magnificent illustrations are the Century Plaza Hotel in Los Angeles, the Union Station Rehabilitation in Washington, D.C., the Los Angeles Convention Center and the Pacific Design Center, the Central Area Plan and the rehabilitation of the Navy Pier in Chicago, and Canary Wharf in London.

Toward the end of his life, Carlos retired from the studio but never stopped drawing. He said he always was striving to be the Canaletto of our time. At his memorial celebration, there was an exhibit of at least fifty marvelous drawings and paintings of his favorite city, Venice, Italy, that made me think that he may have surpassed Canaletto. ◉

Plate 2 (top): Carlos Diniz, Art Center; Plate 3 (bottom): Carlos Diniz, Canary Wharf

Plate 4: Carlos Diniz, San Marco

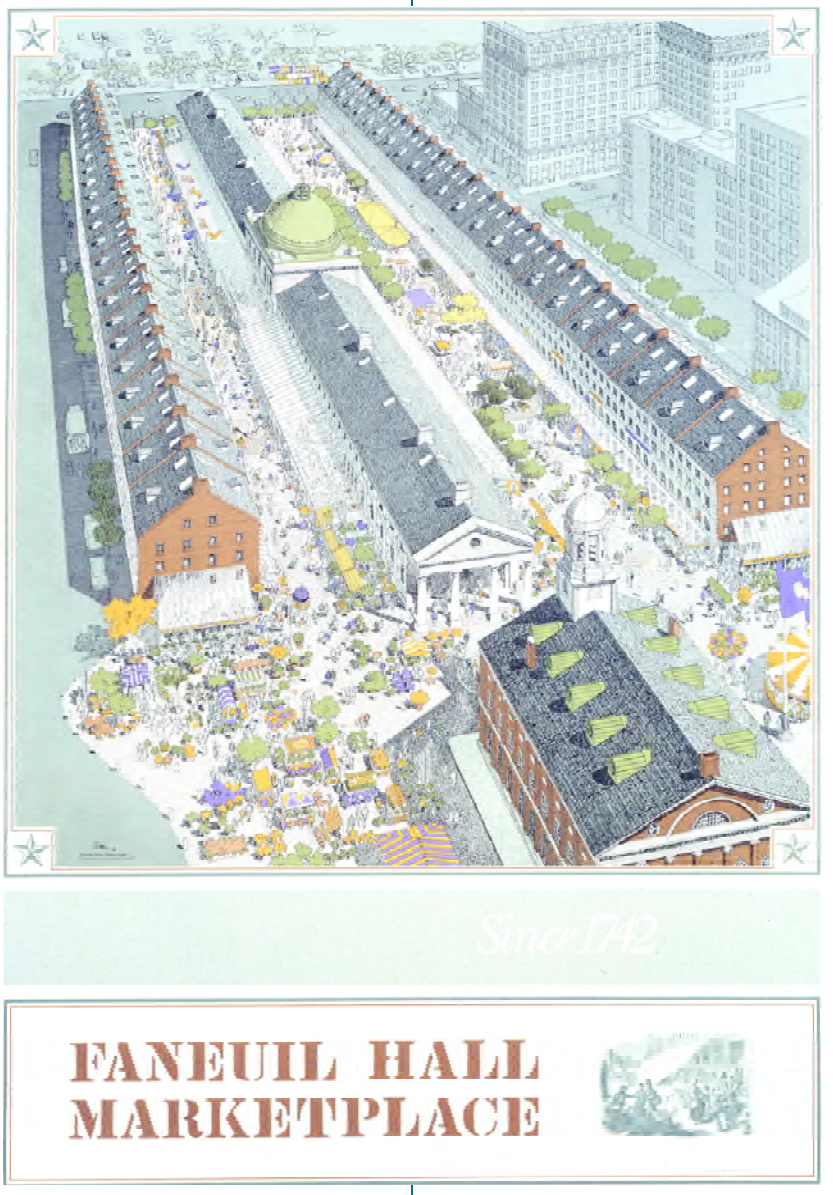


Plate 5: Carlos Diniz, Faneuil Hall Marketplace

Plate 6: Carlos Diniz, US Embassy Moscow

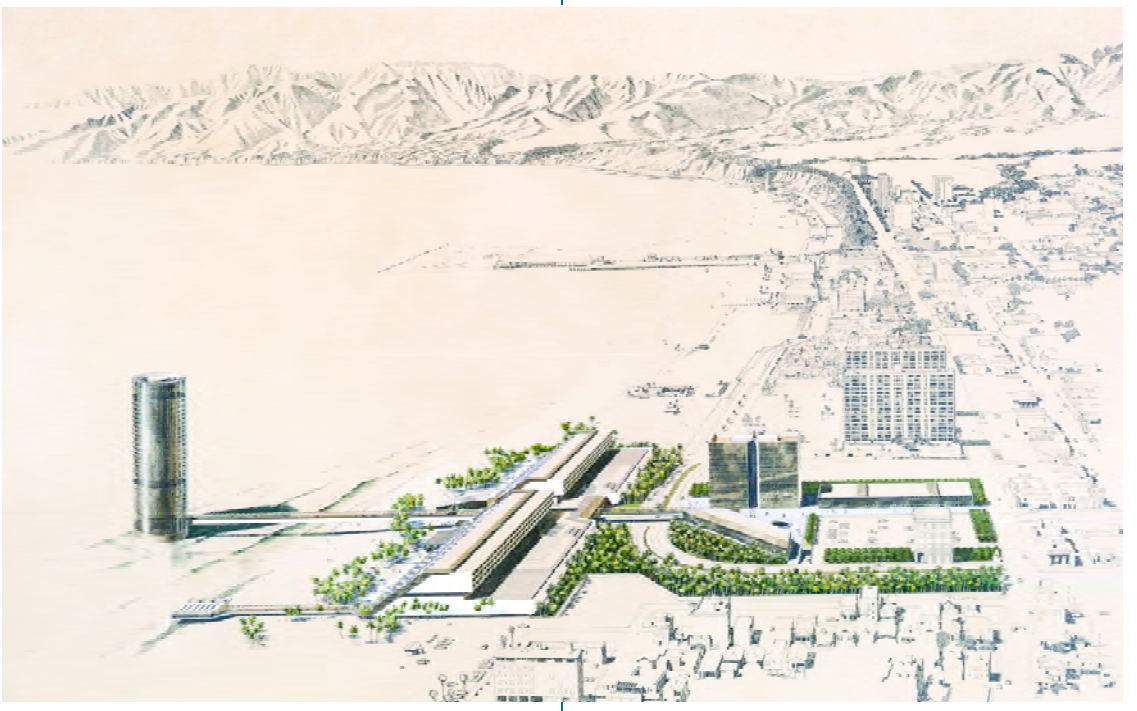
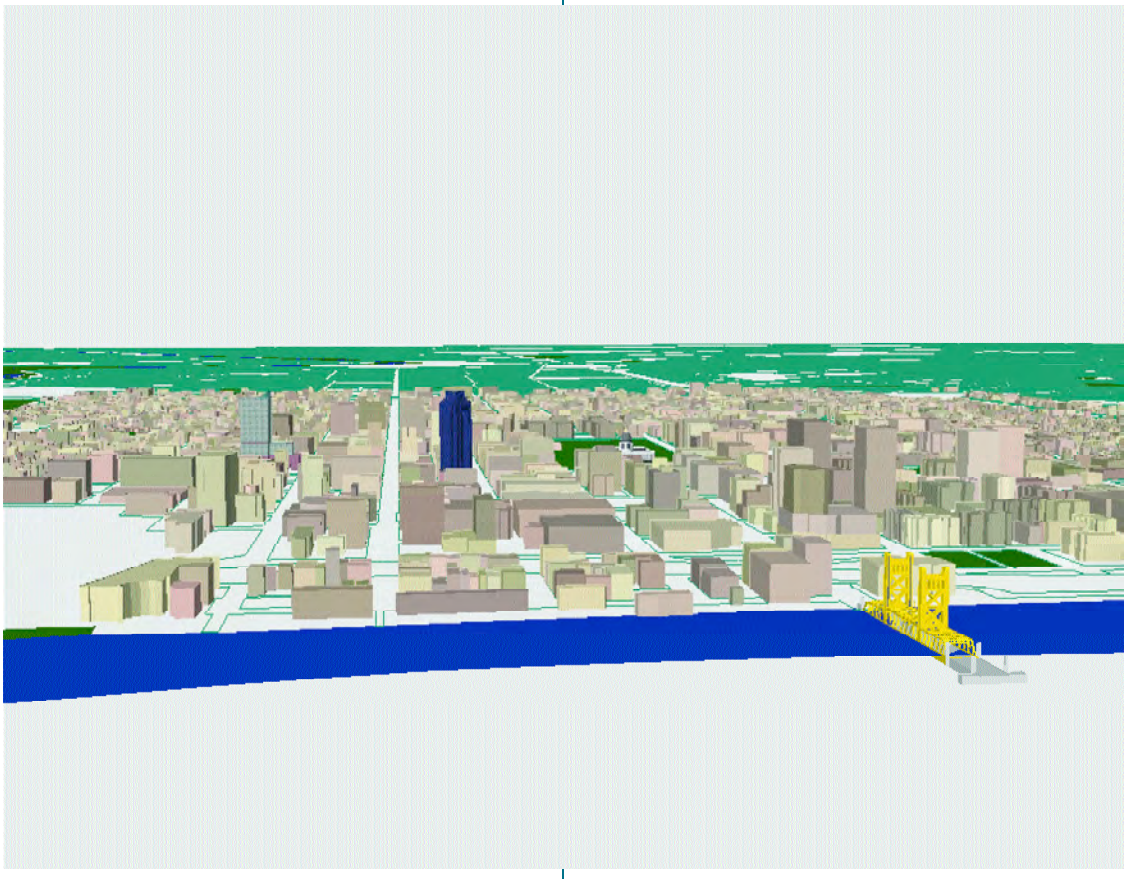


