sustainable construction
Regional and global Holcim Awards competition for sustainable construction projects 2005/2006
sustainable construction
The Holcim Awards trophy consists of a concrete base surmounted by an icosahedron – a 12-cornered geometric form comprising 3 rectangles. The aspect ratio of the rectangles corresponds to the ”perfect proportions” of the golden section, thus representing the goals of sustainable construction: harmony between today and tomorrow, between resources and consumption, and between needs and opportunities. The trophy for the regional competition carries the colors of the Holcim Foundation – red, gray, and black. The trophies for the global competition are gold, silver, and bronze.
The Holcim Foundation for Sustainable Construction promotes sustainable construction around the world. To encourage new approaches, genuine innovation and visionary thinking, the Holcim Awards for Sustainable Construction are conferred every three years for progressive projects. This book presents the entries to the first competition cycle, which began in November 2004 and ended in April 2006. It also documents movements and trends in sustainable construction – regionally and globally.
Regional and global Holcim Awards competition

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First cycle of the Holcim Awards

Markus Akermann and Rolf Soiron

The Holcim Foundation aspires to stimulate widespread awareness of the importance of sustainability in the construction industry. To accomplish this objective, the Holcim Awards were established to honor innovative work in fields pertaining to the built environment. The competition intends to foster experimental modes of practice that accelerate momentum toward a more equitable human condition worldwide. Awards are an effective way to encourage and inspire achievements that go beyond convention.

The competition was organized in two successive phases. The first phase started in 2004 and was held in the five geographic regions Europe, North America, Latin America, Africa Middle East and Asia Pacific. The second phase
was global in scope. Regardless of scale, projects at an advanced stage of design but not yet under construction were eligible for submission. Entries had to demonstrate proof of sustainability according to five target issues defined by the Holcim Foundation and its partner universities. These criteria address the need for a quantum leap in ecological, economic, social, and aesthetic performance.

At the regional level, more than 3,000 projects from 120 countries were submitted and subsequently reviewed by independent juries. In ceremonies held between September and October 2005, 46 teams were merited with prizes totaling 1.1 million US dollars. Following this round of the competition, the three top winning teams of each region automatically qualified for the global Holcim Awards. In April 2006 prizes amounting to an additional 1 million US dollars were awarded in a ceremony held in Bangkok, Thailand.

This publication documents this process. It is conceived as an atlas providing a snapshot of the current state of sustainable construction worldwide. The focus of the book is on professional practice, offering a platform for translating ideas and methods of sustainability into applicable propositions. Thus, the atlas is understood to be both a survey that maps actual trajectories in practice, and a tool to access know-how in the field of construction. Statements by invited authors from various disciplines and representing different perspectives enrich the debate on what constitutes sustainability for the built environment.

Based on the success of this initial competition, a second cycle of the Holcim Awards is envisioned to commence in June 2007. Again, the ambition is to promote future-oriented strategies in architecture, engineering, urban design, and policy-making that implement new aptitudes for sustainability, and are inspired by a mandate for innovation beyond purely technical solutions. To shape an ethic for a sustainable world, now and in the future, is precisely what is at stake.
Sustainable construction

Sustainability is a multifaceted paradigm that intertwines an array of complex issues. To make sustainable construction more accessible, the Holcim Foundation developed a five-point definition. These so-called target issues serve as yardsticks to measure the degree to which a structure contributes to sustainable development. The independent juries of the Holcim Awards used these criteria to evaluate the competition entries.
| **Quantum change and transferability** | The project must demonstrate innovation at the forefront of sustainable construction, a quantum leap in comparison to conventional procedures. Breakthroughs and trend-setting approaches, regardless of scale, must be transferable to a range of other applications. |
| **Ethical standards and social equity** | The project must adhere to the highest ethical standards and support social equity at all stages of construction, from planning and building processes to long-term impact on the communal fabric. The project is to provide an advanced response vis-à-vis ethical and social responsibility. |
| **Ecological quality and energy conservation** | The project must exhibit a sensible use and management of natural resources throughout its life cycle, including operation and maintenance. Long-term environmental concerns, whether pertaining to flows of material or energy, should be an integral part of the built entity. |
| **Economic performance and compatibility** | The project must prove to be economically feasible and innovative as to the deployment of financial resources. Funding must promote an economy of means and be compatible with the demands and constraints encountered throughout the construction’s life span. |
| **Contextual and aesthetic impact** | The project must convey a high standard of architectural quality as to the manner in which it addresses its cultural and physical context. With space and form of utmost significance, the construction must have a lasting aesthetic impact on its surrounding environment. |
Alluding to a beginner’s primer for piano, the film classic *Five Easy Pieces* from 1970 – featuring Jack Nicholson as a concert pianist cum oil-rigger – eventually makes clear that these so-called pieces are anything but easy. As a matter of fact, the film juxtaposes two sets of five musical scores, in effect making a total of ten. What becomes evident here is that we are witnessing a multiplicity in which no one piece is given priority. Instead, a network of interrelationships results. No sooner does one relationship take hold than it gives way to yet another one. A similar case can be made for those attempts to frame sustainability in five categories. Such attempts actually conceal a more unruly group of ten objectives to be met. Not so easy after all.

