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THE JOURNAL REPORT: TRENDS

Architecture

Greener and Higher

By ALEX FRANGOS
Staff Reporter of THE WALL STREET JOURNAL
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People will always need buildings, and the next generation wants them green.

By far, the most talked-about topic in the architecture universe is how to reduce the environmental impact of everything from summer cottages to skyscrapers. And there are some remarkable examples -- some would say exceptions -- of progress. The question is, will high energy prices turn those exceptions into the rule?

THE JOURNAL REPORT

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See the complete Trend report[2].

Here's a look at how this and other trends are playing out in the world of architecture.

1. Easier to Be Green

The challenge is clear. Buildings devour 39% of energy in the U.S., more than factories and automobiles, according to the Department of Energy. And until recently, creating energy-saving edifices was a dreamer's pursuit. But in the past five years, a stable of structures have grown green. From skyscrapers like **Hearst** Corp.'s new headquarters in New York designed by Norman Foster to a modest police station in Woodland, Calif., to cubicles made from renewable materials derived from corn, wheat and bamboo by **Herman Miller** Inc. of Zeeland, Mich., green is proving itself a potent trend. And high energy prices should keep developers thirsty for frugal digs.

So how will buildings look different? There will be more roofs covered in vegetation to reduce heat gain, walls and floors made of recycled and locally harvested materials, and air-conditioning systems that trap cool night air for daytime use. There will be more access to natural light to reduce the load on electric lights, and carpets and wall coverings that don't leach noxious gases into the air.

The U.S. Green Building Council, a partnership of environmentalists, materials makers and builders, has been driving the movement. It develops and manages a program called Leadership in Energy and Environmental Design, which certifies green buildings. Since 2000, 167 buildings have been LEED

certified, and more than 1,800 are in the pipeline.

A huge challenge: get home building into the fold. Most LEED clients have been governments, nonprofits and businesses. The mammoth home-building industry, through the National Association of Home Builders, has come up with its own competing energy benchmarks.

2. Material Matters

Fueling the environmental building revolution are new materials. Chief among them is glass. It's stronger, safer and more energy-efficient than ever. Low-emissive glass lets visible light in, but keeps heat out. That enables architects to add windows -- and light -- without having to double up on expensive air conditioning. Projects that have taken advantage of fenestration freedom include Pittsburgh's new convention center and biotech firm Genzyme Corp.'s new Cambridge, Mass., headquarters.

Energy Misers Everywhere

The top 10 types of buildings being constructed under the U.S. Green Building Council's LEED program

	PROJECTS	SQUARE FEET (MILLIONS)
Commercial office	453	64.7
Higher education	247	22.7
Laboratory	147	22.4
K-12 education	165	19.5
Multiunit residential (apartments, dorms)	137	19.3
Health care	56	17.3
Campus (corporate campus, school)	109	16.5
Assembly (convention center, place of worship, theater)	136	15.8
Retail (store, supermarket, art gallery)	105	13.8
Industrial (manufacturing, warehouse, public works)	114	12.1

Source: U.S. Green Building Council

Hearst's headquarters

New harvestable materials are gaining, too. A fast-growing hardwood called Lyptus, grown in Brazil by **Weyerhaeuser** Co., will clad the U.S. Census Department's new home in Maryland. Other materials include see-through concrete and SmartWrap, developed by Philadelphia architects KiernanTimberlake. SmartWrap is a transparent building membrane that adjusts its properties to changes in light and temperature to keep buildings climate-controlled and well-lighted.

3. Race to the Top

Only one thing is in doubt about the next generation of skyscrapers: Which will be the tallest?

Four projects on four continents have laid claim to be the tallest in the race toward the clouds. (The current tallest building, Taipei 101 in Taiwan, is 1,736 feet.) The odds-on favorite now: The residential building Burj Dubai in Dubai, expected to top 2,000 feet.

Another contestant is the World Trade Center's 1,776-foot-tall Freedom Tower, which New York Gov. George E. Pataki proclaims will be the tallest, despite strong evidence to the contrary. The Freedom Tower and the Burj Dubai are both designed by Skidmore Owings & Merrill, whose Chicago office has also done work on a possible superhigh tower in Moscow. Meantime, the Shanghai World Financial Center, designed by New York's Kohn Pedersen Fox, has broken ground after nearly a decade of false starts.

What's behind the vertical space race? New economies want their proverbial stake in the ground. And in the case of New York, a thumb in the eye of terrorists.

4. Is Gehry In – or Out?

Predicting which architect will set the trend for the next generation is a prickly pastime. One view among critics is that megastar architect Frank O. Gehry's exuberant buildings have lost their luster -- literally. (He had to dull the shine on the Disney Concert Hall in Los Angeles because it creates too much glare.) But it's not just his metallic facades. Anti-Gehryites see Yoshio Taniguchi's understated Museum of Modern Art redo in New York as a sign of more humility and subtlety in architecture to come.

Yet Mr. Gehry is hardly slowing down. He has dozens of works in progress, from corporate headquarters to architecturally-inspired vodka bottles. And other avant-garde architects -- such as Seattle Public Library designer Rem Koolhaas and Pritzker Prize winner Zaha Hadid -- seem to have a firm grip on commissions that could become scene-stealing structures that draw tourists and critics alike.

