WHY DESIGN NOW?

National Design Triennial

Smithsonian
Cooper-Hewitt, National Design Museum
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New York
Architecture is a social art, and its collaborative underpinning makes it intrinsically communal. But more than any other time in recent history, architects today are championing a physically and socially responsive architecture that promotes active civic engagement. Whether a rooftop village, urban farm, performance hall, hotel, or library, each project in this section has at its core a social agenda, set by both client and design team, to add to and transform the community it serves.

Foreign Office Architects gives hope to the affordable housing market with its remarkable project in Carabanchel, Spain (fig. 1). Responding to the climate as well as the inhabitants, their energy-efficient apartment building with private garden and balconies offers an alternative vision to the bland housing blocks often identified with social housing. When Snøhetta won the commission for the Norwegian National Opera and Ballet, its scheme was predicated on the idea that it should be a social, rather than physical, monument (fig. 2). The new building not only hosts artistic performances, but is also open for everyone to congregate and enjoy the waterfront, previously off-limits to the public. With a sloping public plaza that also functions as the roof of the opera house, the building speaks to the interconnectedness between the natural and built environment, and the

Community
Matilda McQuaid

fig. 1

fig. 2
individual's relationship to both. Michael Maltzan's New Carver Apartments in Los Angeles engage the city in a different way (fig. 9). Commissioned by the Skid row Housing Trust, they house the homeless and disabled elderly. Residents stay connected to their surroundings with views of the city from communal spaces while having a secure place to live and receive medical services. The design helps to support a marginal population that is often ignored or forgotten.

Medellín, Colombia, of 2010 bears little resemblance to the city in the 1980s, when violent drug cartels ruled the community based on violence and fear. With dozens of new and renovated schools, centrally located public libraries and parks, an expanded rail system, and landscaped streets, the city has transformed into a desirable place to live and work (fig. 6). The individuals responsible for this social and physical transformation included the mayor and policy makers, sociologists and urban planners, designers and architects, and social workers and community residents. Their strategy was to rid neighborhoods of drug dealers and traffickers while placing beautiful and sophisticated public buildings that brought much-needed public services into underserved areas. Childcare, job training, and medical services were integrated into public libraries, making them centers of social change. In the first phase, priority was given to the construction of public buildings—an intentional decision by the mayor to focus on projects that encouraged the greatest concentration of social interaction, communication, and networking and where everyone ultimately had a stake in the final outcome. Once public needs were met and a mutual trust instilled, additional projects such as improved public housing further addressed the needs of the community.

Just as there is an important social component in architecture, there is also the need to maintain individuality. A community is not about sameness, but understanding differences, celebrating local traditions, and accepting personal identities. This concept is at the core of MVRDV's Vertical Village. The architects drew inspiration from do-it-yourself extensions they observed in cities like Beijing and Taipei. Urban dwellers are constantly on the lookout for additional living space, and rooftops provide a site for highly personalized structures and an informal urbanism. With Vertical Village, MVRDV introduces this as a new typology on which to build a community (fig. 5). Providing a kit of parts from which each dweller can select, it empowers the user by expanding upon an already ingrained model that comes from the users themselves.

Empowerment is key to a financially and emotionally healthy community. John Ochsendorf's study of vaults resulted in several high-tech engineering projects where labor and materials come directly from the community for which the project is designed. The Mapungubwe National Park Interpretive Center (fig. 4), for example, was part of a poverty-relief-program that trained dozens of workers to make bricks out of local soil and use software to design domes that span long distances, combining economic relief with more sustainable building solutions.

Just as important as living in a community is thinking like a community. Architect Thomas Rau employs this approach in his own practice, dubbing it “oneplanetarchitecture.” Rau sees the whole planet as his community, where societies are “working and living in the constant awareness that any action ultimately produces significant effects in the world at large—ecologically, economically, and socially.” Rooted in sustainable practice for over a decade, Rau believes that one’s actions should be driven by future results, and that buildings should produce energy rather than consume it. For instance, his H2Otel is designed to be carbon-neutral and relies on water and solar energy for heating, cooling, and generating electricity (fig. 7). Buildings are a temporary covering on the earth, according to Rau, and thus should leave no residue after demolition or dismantling. This entails more integrated thinking and a system approach to building, which is also how KieranTimberlake envisions architecture. Much of the firm's recent work, including Loblolly House (fig. 8), examines how manufacturing methodologies can transform building construction. Going deeper than prefabrication, Loblolly is built off-site from ready-made components that can be assembled quickly using only a wrench, and also disassembled for recycling or reuse.