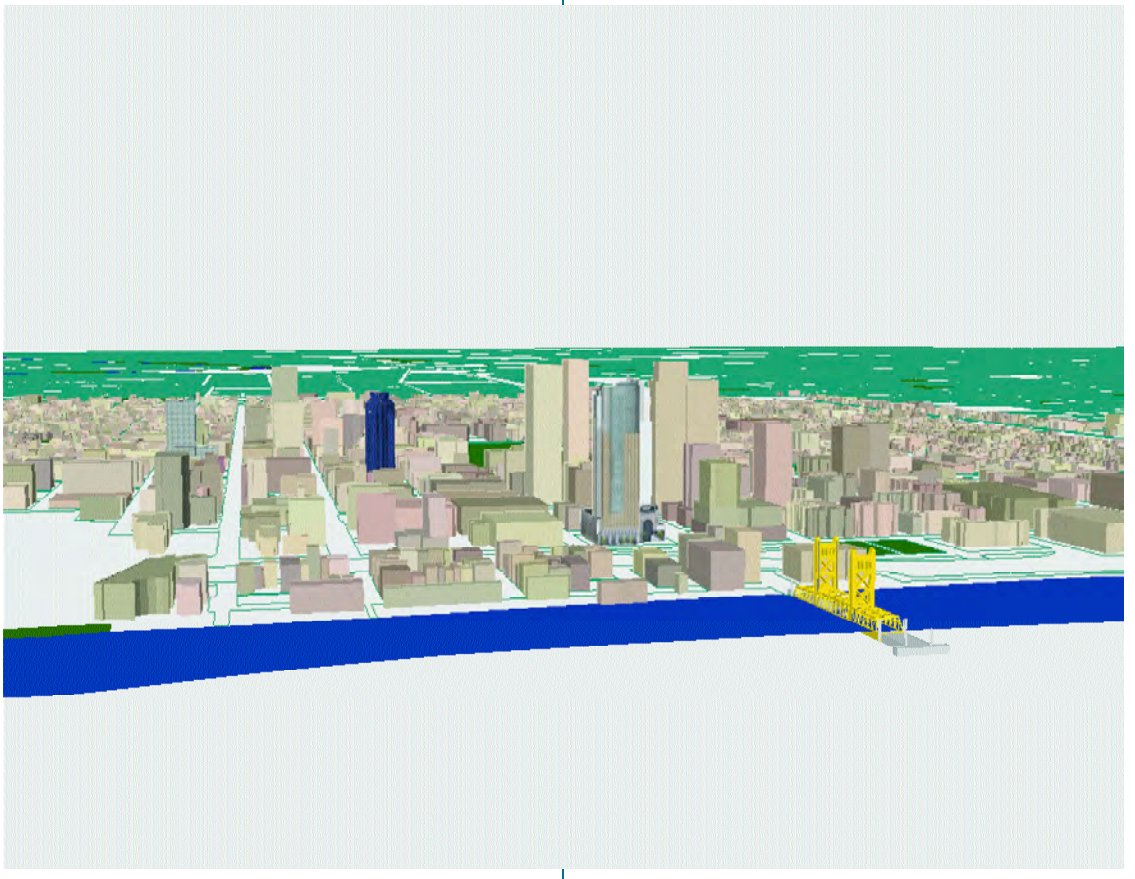
Plate 7: Carlos Diniz, Santa Monica Bay Village

