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Urban Land - June 2005 - Feature

The Business Case for Green Building

by Jonathan F.P. Rose

Green building makes for a healthy bottom line.

Scientists say Earth is in the midst of its sixth great extinction, with the most rapid decline in species diversity the planet has ever seen. Billions of people have only polluted water to drink; fish are filled with mercury, a potent neurotoxin; climate change threatens the world's agriculture; and at some point in the near future, oil and natural gas production is likely to begin a steady, permanent decline (see page 144). Clearly, the current way of doing business is not sustainable. The preponderance of evidence indicates that humankind is rapidly destroying its most precious gift: a planetary biosphere that may be the only one of its kind in the universe.

To become effective caretakers of the planet, people need to find a path that makes both good environmental sense and good business sense. And there is no better place to begin that effort than in the real estate industry. For all their flaws, sports utility vehicles account for only 3.5 percent of America's energy use, while commercial, industrial, and residential real estate represents nearly half of the country's energy consumption.

Fortunately, the real estate industry is responding. Developers and architects are finding ways to earn profits while they reduce the environmental impact of buildings and homes. At the same time, customers are acknowledging that protecting the planet matters to them, too, creating a surge in demand for green housing. The federal government is pursuing a green building program, and corporations are moving employees to smart growth locations and putting in place healthy office spaces.

In years past, green construction accounted for only a fraction of new construction. Now, the green market is expanding into the mainstream and may well surpass traditional construction within a decade. Successful green buildings are providing models for others to duplicate, and the growing market for environmentally responsible products is making it easier for architects to specify green materials.

Affordable green housing also is growing rapidly. Last year, the Enterprise Foundation and the Enterprise Social Investment Corporation, along with the Natural Resources Defense Council, launched the Green Communities Initiative, a five-year, \$550 million program that provides grants, loans, tax-credit equity, and technical assistance to help builders and community organizations deliver affordable housing units that meet green criteria related to location, energy efficiency, and use of healthy and environmentally friendly materials. Today, dozens of states have incorporated green criteria into their low-income housing tax credit programs to encourage developers of affordable housing to go green without sacrificing profitability. In addition, organizations such as Global Green USA are providing communities, developers, investors, and homebuyers with information about building green homes.

What makes a home green? Like everything in real estate, it is all about location, because it is nearly impossible to build a green home amid suburban sprawl. Some homes in sprawling developments may provide a healthier living environment and be more efficient than others, but few are likely to be truly green because more energy will be consumed traveling to and from the home, and sitting in traffic, than can be saved through energy efficiency in the home.

Green projects, ideally, should be located within walking distance or a short drive of mass transit, shopping centers, jobs, and schools. This factor alone can reduce a resident's gasoline consumption by 72 percent annually. Because 9 million single-family homes, or 20 million townhouses, could potentially be built on vacant urban brownfields, there is plenty of urban land that meets this criterion.

Another component of a green home is design. Green homes maximize exposure to sunlight and fresh air. Homes flooded with sunlight save significantly on electricity because of reduced reliance on artificial heating and lighting. Outdoor air, even in large metropolitan areas, is almost always healthier than recirculated indoor air—a particularly important consideration in inner cities where asthma is 40 to 50 percent more common among minority children than in the overall population.

A third component of green homes is the use of materials with low environmental impact, including recycled products and products that are more durable than those typically specified. Low-impact materials include spray-in cellulose insulation and Hardiplank siding. Spray-in insulation costs about the same amount as traditional insulation, but it is made from recycled material and is treated with borax, a natural compound that makes it fire retardant and acts as an insecticide, minimizing the need to apply dangerous chemicals to control pests. Hardiplank is a nontoxic, fiber-cement material that holds paint twice as long as wood siding, minimizing maintenance costs and environmental impact.

The fourth main component of green homes is the use of nontoxic carpets, paints, and adhesives. Although certain ingredients, such as lead, have been removed from building supplies, many harmful chemicals that release volatile organic compounds (VOCs) into the air are still used. However, demand for green homes has reached a point that it is profitable for manufacturers to offer environmentally friendly alternatives, such as zero- and low-VOC paints.