A desirable quality for any community is self-sufficiency, and one outcome has been an enormous interest in different proposals for urban farming. Eco-Laboratory, a self-sustaining farm, dwelling, and workplace housed in a single structure, mitigates the need for expanding soil-based agriculture by farming vertically rather than horizontally (fig. 9). Moreover, it allows cities to have local distribution of fresh food grown in a controlled environment, which reduces the threat of disease and pests. Ecology, economy, and equity—the triumvirate in cradle-to-cradle practice—ultimately drive this project and others in this section. Designers and citizens are taking responsibility for shaping the environment, energizing the community, and committing to a pursuit of the common good.
The need for affordable housing persists globally, yet effective design solutions must consider the climates, sites, materials, and users in each individual area in need. One of the most beautiful and sensitively designed examples of social housing in the last several years is an eighty-eight-unit complex designed by FOA, located on the outskirts of Madrid. Adjacent to an urban park on one side and its own private garden on another, the building is oriented so that each unit opens onto these two different gardens and has private terraces enclosed with operable bamboo shutters. The constantly changing bamboo skin shields residents from the hot sun, and the floor-through apartments provide flexible living space as well as ample cross-ventilation. Solar water-heating panels on the roof and wind chimneys leading to internal bathrooms and kitchens help make the building more energy-efficient. A green roof above the car park acts as another private garden for tenants.

The architects’ goal was to maximize the amount and quality of space for each apartment and to give the building the appearance of being a single volume, with a homogeneous exterior skin that conceals the individuality of each unit and the privacy of its occupants. The appearance of the building, rather than being a frozen frame of the architects’ vision, is a result of the inhabitants’ choices. In the end, what distinguishes this building is that, rather than a design typical of much social housing, it is a home in which anyone would want to live.

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Increasing food production without negatively impacting the environment is at the heart of vertical farming, a new approach to fresh-food distribution that provides urban centers with healthy, “just-picked” food, grown within the controlled environment of a multi-story building. One of the pioneers of the vertical-farming concept is Dickson Despommier, a microbiologist and ecologist at Columbia University’s School of Public Health. He sees vertical farming as a solution to nutritiously feed a world population—currently at 6.8 billion and, by 2050, approaching nine billion people—while avoiding toxic pesticides and fungicides and controlling the spread of pestilence that kills humans and crops. Small-scale versions of vertical farming already exist: hydroponics and aeroponics grow plants without soil, the first in a liquid nutrient and the second in a nutrient mist. According to Despommier, indoor farming allows crops to be grown year-round and organically. It also has other benefits: it eliminates agricultural runoff, reduces infectious diseases, converts black and gray water into potable water, restores farmland to a natural landscape, and reduces fossil-fuel use by reducing farm equipment and food shipping, to name just a few. Vertical farms can be replicated in any part of the world that has famine caused by crop shortage and natural disasters, they are adaptable and feasible, and the technology currently exists to make them.

Eco-Laboratory is one of the more recent and successful examples of such a system. The program merges a neighborhood market, dwelling units, a vocational training facility, and a sustainability educational center for the public into a financially viable downtown residential development. The project is designed to grow its own food, generate electricity, clean its own air and water, and provide a place and purpose for the underserved population. It is a model for bringing together home, work, shopping, community, food and energy production, and waste disposal under one roof. The designers describe it as technically being off the grid, but contextually, it is completely connected.
Loblolly House