“...no one, after all, can be in favor of ‘unsustainability’...”

David Harvey

*Five easy pieces*
Marc Angélil and Cary Siress
But before cutting to the chase, the story must first be unraveled. The theme of sustainability has quite a complex lineage, in which each declared objective has stood for an agenda vehemently defended by a particular interest group. Not surprisingly, it all began in the 1960s, in the country with the largest ecological footprint, a country whose environmental deterioration led to its being dubbed a \textit{junkyard}. This set the stage for the first piece of a series of propositions about what sustainable development might entail. Fueled by sex, drugs, and rock ‘n’ roll, groups operating on the fringes of society made an appeal for a quantum leap in our understanding of the environment, which amounted to a direct attack on the Establishment. A wake up call had been sounded, a plea for a revised social contract had been made. What today would be considered an activist stance was then a petition for a new direction for planet earth. Such a position was made more than clear by the publication of the first volume of the \textit{Whole Earth Catalog} in 1968. Depicted on the cover was a rather fragile, solitary globe set against a foreboding black background—and yet we were promised a sunny day on “Spaceship Earth.” But words alone were not enough. Deeds were called for. The catalog served as a manual of instructions and offered tools for attaining what today would be called a sustainable world. Though the catalog may have seemed like a mixed bag of techniques and devices, it was used to advance a holistic view suggesting that everything is ultimately connected, and thus transferable to everything else.

Soon to follow was a second strike, albeit from a different position. This time the academic community took front stage, in the form of an “invisible college.” Following a clandestine meeting held in Rome in 1968, representatives from various disciplines formed the Club of Rome. The underlying melody of this piece was scientific in tone. Whereas the new agenda overlapped with some of the views of the free-thinking younger generation, the “tools” were altogether different. Systems analysis with its graphs, charts, and statistics was deployed to project the relationship between exponential growth and the depletion of natural resources, a relationship made more complex when plotted against the factor of time. The prognosis was rather bleak: Humanity was exploiting the
within this intricate web required a new perspective geared toward restraint, for the earth as a source was now understood to be finite. A warning had been issued. Choices would have to be made.

The plot thickened as the scene shifted to Paris. We move on to yet another piece. Here, amid the student uprisings of May 1968, new trajectories for thought were charted – with a premium placed on ethics and social equity. One protagonist who spearheaded this cause was the psychoanalyst and social theorist Félix Guattari, whose novel theoretical constructs were wielded to break open hitherto closed logics and narrow-minded presuppositions that privileged certain groups or themes over others. Contradicting top-down social and political models, his concept of transversality, for example, was advanced as an alternative mode of thinking that sought to abolish traditional hierarchies and advocated action on multiple fronts simultaneously. Merging ecological concerns with those of philosophy, Guattari coined the term ecosophy in his book The Three Ecologies in an effort to bridge still untheorized relationships between the environment, the social body, and the human subject. A field of potentialities was laid bare. To navigate this field required a sensibility premised on negotiation. No one domain could assume priority: environmental ecology forms a plateau undergoing constant transformation; social ecology is the terrain of collective exchange; the mental ecology of the subject is the site of ethical accountability and aesthetic desire. As if engaged
in a ménage à trois, the three ecologies intermingle. The environment could no longer be considered an isolated or neutral datum. Instead, it was elevated to the status of a cultural construction, a context whose definitional terms are as socially driven as they are ethically and aesthetically motivated. Wary of images, Guattari—a staunch critic of global capital—offered no depiction of planet earth, underscoring his mistrust of unified entities. Nevertheless, a disturbing portrayal of the globe in the grip of what he termed “integrated world capitalism” was invoked.