One environmentally friendly project is Eaton Row, a mixed-income community of urban homes that will be completed this month in New Haven, Connecticut, by one of the nation's first green developers, the for-profit Affordable Housing Development Corporation (AHDC), based in Katonah, New York. The community will complete Monterey Place, a HOPE VI project by Beacon Corcoran Jennison. Eaton Row will include 30 affordable and market-rate homes that are being sold to first-time homebuyers in a neighborhood that once was among the poorest in New Haven.

AHDC estimates that the cost of building green is 2 percent higher than for nongreen construction. However, the homes qualify for a Fannie Mae energy-efficient mortgage in a program through which monthly energy savings provided by certified green homes are added to the borrower's income. This, in turn, increases the homebuyer's borrowing capacity significantly, with the result that these homes are within the means of more buyers than they would have been had they not been built green. AHDC spent an extra \$3,500 per home on green construction, but that cost was more than offset by an increase of \$16,000 in borrowing capacity per homebuyer. This made the community much easier to sell, and it gave AHDC an opportunity to increase its margins by offering buyers the option of using some of the increased buying power to purchase upgrades for their new homes.

Commercial developers can benefit as much, or more, from green building practices as do residential developers. A 2003 report to California's Sustainable Building Task Force, titled *The Costs and Financial Benefits of Green Buildings*, found that a 2 percent investment in green construction at the outset of a project can generate a 1,000 percent return over 20 years. The report states that "an initial upfront investment of up to \$100,000 to incorporate green building features into a \$5 million project would result in a savings of at least \$1 million over the life of the building, assumed conservatively to be 20 years." The financial benefits for owners and lease holders include lower costs for energy, waste disposal, and water; lower operations and maintenance expenses; and savings from increased productivity by and improved health for employees. This report adds to a growing body of evidence that green building makes sense from both a financial and health standpoint.

Green building is quickly reaching critical mass. The generation of architects now entering the workforce has been trained to take the environment into consideration during building design, bringing a level of expertise to the industry that previously was nonexistent. Local and state governments in dozens of states have implemented building codes and construction requirements that emphasize green development. Suppliers of everything from timber to refrigerators now offer environmentally friendly and energy-efficient products, and strong demand for these items allows manufacturers to leverage economies of scale to cut costs. Consumers, whether their primary concern is health, environmental protection, or long-term cost savings, have demonstrated a preference for green homes and offices.

From a business perspective, green building helps to produce a healthy bottom line. A recent study by Turner Construction, *Green Building Market Barometer*, found that 84 percent of executives involved with green building believe that green construction yields higher property values. Furthermore, 75 percent of those executives said their green properties earned a higher return on

investment than their other buildings.

Having a socially and environmentally motivated mission makes it easier for businesses in the real estate industry to recruit, and retain, top talent. Communities are more likely to support green projects than traditional projects, and it is easier for such projects to qualify for many government contracts, subsidies, grants, and tax credits. The real estate industry can prosper by making environmentally responsible decisions, and, at the same time, communities and the health of their inhabitants will stand to prosper as well.

Jonathan F.P. Rose is on the board of trustees of the Enterprise Foundation and the Natural Resources Defense Council, and is president of Jonathan Rose Companies LLC, a green developer.

FEATURE BOX

Green Leases for Greener Buildings

Tenants who care about the environment and who recognize the impact of environmentally responsible living often apply those values when deciding where to locate. While there have been quite a few examples of tenant-driven environmental initiatives in recent years, examples of landlords driving their tenants to make improvements are rare. Why is that? And could green leases help tenants and owners to better share the load of delivering more environmentally friendly buildings?

Asset optimization is the property industry's mantra, and return on investment is the simplest way to achieve it. Buildings that use less energy, water, and material resources in operation should cost less to run and, therefore, produce better returns for both owners and tenants. But the challenge, to date, has been how to share those returns.

The argument, says Mike Hefferan, director of the Queensland, Australia, University of Technology (QUT) Sustainable Living Initiative, is like that between two sailors sitting at opposite ends of a leaky lifeboat arguing over whose end is leaking. "It really shouldn't matter," he says. "With the right mechanisms in place, everyone should be better off."