The Philadelphia architectural firm KieranTimberlake is known for its sustainable practices and intensive research on integrated building. These are brought together in Loblolly House, named for the tall pines that occupy this site on Maryland’s Chesapeake Bay. This 2,200-square-foot house is composed entirely of elements fabricated off-site and readymade components. The timber piles set into a sandy soil are the foundation that supports the four key architectural elements of the house: scaffold, cartridge, block, and equipment. The aluminum scaffold system, coupled with various connectors, provides both the structural frame and the means to join the other three elements, using only a wrench. Floor and ceiling panels, or “smart cartridges,” distribute radiant heating, hot and cold water, waste water, ventilation, and electricity throughout the house. Fully integrated bathroom and mechanical room modules, or “blocks,” are lifted into position; followed by the exterior wall panels, which contain structure, insulation, windows, interior finishes, and the exterior wood rain screen complete with cladding. The west wall facing the bay is a two-layer glazed system—interior accordion-style folding glass doors and exterior polycarbonate-clad hangar doors—that provides an adjustable awning as well as weather and storm protection. Assembly from the foundation up takes just under six weeks.

The firm’s methodology also extends to disassembly. The components can be disassembled as swiftly and in complete parts,
after which they can be relocated and recycled or reassembled in new ways. An innovative sustainable model, the Loblolly House is a building that never loses sight of the craft of architecture.

Mapungubwe National Park Interpretive Center

There are many lessons to be learned from studying ancient structures, including how to build with fewer resources. According to structural engineer John Ochsendorf, pre-industrial construction methods can provide fundamental lessons about sustainable design and the environmental impact of our buildings today. For example, his use of the Mediterranean tradition of tile vaulting—thin tile vaults that stretch across large spaces without formwork—is part of a 700-year-old construction method and is sustainable in a number of ways. Masonry’s high thermal mass is very energy-efficient, local brick and materials can be used to make the tiles, and the system achieves high structural strength with minimal material. All of these factors have important applications in the developing world, where low cost, efficient construction, and structural durability are model standards for any building project.

The Mapungubwe National Park Interpretive Center in South Africa, part of a UNESCO World Heritage site, uses this type of vaulting exclusively. Locally manufactured tiles replace the more energy-intensive fired-clay bricks, and local workers are trained as masons in order to construct the complex. Each building is designed to operate with very low energy requirements, and most of the construction materials come directly from the site. The largest vault spans sixty feet, and the form of the vaults is determined to minimize the compressive stresses in the weak soil bricks. The project is part of a poverty-relief program that trains local workers and develops new means of livelihood. According to Ochsendorf, had they fabricated concrete panels and transported them to the site, the building would not have changed the area. In the end, masonry surpasses its historic associations and becomes a means of economic empowerment and a catalyst for new sustainable forms.
Medellín, Colombia

“Our most beautiful buildings must be in our poorest areas”: these are the words of former mayor of Medellín, Sergio Fajardo, who led the city’s transformation from one of the most violent cities in the world to a vital community whose new architecture carries the powerful message of social and educational inclusion. With a team of architects, urban planners, social workers, community members, and technical and social experts, Fajardo and architect Alejandro Echeverri inserted large-scale public buildings and parks into the most dangerous and desperate neighborhoods. Centrally located libraries, schools, and museums by international architects integrated crucial public services—childcare facilities, job-placement bureaus, and credit services—and made them easily accessible.

A remarkable aspect of this social and physical transformation was the speed with which it was carried out. In just four years, ten new schools were built and 132 more schools were upgraded with state-of-the-art equipment. Also constructed were five library parks and an expanded commuter rail system, including a metro cable car that transports more than 30,000 people a day from the surrounding hillside neighborhoods to the city below. A major north-south avenue was expanded, with grand, beautifully landscaped walkways that accommodate a growing number of street vendors and pedestrians. Parque Explora, an interactive public park for science and technology, connects directly to this main thoroughfare, inviting pedestrians to participate in this creative learning center. Directly across the street, in the Botanical Gardens, is the Orquideorama, a wooden canopy of fourteen tree structures that protect the lush collection of orchids below. The architects wanted the structures to “grow” in the same manner as plants, thriving and popping up next to each other—a reference to the children of Medellín, the ultimate reason for this city’s extraordinary transformation.
New Carver Apartments

Just south of Los Angeles’s rapidly growing downtown, the Skid Row Housing Trust’s New Carver Apartments explore how architecture can create new possibilities for a highly vulnerable and underserved population. The ninety-five units provide permanent housing for homeless elderly and disabled residents, offering a place of solace and support amidst the city’s chronic homeless problem.