Whereas the previous piece had treated economic matters with disdain or reproach, the next piece foregrounded the economy. Under the aegis of the United Nations, the World Commission on Environment and Development was formed in 1983 under the leadership of Gro Harlem Brundtland, Prime Minister of Norway. Members from the fields of politics, environmental sciences, and economics came together to reexamine the state of the planet. Presented in 1987 to the general assembly, their report entitled Our Common Future sent shockwaves throughout the international community. The nations of the world were rallied under the banner of sustainability. Sustainable development was defined as that which “meets the needs of the present without compromising the ability of future generations to meet their own needs.” To this challenge, the report responded that humanity possessed the ability to make development sustainable. In effect, this suggested that control over the course of human action could be maintained. Under the cloud of a doomsday scenario, the world was portrayed as a bad place that could be made good, a dangerous place that could be made safe, a grey place that could be colored green. Whereas these premises were advanced in the name of ecological modernization, the question remained as to how such a process might be set in motion. Management, governance, and policy-making were considered key at the national and international levels, as was the role of private enterprise—from small businesses to multinational corporations. The future of the environment was viewed from the vantage point of political and economic performance. Thus, the issue was how to strike a balance between the two, and thereby achieve a more compatible condition. The report—intensively debated at the United Nations in view of increasing disparities between the North and the South—was a watershed for subsequent discussions on environmental sustainability. It paved the road for the by now legendary Earth Summit held in Rio de Janeiro in 1992, where a comprehensive blueprint for action was drafted. With the 21st century at our doorstep, yet another number entered the game: “Agenda 21” was ratified by representatives from more than 170 nations who attended the conference. On the cover of this publication appeared a new image of mother earth gently cradled in a reassuring hand. A master plan for achieving sustainable development worldwide had been launched.

With economy now on the map, the business community added another refrain to the score. The tenets of the agenda were disseminated, widely quoted, adopted, and, in spite of their significance, in some cases abused. But to paraphrase David Harvey, everyone had to be in favor of sustainability; everybody wanted a piece of the cake; green made the world go round. Agenda 21 gave countless organizations “a veneer of accountability and respectability,” and confirmed that the planet could be managed indeed. “Planetary management,” dispatched as a new disciplinary orientation, spread around the world. Taking on a new color, corporations redirected some of their efforts and green business was born. The question was raised whether the commercial sector could apply the principles of sustainable development and still succeed. With an affirmative response, the premises of Agenda 21 were reduced to the level of a slogan and summed up in what John Elkington, entrepreneur and founder of the company SustainAbility, labeled the “triple bottom line.” Following the adage “keep it simple,” sustainability was abridged to three factors: economy, society, and ecology. This abbreviation implied a necessary shift of attitude. Whereas in the past business was primarily concerned with financial performance, contemporary corporations now also had to consider their impact on communities as well as the environment, while not neglecting the bottom line of profit. Corporate responsibility was a double-edged sword. When carving up the cake, the benediction of greenness and sustainability had to accommodate the pursuit of capital gains. On the cover of Elkington’s book...
entitled Cannibals with Forks: The Triple Bottom Line of 21st Century Business, the earth was flattened and served up on a plate, a telling image of straightforward honesty. In what followed, the issue of sustainability transcended professional borders, reframing many disciplines in the private sector, including the construction industry. While engineers redirected their efforts to define standards of performance and evaluation that bear upon the built environment, architects were driven by the idea of a new sustainable aesthetic – thus providing both fields with a new raison d’être. Countless competitions and awards fueled the never-ending quest for innovation and creativity.

And yet, the story is easier told than put into practice. Sustainability is hardly reducible to simple targets. On the contrary, sustainability plays across a network of contradictory relationships and fluctuating exchanges, across a veritable mine field of actors and agents, across varying scales of parameters and rates of change – none of which are necessarily aligned. Whether 3, 5, 10, or 21, the issue at hand is not a matter of basic arithmetic, but of multiplicities and numerous trajectories within those multiplicities. Irreducible in its complexity, the theme of sustainability cannot provide a cure-all for the ills of the world. Priorities must be set that may conflict with others. This most often results in a clash of interests. We should not fool ourselves into thinking that ideology does not play a significant role in this debate. The motivating force of contemporary ideology is driven by capitalism, which by the way currently conditions every move in the game. Suggested here is that capital is the primary ecological variable with which we are confronted. So what in fact is being sustained? It is not a question of endorsing an approach to the environment that is based on an idealized conception of nature – the impetus behind so many calls for a literal re-greening of the globe. Rather, as Harvey proposes, sustainability concerns environments radically transformed by several centuries of capitalism. Money is in fact the engine of the world. There is no outside of capital. And if this is the case, the call for sustainability is above all a call for the retooling of capitalism, more precisely, of its modes of operation as well as attendant patterns of accumulation and circulation. It is these
patterns that have fueled disparities between developed and developing countries, between the rich and the poor, between the have and have-nots. Concerning the underprivileged majority, it is legitimate to ask whether our present is indeed their future, or is our future their present? The current state of capitalism actually works to sustain asymmetries of resources and power. If the environment is shaped by capital flows, then environmental justice requires a rechanneling of these flows, where accumulation gives way to distribution. This calls for sustained political action rather than a return to paradise lost, one irreversibly altered by human life on earth. Nothing short of a new social contract must be written. And this by any means will not be easy. In contrast to the protagonist of *Five Easy Pieces*, who drove in the fast lane on the road to nowhere. Contemporary strategies need strong direction, even though they will most likely have to be developed on the run.