Component Feature

AIA Central Valley



Existing Skyline; courtesy of the City of Sacramento



Skyline Build Out; courtesy of the City of Sacramento

VICINITY MAP

AIA Central Valley:

Leadership for a Growing Region

Phyllis A. Newton, Esq.,
and Michael F. Malinowski, AIA

The Sacramento region has become a hotbed of growth and optimism. Seemingly overnight, the area is transforming from a somewhat sleepy city surrounded by nondescript suburbs to a vibrant, regional center. A similar transformation is underway at the Sacramento-based American Institute of Architects Central Valley Chapter (AIACV).

More than sixty-three years old, the AIACV has historically served its members well by providing continuing educational programs, a biennial design awards competition, annual golf and tennis tournaments, licensing seminars, and a forum for social interaction through monthly meetings often in the form of building tours. Like the region it serves, the Chapter leadership awakened a few years back, took stock of the challenges and opportunities faced by its members, and made a conscious decision to become a leadership resource to the region as it faces dramatic and pressing change.

left: site plan rendering by Sawyer Fisher Rendering

THE REGION UNDERGOES RAPID TRANSFORMATION

According to the Sacramento Area Council of Governments, the population of the six-county Sacramento region is projected to increase from it current 2 million to 3.8 million residents in the next fifty years, with the number of homes doubling from 713,000 to 1.5 million. The City of Sacramento is emerging as the valley's cultural and entertainment center. A vibrant restaurant- and nightlife is evident now on the weekends and is spreading to other days of the week. For the first time, downtown Sacramento has become a destination and a desirable place to live, as evidenced by the numerous high-rise residential projects that are in the works, including a project designed by Daniel Liebeskind, FAIA, and two, fifty-two-story residential twin towers at the base of Capitol Mall. Attracted by a slower pace of life and relatively affordable real estate prices, Bay Area transplants are finding their way to the "Big Tomato."

Growth is always a double-edged sword, bringing both opportunities and challenges. As one of the few remaining frontiers in California, with vast amounts of relatively inexpensive and unspoiled land, Sacramento and the surrounding region are

uniquely situated in both time and place. To be successful, they must glean the richness and diversity that growth can bring, while at the same time avoiding the architectural and regional planning errors made by other jurisdictions.