QUT is one of a number of research organizations and industry groups looking to address imbalances in the tenancy/landlord split of responsibility for the environment because, to the general population, there is no distinction between the environmental performance of tenants and that of the buildings they occupy—both need improvement. Discussions in Australia about green leases have tended to focus on the leases for green buildings, such as the Australian Conservation Foundation (ACF) showcase 60L building in Melbourne and the more energy-focused lease for the New South Wales police headquarters in Parramatta. But a greater opportunity may exist in the property sector's nongreen majority, where the potential for delivering strong returns on investment, greater appeal for tenants, and stronger support from investors has yet to be fully explored.

"When a tenant is searching for a way to decide between one property and another, environmental and social factors can be the difference between a deal and no deal," points out Andrew Junor, general manager of asset management for Sydney-based Investa Property Group.

Green leases, though rare, come in a range of shades, depending on the building and who is driving the green agenda. The lease at the 60L building in Melbourne represents one extreme, where the owner and tenants are all bound to a lease document that specifies the highest level of environmental performance. In this case, the building's majority tenant, the ACF, and all the other tenants were willing to commit to specific environmental obligations relating to their use of the space, buildout materials, and expectations for comfortable conditions.

In contrast, the New South Wales Police Service's new Parramatta headquarters has a tenant-driven green lease agreement that puts responsibility for building performance squarely on the landlord's shoulders. If the building's energy performance slips below 4.5 stars on the five-star Australian building greenhouse rating (ABGR) system, the tenant's rent is reduced by the amount of any increase attributable to the higher energy use.

A recent deal struck by the South Australian government has followed suit, but gone one step further by linking a landlord's fixed annual rent review to achievement of a five-star ABGR rating: if the owner does not maintain five stars, there is no rent review. According to James Young, Colliers International's head of leasing in South Australia, the principle is reasonable in cases where a building is marketing its environmental credentials. "Tenants are entitled to say to owners, 'If you're going to crow about it, how about you put it in the lease,'" he says.

These two government-initiated deals are perhaps at the leading edge of an increasingly common

expectation among tenants—that environmental requirements be spelled out as a precondition for a lease. Technically, this “comply or find another tenant” phenomenon does not fall into the green lease category—the green requirements do not necessarily make it into the lease—but it can have the same effect, because landlords and developers can be left with little alternative but to yield. Many of Australia’s large accounting firms and state governments have started exerting their influence in this way, and it is a pattern that is set to continue because “the market is headed in the direction where buildings are going to have to demonstrate improvement,” Young says.

To be effective and mutually beneficial for both the tenant and the owner, green leases need to include the following:

- Appeal for both parties. A landlord-initiated green lease needs to appeal to tenants. Though this may seem obvious, it is a key feature distinguishing it from tenant-initiated conditions, many of which can be very hard for building owners to satisfy. It should not necessarily be hard to create leases that appeal to both landlords and tenants, however, because most environmental initiatives cut running costs and, therefore, occupancy costs as well.
- An atmosphere of trust and confidence. Both parties can find the idea of consenting to unusual requirements that oblige them to cut their environmental impacts a bit scary. This is even more the case when there is an underlying fear that the other party is not being completely open and honest. Junor concedes that this is one of the biggest challenges for green leases, particularly when the parties have no past history on which to draw. “New relationships tend to be a lot harder than those that have developed over a period of time,” he says. The structure of tenant advocacy arrangements can also create difficulties wherever they separate the parties and limit the flow of information.
- Shared obligation. While some existing green leases impose obligations on the tenant, it tends to be only the landlord who has exposure to financial penalties. This may seem a bit surprising, given that tenants directly account for about 40 percent of energy use and almost all of the landfill waste generated in a typical commercial building; indirectly, of course, the occupants are responsible for all of it. Recognition, for example, that to a great extent the level of water consumption and the energy used for air conditioning is dictated by tenants’ buildout decisions can provide the starting point for creating truly efficient whole-of-building services.
- Enforceability. If green lease conditions are to be taken seriously and achieve outcomes, they must have the same legal standing as other requirements—that is, they must be enforceable.
- Specified damages for noncompliance. If a green lease is to appeal to tenants, a breach must carry a punishment that fits the crime. For example, failure to switch all the lights off in a unit after hours should not void a lease, but there should be some accounting for the fact that the overall performance of the building will suffer.