5. China, China, China

China is an architect's dream come true. A red-hot urban economy draws hundreds of millions from the countryside to the cities, igniting a building bonanza not seen world-wide in a generation. And toss in the 2008 Olympics for good measure.

The home to 1.3 billion will be a proving ground of architectural and urban-planning concepts. "The opportunity to affect the iconography for a new world leader is pretty cool," says Paul Jacobs, president of RTKL, a Baltimore design firm with projects in China. "That iconography isn't limited to skyscrapers... Whole cities are being created or re-created to deal with the population influx -- and that gives designers a chance to experiment with building communities from scratch."

The excitement has flagged recently as some projects, such as the Olympic Stadium and Beijing airport, have been scaled back. But there's little doubt China will continue to be an architect's playground.

6. Cars vs. No Cars

Despite loud protests from smart-growth advocates, the rapid spread of suburban-style sprawl isn't slowing. Yet there's a parallel movement of dwellers into more pedestrian-friendly communities, closer to downtowns.

Sprawl isn't limited to fast-growing centers like Las Vegas and Atlanta. Paris and Shanghai have caught on to the car-only community. The future will continue to see families flee to the vast exurban wilderness, where sloped-roof homes spread along dead-end streets without sidewalks and where the closest place to buy milk is a 10-minute drive.

Meanwhile, transit-oriented growth, centered around commuter rail lines and designed with main-street shopping within strolling distance to schools and parks, is making inroads. One example is Phillips Place, in Charlotte, N.C. There are 400 apartments, a hotel, cinema and pedestrian main street lined with small retailers.

Then there's the conversion of office buildings in downtowns such as Dallas, Los Angeles, even Omaha, Neb., attracting empty-nesters and young professionals.

Will one trend win out? "We have many housing markets," says John K. McIlwain, senior resident fellow at the Urban Land Institute in Washington. "There are people who like the old-fashioned large-lot, cul-de-sac subdivisions." But more and more, people are willing to pay extra for what he calls "well-designed neighborhoods -- denser, appropriate mix of amenities, restaurants and stores."

7. The Incredibly Shrinking Personal Space

Out with the individual, in with the communal.

That's the mantra at the cutting edge of workplace design. Cubicles and offices are getting smaller, while conference rooms, chat rooms and cafeterias spread their wings. Jean Bellas, president of Space, a 120-person San Francisco workspace design consulting firm, estimates the percentage of office square footage dedicated to individuals will drop to 60% from 80% in the next decade.

Why? Companies are waking up to the Internet-era promise of wireless technology and remote computing that frees workers from their desks.

But a nomadic office lifestyle without pictures of kids on the desk will create new challenges. "There is a real issue of community and place and what you are attached to," Ms. Bellas says. "You do a detriment if you strip them away from that belonging."

8. Improving the Public View

It has been 10 years since the federal government's General Services Administration launched the Design Excellence program, a multibillion-dollar effort to reinvigorate federal architecture. Starting in the 1990s, the government's landlord and megabuilder commissioned prestigious architectural firms

such as Morphosis, of Santa Monica, Calif., and Chicago's Perkins & Will to create a new generation of landmarks.

Dozens of courthouses, federal buildings, and border crossings later, the GSA has a new charge: sprucing up the portfolio of "ugly" federal buildings from the 1960s and 1970s that are too expensive to replace -- and too unwelcoming not to remake.

The First Impressions program, as it's known, will attempt to spend relatively small sums to refresh lobbies, awnings and security areas so that public entrances to federal buildings feel, well, more public. The GSA's chief architect, Edward Feiner, who is retiring as of tomorrow, has tried to instill federal architecture with the importance it had in generations past.

Meantime, municipalities such as New York, Chicago, and Honolulu are exploring similar programs to create memorable public architecture.

9. Healing Design

The explosion of for-profit health-care companies vying for top-paying patients has had a design side effect: innovation. Hospitals have embraced architecture as a way to attract the richest sick people. Healing gardens, private rooms and even private emergency rooms are part of the arsenal to patch up the healing environment.

A no-wait emergency room where patients go directly to private rooms in Muncie, Ind., also is part of the trend. Ball Memorial Hospital, part of Cardinal Health System Inc., has seen a 15% rise in emergency patients since opening the new ER in 2003.

10. Can We See That in 3-D?

Architects are finally entering the third dimension, conceiving fully modeled buildings inside the computer.

The Eureka Tower in Melbourne, Australia, designed by Fender Katsalidis Architects, is among the first major buildings designed from start to finish in 3-D.

The move into 3-D will have a profound impact on the construction industry. Viewing all the building systems together on the computer reduces conflicts that are normally discovered in the field, such as a poorly designed pipe going through a stairwell or a misaligned elevator shaft.

It's also easier to simulate real-world scenarios in a 3-D model. "You can't see how a building will perform from an energy standpoint from a 2-D drawing," says Dominic Gallello, chief executive of Graphisoft, an architectural software maker in Budapest.

Another unique application of 3-D: Architects use the programs to simulate how an influx of visitors affects large and complex spaces, such as plazas and lobbies. That helps them plan better for crowd

control and emergency exits.

Mr. Frangos is a staff reporter in The Wall Street Journal's New York bureau.

Write to Alex Frangos at alex.frangos@wsj.com[3]