THE AIA CENTRAL VALLEY EMERGES FROM HIBERNATION

A few years ago, the AIA Central Valley Chapter took a hard look at itself and determined it was relatively irrelevant to the community. As an organization, it was not "at the table" when critical decisions were being made. Civic and government leaders sought out other allied organizations and community activists for input on crucial decisions, as the AIA, when asked, was generally silent. Architects, when they did speak, did so individually or own behalf of their firms. The architectural profession did not have an organized, cohesive presence in the community. The average citizen had no notion of why or how the AIACV, or its members, might be important forces in shaping the region.

Recognizing its civic obligation to contribute, the Chapter began a concerted effort to become involved in important regional issues. It reached out to the community to form strategic alliances with allied organizations and important civic, business, and community leaders. Its executive director set aside some of the more routine duties associated with running a chapter and began attending City Council and other meetings, speaking on the Chapter's behalf on important matters, or offering professional assistance to the community. It did not take long for the Chapter to gain recognition for its increased presence in the community and for initiating a number of exceptional programs that are already making a difference.

A UNIQUE MARRIAGE IS FORMED

Earlier this year, the AIACV and the Environmental Council of Sacramento (ECOS) formed the "Smart Growth Leadership Council," in order to encourage and recognize development projects that incorporate smart growth principles. Under this program, developers voluntarily submit their projects to be evaluated against written smart-growth guidelines drafted and approved by both organizations. If the project meets the guidelines as sufficiently "smart," the project receives a letter of endorsement from the Council that can be used to assist with marketing and the entitlement process. If the project does not initially receive a favorable review, the developer is given an explanation and invited to resubmit after improvements have been made.

To date, two in-fill projects have received the Council's endorsement. The first was Curtis Park Village, a seventy-acre PUD on a hundred-year-old rail yards brownfield site designed by Kuchman Architects / Philip J. Harvey, AIA / ac martin partners. Despite the multi-million dollar toxic clean-up undertaken by the developer and the creation of a variety of housing options that are not currently available in the neighborhood, the project has faced some opposition from neighborhood activists, primarily on traffic-related issues. Because the Council's endorsement will be a useful tool when the proponents seek their entitlements in 2006, certain improvements to the project were voluntarily made.

The second project to receive the Council's endorsement was an eight-story, mid-rise residential and neighborhood retail, mixed-use project in midtown Sacramento—an older residential/commercial area adjacent to downtown with a number of historically significant homes and a distinctive urban flavor. The project, designed by Ankrom Moisan Associated Architects of Portland, introduced cutting-edge architecture to the neighborhood. Again, a few neighborhood activists sought to block the project. When the Planning Commission's approval was appealed to the Sacramento City Council, the Smart Growth Leadership Council's endorsement played a significant role in the City Council's unanimous decision to allow the project to go forward.

By partnering with an environmental organization known for controversy and opposition to projects, the AIA Central Valley is offering the development community a balanced perspective and an innovative incentive to incorporate smart growth principles into projects. The result is something greater than either organization could have achieved on its own.

HELPING SHAPE THE CENTRAL BUSINESS DISTRICT

The Sacramento Central Business District is the roughly 400-block area centered on the State Capitol. Despite numerous civic- and business-led efforts over the years to jumpstart the area economically,

the downtown environs was a virtual ghost town after the five o'clock exodus of state workers. At the root of this lack of energy and nightlife was the scarcity of downtown housing—in particular the kind of housing choices that might bring people back from the suburbs to the City's urban core.

In the last few years, a confluence of changes in market and perception has resulted in a number of proposals for high-rise residential projects in the downtown area. As a whole, these will dramatically alter the existing skyline and the City's demographic geography. Unfortunately, the City's eighteen-year-old design guidelines for the central business district were drafted at a time when high-rise, high-density residential development was so far fetched as to have not been seriously addressed. As a consequence, some of the proposals, while technically adhering to the design guidelines, were viewed by many in the architectural profession as seriously flawed. Given the legacy these structures would leave, the Chapter launched the Design Advocacy Taskforce (DAT) whose purpose is to assist local government in assessing these city-shaping projects.