Green leases can constitute an acid test to determine whether tenants are sincere when they ask for environmental standards, Young says, because if tenants are truly passionate about environmental performance, they will agree that they, too, should accept specified damages if they do not meet reasonable guidelines.

Major commercial and government tenants are not likely to drop their demands for better environmental performance in the commercial office market anytime soon. It is in the industry’s best interests, therefore, to start looking at green lease conditions as a means of sharing the costs and benefits of better environmental management.

Success will bring better outcomes for tenants, owners, and the environment. Failure, on the other hand, introduces the prospect of the industry being divided into those buildings that satisfy tenants who have a specific interest in environmental performance, and those that do not.—**Craig Roussac**, occupational health and safety and environment manager for Investa Property Group, and a member of the Property Council’s New South Wales, Australia, Sustainable Development Committee (Adapted, with permission, from Property Australia magazine, November 2004.)

FEATURE BOX

Crunching Green Numbers

The U.S. Green Building Council plans this summer to roll out national Leadership in Energy and Environmental Design (LEED) standards for single-family homes and low-rise multifamily projects. In addition, LEED for neighborhood developments, which will create national standards for neighborhood design that integrate green building principles and smart growth, is being developed and will be ready for testing in a pilot program later this year or early next year, according to Jennifer Henry, who is leading the project.

While these programs are likely to accelerate green urbanism—a moniker for the convergence of green building practices and new urbanism—successful examples of the movement are already springing up nationwide as a number of developers cash in on the growing market for green buildings.

"As the public becomes more aware of the benefits of green buildings, people will demand it in their homes, too," says Mark Palmer, green building coordinator for San Francisco. He notes that green homebuilders are already finding a strong market among people with allergies and the nation's estimated 55 million "cultural creatives," an altruistic, environmentally conscious group of consumers characterized as being better educated and having higher incomes than average Americans. "Builders who are building at these higher standards are distinguishing themselves from other projects and selling higher," Palmer suggests.

Bob Massaro, founder and president of Napa, California-based MCM Healthy Buildings, says he has been building environmentally friendly residential projects for 15 years. "When I started Healthy Buildings, it was for altruistic reasons—it was something I felt was needed," he says. "I thought it would be an uphill battle getting clients, but I got clients because I was building green. It has been a tremendous advantage."

Demand for green homes is so strong in the Seattle area that homebuilders at Issaquah Highlands cannot build fast enough to keep up with demand. The project's Built-Green Idea Home costs about \$20,000 more than a conventionally built home of similar size, but is built to last, requires low maintenance, provides healthier air, and meets energy- and water-efficiency standards that reduce utility bills by 30 to 50 percent.

Brewery Blocks, a green mixed-use project in Portland, Oregon's eclectic Pearl District, was 85 percent leased within a year at above-market rents at a time when the market was depressed and the city's unemployment rate was the highest in the nation, according to Tom Cody, director of development for Portland-based Gerding/Edlen Development LLC. The 1.7 million-square-foot project generates electricity using photovoltaic power—a solar energy system—then sells it back to the utility when the project's output exceeds demand, turning the meter backward when occupants are away. Other features include window glazes that maximize daylighting and thermal comfort, and the use of nontoxic building materials and products that emit a low level of volatile organic compounds (VOCs) to ensure healthy indoor air. The green elements, which represented about 1 percent of the total project cost, will pay for themselves in about 8.5 years, based on direct annual savings of more than \$58,000 on energy costs, Cody says.

Similarly, the multifamily component at Highland's Garden Village, an environmentally friendly, mixed-use community ten minutes west of downtown Denver, was 98 percent leased when Denver's occupancy rate dipped to 80 percent, according to New York-based developer Jonathan F.P. Rose.