The six-story form emerges from the path of the adjacent Santa Monica Freeway as it traces the site’s southern edge. Its spiraling shape encircles a private outdoor courtyard at its center, which provides each unit with natural lighting and views in all directions. Medical and social-services facilities are located at the base of the building, and other communal spaces—kitchens, dining areas, gathering spaces, and gardens—are on the floors above as well as on street level.

The architect, Michael Maltzan, has carefully anchored the design to incorporate the outside world while offering a sanctuary for the tenants. For instance, the laundry and community room on the third floor are at the exact level of the freeway so tenants can watch the passing cars. Other common areas have sweeping views of the skyline and street, emphasizing the strong connection between exterior and interior. In the end, the New Carver Apartments provide both a democratic and architecturally inspiring answer to Maltzan’s own question, “How do buildings not shrink from their responsibility of being part of the city?”
Monuments to culture, such as museums and concert halls, often exclude one of their essential constituents—the people who will never attend an exhibition or performance, but who nevertheless live and work around the buildings. With the first purpose-built home of the Norwegian Opera and Ballet, Norwegian architects Snøhetta have created an edifice that is as publicly interactive as it is monumental. Its most distinctive feature is a white marble roofscape, which appears like two intersecting ski jumps culminating in the water to the west, yet is really a buzzing public plaza on which one can climb and experience the building without going inside.

The main approach to the building, at the northwest corner, leads into a public foyer where a visitor encounters the Wave Wall, behind which is the main auditorium. One of the three organizing principles for the architects’ design, the oak Wave Wall is the threshold between art and everyday life and, in earlier times, the line separating the land from the sea. On the public side is a restaurant, café, shop, and toilets as well as a “street” that runs along the south façade.

The eastern half of the site contains the second principle, the Factory, or production facility, which includes rehearsal studios, costumes and scenery workshops, offices, and dressing rooms. These spaces are organized around Opera Street, the main “highway” that runs north-south, dividing the site in half.

The third principle, the Carpet, contains the idea of laying out a public “carpet” that is accessible to all. The white marble roof slopes outward with a decidedly horizontal emphasis that mimics the surrounding landscape and cityscape, and invites the public to explore the architecture.

The last principle pertains to the building’s urban context. The Norwegian National Opera and Ballet is the first element in an extensive transformation of the waterfront, which has long been separated from the city by a busy highway. For this reason, the façades closest to the city center are open to the public and city life. From the fjord to the south, there is a clear view inside the fifty-foot-high glass façade. With artists’ commissions throughout the public areas, the building is embraced by everyone, acting as both a bridge and anchor for Oslo.
The Vertical Village

Urban density poses challenging questions and investigations for architects who are addressing housing solutions for an escalating global population. Massive, anonymous housing blocks are replacing smaller-scale dwellings, and regional building traditions are yielding to the bland homogeneity that has plagued large-scale housing for years.

MVRDV, a Rotterdam-based architecture firm, has explored various alternatives to multiple-unit housing blocks on a number of different scales. Vital to any of its projects is the integration of local traditions and individual identities. One of these experiments is Didden Village, a rooftop house extension for a family in Rotterdam. The architects created a “mini-village” on top of an existing residence, with bedrooms as individual “houses,” connected by a series of mini-plazas and enclosed by a parapet wall. The whole vertical extension has a sky-blue polyurethane coating, giving it a distinctive identity while adding color and life to the neighborhood skyline.

The architects applied the same methodology on a larger scale in Vertical Village, a temporary installation in Taipei, Taiwan, which uses existing buildings as “hosts” for extensions of different typologies, materials, and forms. The architects observed and used as their model the informal structures built on rooftops in crowded Chinese cities such as Taipei and Beijing. They expand the living space of the occupant in a highly personalized way and provide dense, socially connected communities with an overall diversity of structure and design.

A kit of parts categorized by building, material, typology, landscape, and fence is the organizing principle of Vertical Village’s 3,300-square-meter (35,500-square-foot) site. Within these categories, the intention is to mix and match so that individual expression and spatial requirements become the primary parts of the equation. As colorful as it is charmingly haphazard, Vertical Village gives hope for an informal and regional urbanism in the future.