The Taskforce is comprised of Chapter members who have expressed an interest in reviewing major projects about to undergo the City's design and planning review. The Chapter notifies its members of upcoming public hearings and provides access to the staff reports prepared by City personnel. The Chapter also obtains and makes available a copy of the developer's submission packet to Taskforce members who wish to view it, either individually or in a forum organized by the Chapter. Taskforce members are also encouraged to provide either written input on the proposed project for inclusion in the public record or to address the permitting entity at public hearings. A procedure by which the Chapter itself may take an official position relative to a particular proposal or issue is currently being discussed.

By speaking out on significant projects, some of which have been designed by Chapter members, the Design Advocacy Taskforce is entering relatively uncharted territory but providing valuable, professional input to civic leaders.

DEVELOPING A CENTER FOR COLLABORATION

Realizing that the transformation of Sacramento into a great urban center will require the efforts of a number of related disciplines working closely together and a partnering of civic and private enterprise, the AIA Central Valley is also at the beginning stages of developing a collaborative design education center. This shared facility is envisioned as bringing together, in one place, a number of public benefit and non-profit organizations that attempt to influence the shape of the built environment. As an educational resource where the public can learn about good design, livable communities, smart growth, and sustainability through gallery exhibits, lecture series, and an informational repository, the AIACV envisions this center as an important resource not only to members of the various organizations but also to community leaders and the public at large. By sharing common facilities and perhaps staffing, the center may offer each of the participating organizations efficiencies and opportunities that would not exist operating independently of each other. Intended for an urban setting undergoing revitalization, the center will put into direct action some of the principles the AIACV espouses.

PUTTING THE PIECES INTO PLACE

Change takes time and effort. Charting its new course has taken the Chapter four years, and it is still a work in progress. A new executive director has brought passion and vision, but the changes have been deliberate and thoughtful. Through events such as breakfast roundtables, the Chapter has sought to inform its members and engage them in the new direction upon which it has embarked. As the Chapter adds new initiatives and assumes a greater role in the region, further change will be inevitable. Within the next few years, the AIACV hopes to be a dynamic organization, actively engaged in shaping the region, well known and respected by government and business leaders and the public at large. Relevance, after all, is the reason it began its transformation. ◉

For more information, please contact AIA Central Valley Executive Director, Phyllis Newton, Esq, at 916-444-3658 or 916-444-3658 or pnewton@aiacv.org.

Under the Radar

Strawberry Stand Wetland Learning Center

San Dieguito River Park, Del Mar, California

ARCHITECT: Rinehart Herbst: Catherine M. Herbst, Stella Murphy, Todd Rinehart

ENGINEER: Endres Ware: Paul Endres

CLIENT: San Dieguito River Park, Joint Powers Authority Dick Bobertz, Director

PHOTOGRAPHY: Greg Yeatter and Brighton Noing

Eric Naslund, FAIA

Set at the interface between suburban development and the wetlands of the San Dieguito River, the Strawberry Stand Wetland Learning Center, by Rinehart Herbst of San Diego, presents a modest but powerful landscape presence. The Learning Center, at a miniscule 532 square feet, deftly gathers up and makes sense of its setting, belying its tiny footprint.

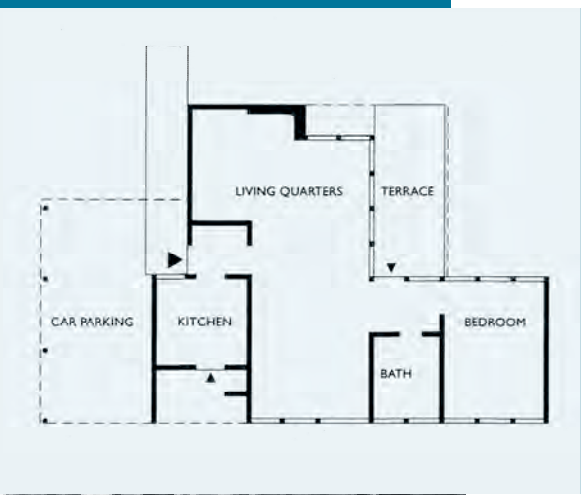
Its program is a simple one: provide an outdoor pavilion for small groups—mostly local schoolchildren—to observe and learn about the watershed. The architects were tasked with fitting this program on and into a much beloved roadside strawberry stand. The stand is a gabled shed without foundations that had served the local produce market for many years. Made of rudimentarily crude stick-frame construction, the shed nevertheless had a certain honest integrity that seemed fitting to the architects. Their appreciation of it, along with the realities of a $60,000 budget, formed the starting point for the design.