In downtown Houston, Hines leased 85 percent of the 600,000-square-foot Calpine Center, a green office project, before it opened last fall at a time when the city's office vacancy rate was 20 percent and rents were falling. The building's good indoor air quality is what sold tenants, says Hines vice president John Mooz, explaining that a filtration system eliminates pollutants from outside air, which is bathed in ultraviolet light to kill airborne microbes and distributed on the interior from the floor.

According to Atlanta developer Jim Jacoby, Atlantic Station, a green urban infill project currently under construction in Atlanta, has presold about 2,300 units and has reservations for another 2,000. Additionally, nearly all 500,000 square feet of the project's first office building has been taken and 80 percent of the retail space is leased. "People are so hungry for this; they want to move back into the city," he says. The \$2.6 billion project, which is recycling a steel mill as a pedestrian-oriented, mixed-use community, will eventually have 10,000 residents and be the site of 30,000 jobs. Every building on the 140-acre campus is being built to green standards, with a goal of LEED silver certification for the office and retail space.

Virginia developer John Clark has not even broken ground at Haymount in Caroline County, Virginia, but all 4,000 dwellings planned there are sold, he says. Situated on 1,650 acres, this environmentally friendly traditional neighborhood development about 55 miles south of Washington, D.C., will include all residential types, 250,000 square feet of retail space, and 500,000 square feet of commercial space.

The popularity of green buildings is increasing in step with rising energy costs, Clark contends, and there is no doubt that homebuyers are willing to pay extra for energy-saving features, such as Energy Star appliances, high-performance windows and doors, and renewable energy systems. "An increase in energy costs—both real and imagined—is making green more competitive economically, and that's the battlefield where it needs to be settled," he says. "Over the next ten years, this will become the predominant form of development as concern about the future, global warming, and the energy crisis intensifies."

North Charleston, South Carolina, is getting Noisette, a 350,000-acre, environmentally friendly traditional neighborhood development, which eventually will include 5,000 to 7,000 dwellings and 10 million square feet of commercial space. South Carolina developer John Knott broke ground on the project four years ago, and 700 families, mostly young professionals and empty nesters, have

moved in.

The 1,300-acre Easton Bay mixed-use community in northwest Florida brings together a blend of old and new ideas. The Easton Bay code requires builders to build an “inheritable” house—one that will last 50 years or more—and sets minimum standards for sustainable development that address energy efficiency and indoor air quality, says Florida developer Julius Poston. Standard features include geothermal heat pumps, high-performance windows and doors, and efficient appliances to meet the community’s requirement that energy use be reduced by at least 50 percent compared with conventional development.

The Midwest has Coffee Creek Center in Chesterton, Indiana, and Prairie Crossing, just outside Chicago, both of which are green urban villages with a mix of housing types and commercial space. Coffee Creek, which is being built by First Erie Land Co. on a 640-acre site, is using renewable energy resources, including solar, wind, and geothermal power, and high-performance building products and equipment to reduce energy consumption and minimize use of nonrenewable resources. The project, which will have 2,000 housing units and retail and office space, uses daylighting design, ventilation, building orientation, and healthy building products to create well-lit, healthy environments for occupants.

Prairie Crossing, a 677-acre community that is a 40-minute ride from downtown Chicago by Metra commuter rail, has 359 single-family homes, 95 percent of which have been sold, and 36 condominiums are under construction in the project’s town center. The developer, Prairie Holdings Corp., uses U.S. Department of Energy–approved green construction techniques throughout the community to achieve 50 percent greater energy efficiency than comparable homes in the region.

Terramor, a 260-acre green-built community on Ladera Ranch in south Orange County, California, is the largest solar-powered project in the nation, with about half of its 1,260 residential units using photovoltaic systems, according to Steve Kellenberg, Terramor designer and principal architect at the Irvine, California, office of EDAW, Inc. Overall, the project, which incorporates other energy- and water-saving features, is expected to consume 20 percent less electricity and water than a conventional development.

The largest sustainable development in the nation by far is Denver’s Stapleton project by Forest City Enterprises. According to Hank Baker, senior vice president for Forest City Stapleton, Inc., residential development there must at least meet the energy-consumption reduction goal for the overall community of 40 to 70 percent, as well as reduce water consumption and provide healthy indoor air. Commercial projects, including retail and office space, schools, and medical facilities, must meet LEED silver certification standards.

The notion that commercial green building costs more than conventional construction is being dispelled. For example, at Nortel’s 97,000-square-foot research building in Toronto, it cost \$291,000 more to install energy-efficient windows with an R5 rating for resistance to heat flow rather than use standard R2-rated glass, but the high-performance glass enabled the developer to downsize the heating and cooling plant, saving more than \$1 million on the entire project. The windows will help Nortel save \$42,800 annually on energy costs, so they will pay for themselves in just six to eight years—not counting the \$1 million in savings on the plant.

The cost differential for a green home depends on location, what goes into it, and which company builds it. While green elements can add as much as \$30,000 to a home’s price, Rose notes that standard green features at Highland’s Garden Village add \$3,500, or 2.3 percent, to the cost of a \$150,000 home. Massaro at Healthy Buildings says he is building environmentally friendly, zero-energy homes—achieved through the use of photovoltaics, low-emissivity glass, and other technologies—that cost 20 percent less than the rest of the area market.

Additionally, Marty Keller, director of construction management for First Community Housing, an affordable housing developer in Redwood City, California, is building sustainable, affordable units at a cost midway between the highest and lowest comparable projects in the region. Green features in these units include photovoltaic energy, Energy Star appliances, low-emissivity windows, healthy indoor air, and linoleum floors, which outlast vinyl and are made of cork, a renewable resource.

The public sector has a vested interest in sustainable development and continues to be a motivating force in moving private developers to greener practices. Though only a few local governments nationwide have established sustainable building codes so far, industry experts expect it to become more commonplace if developers do not voluntarily start implementing sustainable practices themselves. Governments should provide incentives, but they also need to update building codes and zoning ordinances to open the door to innovative products and development strategies. For example, the Los Angeles plumbing code does not allow use of new urinal designs that have no flush mechanism.

“So far, environmentally responsible design-build has not been part of the dialogue, but it should

be," says Cody, noting that Gerding/Edlen's goal is to apply what it learned in Portland to other cities. The company is currently at work on the first green mixed-used project in downtown Los Angeles, he adds.—**Patricia Kirk**, a freelance writer based in Dallas, Texas

FEATURE BOX

The Bottom Line on Daylighting

Most businesses pay minimal attention to the important role windows play in the work environment. The introduction of ample daylight into the workspace—a practice architects refer to as “daylighting”—can boost employee productivity and well-being. “A range of studies shows that daylight boosts people’s psychological and physical health,” says David Hobstetter, a principal with KMD Architects in San Francisco. “This not only means fewer sick days, but also a more positive attitude toward work. People take fewer breaks, work more efficiently, and are not as likely to develop hostility toward their employer.”

More than that, says Hobstetter, people exposed to adequate levels of daylight appear to think more clearly and perform more skillfully than those with less access to the sun, especially those with no access at all. “Daylight seems to affect our thinking in ways we don’t realize. It makes us sharper and more focused,” he says.

Numerous studies link a shortage of natural light to an increase in depression. Seasonal affective disorder (SAD), a cyclic type of depression tied to the decrease in sunlight during winter, has earned official categorization in the Diagnostic and Statistical Manual of Mental Disorders, the main diagnostic reference book of U.S. mental health professionals. While multiple variations of light therapy have been developed to counter both SAD and standard depression, the simplest of these is to maximize the amount of time spent in sunlight.

Despite mounting evidence of the benefits of natural light, Hobstetter says few American landlords or tenants pay the matter much heed; European builders are much more willing to address the issue, he says. The reason for Americans’ greater resistance is the lack of truly quantifiable data, suggests Jerry Lea, a senior vice president with Houston-based developer Hines. Clients do not want to invest the money in daylighting until they are absolutely convinced of its benefits. “There have been a lot of studies, but I don’t know that they are scientifically sound. We believe they make sense, but I wouldn’t call them proof,” he says. Proof is what most clients want because implementation of special daylighting measures means added costs, asserts Michael Holtz, president of Boulder, Colorado-based Architectural Energy Corp.