Rinehart Herbst stripped the shed to its skeleton and extended the framing towards the river. The extension telescoped the shed form to make an expansive view portal that also gives the center an iconographic presence. This portal carefully frames

one's views of the wetlands while screening out nearby development and the Interstate 5 Freeway. The frame is wrapped with sandblasted Polygal sheathing and metal roofing. A foundation was made by lifting the shed onto wood beams, which are anchored in a floating position by helical piers. Finally, lateral forces were ingeniously resisted by a series of three tension cables that wrap the building like a ribbon on a birthday present. These cables are anchored to the foundation beams on both sides of the structure, cinching the frame to the ground.

The result is a straightforward and delicate building that lightly places itself in the land. The Strawberry Stand Wetland Learning Center is a temporary structure intended to serve only a few years until a more permanent visitor's center can be constructed. The building can be removed and easily placed in another location. Let's hope it will always be in service somewhere in the River Park, as it seems so at home there. ◉

Coda



Los Altos Neutra

Miltiades Mandros, Assoc. AIA

In 1999, Dion Neutra, the son and partner of Richard Neutra, asked if I would locate and document the condition of the some twenty Neutra projects built in Northern California. I did, publishing a survey of my research, "Northern California Neutra: 20 Projects," in *_LINE*, the on-line journal of AIASF, in 2003.

One of the most fascinating of these projects is the "Three Small Houses in an Orchard" (1939), as Neutra referred to them, erected on a single lot in a former orange grove near downtown Los Altos. Jointly owned by three friends, they were not only Neutra's smallest houses but also the only example in his work of communal or semi-communal living. Despite their modest size (940 square foot twins and an even tinier 450 square foot cabin), all exhibited Neutra hallmarks: thin, cantilevered roof planes, steel-framed ribbon windows, open plans, plenty of built-ins, and a horizontal orientation reaching out seamlessly to the surroundings.

The trio survived intact until the early 1980s, when the streetside twin was demolished to make way for a new house of far less character. In 1999, the owner of the remaining houses, John Gusto, asked me to design an addition to the larger cottage; we learned, however, that the cottages were on the local historic register, making an addition impossible. Frustrated, Mr. Gusto tried to sell the property, but the restrictions frightened away buyers.

I sought other options. Although it allowed no *addition,* the city did agree to allow *demolition* if a buyer disposed to sympathetic restoration were not found. I tried mightily to garner interest. The help of Joseph Rosa (Curator of Architecture and Design at SFMOMA at the time) brought nibbles but no deals. Mr. Gusto considered moving the larger twin to property he owns in the foothills of the Sierras. Barbara Lamprecht, author of the definitive work on Neutra, asked the owner of Neutra's 1934 Beard House in Altadena to consider moving the house to his property—a promising tack that ultimately bore no fruit.

Meanwhile, Mr. Gusto found a buyer who wanted the site merely for its location. Demolition seemed assured. I besought the Historical Commission and other agencies to save this important part of the local heritage—small but significant early modernist American buildings, which could be restored and reused for civic purposes. Eventually, a group on the Historical Commission got behind the idea. Potential sites were considered and possible uses discussed. Early in 2005, the City Council agreed to accept donation of the larger house if the cost of relocation and restoration were privately raised.

Local interest has grown exponentially, and more than $150,000 has been raised. As of early October, neither the expected donation of the house nor the move itself has occurred, but a site has been selected. The house itself, empty, waits patiently. ◉

Editor's note: On November 20th, as we were going to press, the house was finally to be moved.