Few clients recognize the benefits of daylighting, Hobstetter says, and even when they do, the added project costs often dissuade them from taking action. However, attention to natural lighting eventually pays off through increased productivity, he says. “Over a 30-year period, the corresponding increase in productivity would more than match the initial outlay for a building’s design and construction,” he maintains.

This leads back to the question of proof, and, according to Holtz, the lack of a clear performance metric for productivity makes it difficult to prove daylighting’s value. “In the past when we had large typing pools, you could look at the number of pages typed and the number of mistakes,” he says. “It’s not so easy anymore. Most employees do individualized tasks that can’t be measured against a chart.” Even if one could find a metric, he adds, it would be difficult to demonstrate a clear correlation between daylight and employee output because daylighting measures inevitably accompany other changes to the work environment. “Suppose you get a measurable increase in productivity: how do you know what caused it?” Holtz asks. “Is it the light, or the new location, the new furniture, the color scheme? Is it change itself? There’s a host of factors that are hard to separate.”

A growing number of architectural clients seem willing to accept experiential reports, not to mention their own gut feelings, as sufficient justification for bringing more daylight into their buildings. “We’re putting a lot more emphasis on the amount and quality of daylighting,” Lea says. “We’re looking at sunshades, light shelves to bounce light deeper into the space, angling the building. We hear a lot of stories from our tenants about access to daylight reducing absenteeism, and we believe them. It makes intuitive sense.”

Hobstetter cites numerous reasons why daylighting boosts construction costs, but he places the bulk of the blame on continuing adherence to the predominant building patterns of the past 50 years—specifically, the large floor plate demanded by corporate clients. With building depths of 50 to 100 feet, it is virtually impossible to get natural light into the center of office buildings. The problem is even worse in the industrial and retail sectors, which often have floor plates of 100,000 square feet and more. Many of these are built with no windows at all.

For the design of the Brentwood, California, city hall, the issue of a large floor plate was dealt with by San Francisco–based KMD Architects through the insertion of a glazed center atrium in the building to bring light to interior offices. In addition, strategically placed reflectors bounce light from the windows to the ceiling, from which it is diffused over a broad area, ensuring that even the workspaces farthest from the windows get adequate daylight.

A more radical approach was taken with the design of the new 575,000-square-foot federal building in San Francisco. Rather than using the half-block site to create a relatively squat building with huge floor plates, Santa Monica–based Morphosis opted for a long, narrow tower that guarantees all employees placement near a window.

Daylighting sometimes conflicts with energy-saving measures because the more natural light that enters a building, the more heat it generates. Even on cold days, sunlight can lift interior temperatures well above comfort level, and on hot days, it can make the work environment insufferable. “The technology has taken off and is improving rapidly, and the whole concept of how you control temperature as the daylight changes is evolving,” Lea says. “I think glass manufacturers and others are going to continue to improve their products to allow more daylighting while protecting energy. Unfortunately, we’re not yet at a point where it balances out.”

Predictably, resistance to daylighting is more pronounced in speculative development than in tenant-driven projects. “Developers know they’re going to have to sell tenants on the idea of paying a slightly higher rent to get more daylight, so the architect has to sell developers on the idea they can do that. It’s a new sell, if you will,” says Hobstetter. Lea agrees, saying that for now extra daylighting has to be regarded as a bonus for tenants willing to pay a premium. He says one way Hines boosts the amount of daylight in new buildings is to increase floor heights from a standard nine feet to 10.5 feet, adding significantly to construction costs.

Nonetheless, Lea insists the extra expense is worth it. “Those features cost money,” he admits. “But sophisticated tenants understand the value of enhancing the employee environment and are willing to pay a slightly higher rent. And even if we can’t get a higher rent because of market conditions, we can get a higher quality of tenant, which in the long run enhances the property’s value.”—**John McCloud**, a San Francisco–based freelance writer who covers real estate design and development

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