The authors thank Marion Kalmer and Denise Bratton for their tremendous support which made this work possible.


IV. Peter Warshall and Stewart Brand, eds., *Whole Earth Catalog: access to tools*, published twice a year from fall 1968 to 1972, and sporadically afterward (Menlo Park, California: Portola Institute).


XII. Ibid., p. 332 and 329.


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Cary Siress completed his dissertation at ETH Zurich and is currently a lecturer at the School of Arts, Culture, and Environment at the University of Edinburgh, Scotland.

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Finalists global Holcim Awards

Qualified projects

The competition is held in two phases. In the five geographic regions Europe, North America, Latin America, Africa Middle East and Asia Pacific, regional competitions were held in 2005. Over 3,000 participants from 120 countries took part. The winners of the regional Holcim Awards Gold, Silver and Bronze automatically qualified for the global Holcim Awards competition held in 2006. The jury of the global competition thus had 15 projects to assess. These qualified projects are listed on the following pages in order of their scale. Each project makes a significant and tangible contribution to sustainable construction in its region – and is a source of inspiration at the global level.
Concrete conserved
Canada: "Material reduction: Efficient fabric-formed concrete"
The project presents a technique using flexible fabrics instead of conventional rigid forms for the production of concrete elements. Bronze in the region North America went to Mark West, associate professor at the Center for Architectural Structures & Technology, University of Manitoba, Winnipeg, Canada.

Face value
Japan: “Air Suit – housing renovation”, Hiroshima
Urban housing renovation through the creation of an “air suit”, which acts as a new facade skin improving economic and ecological performance. Bronze in the region Asia Pacific went to Kazuhide Doi, with Sayaka Matsuda and Takuma Kasuga, architects, Kazuhide Doi Architects, Hiroshima, Japan.

Lessons learned
Brazil: “Minimum-energy-school”, Rio de Janeiro
An implementation of minimal energy design in a school building including natural ventilation, natural lighting with solar radiation protection and a roof garden. Silver in the region Latin America went to Michael Laar, architect and engineer; Celio Diniz, Eduardo Canellas, Eduardo Dezouzart, Tiago Gualda, DDG Arquitetura, Rio de Janeiro, Brazil.
Energy sourced  
**South Africa: “Tsoga environmental center and local sustainability catalyst”, Cape Town**
This project aims to catalyze sustainable livelihoods by serving as a demonstration of environmentally sound construction practices. Bronze in the region Africa Middle East went to Alastair Francis Rendall, architect and urban designer, and Gita Goven, architect, ARG Design; Anna Cowen, architect, Anna Cowen Architect, and Vernon Collis, Vernon Collis & Associates, all in Cape Town, South Africa.

Green science  
**USA: “The new sustainable California Academy of Sciences”, San Francisco**
The project integrates concerns about sustainability and architectural design in the construction of a major public building. Silver in the region North America went to John Patrick Kociolek, executive director at California Academy of Sciences, San Francisco, USA; Renzo Piano, Renzo Piano Building Workshop s.r.l., Genoa, Italy; Jean Rogers, Ove Arup and Partners California Ltd, San Francisco, USA.

Camp grounding  
**South Africa: “Caravan site upgrade”, Nieuwoudtville**
Eco-systemic design for upgrading an existing caravan site within an ecologically sensitive zone. Silver in the region Africa Middle East went to Andrew Raymond Horn, Flavio Tedeschi, and Ann-Marie Moore, architects, ECO Design – Architects & Consultants, Cape Town, South Africa.
Urban shades
Spain: “Metropol Parasol – redevelopment of Plaza de la Encarnación”, Seville
Revitalization of a historic town square by combining cultural and commercial requirements in an integrated public space. Bronze in the region Europe went to Jürgen Mayer H., architect, J. Mayer H., Berlin, Germany, Carlos Merino and José de la Peña, civil engineers, Arup, Madrid, Spain.

Grass roots
Canada: “Greening the infrastructure at Benny Farm”, Montreal
Urban, landscape and architectural project for the sustainable construction and renovation of 187 housing units on four adjacent properties in Montreal. Gold in the region North America went to Daniel S. Pearl, Mark Poddubiuk and Bernard Olivier, architects, L’OEUF, Montreal, Canada.

Adaptive renewal
China: “Design for a clan settlement’s regeneration”, Hangzhou
The project provides a model for the adaptation and revitalization of an existing urban sector without large-scale demolition or replacement. Gold in the region Asia Pacific went to Qing Chang, head of College of Architecture and Urban Planning, Tongji University, Shanghai, China.
Rising steps
Venezuela: “Upgrading San Rafael-Unido, urban integration project”, Caracas
Urban improvement project including social aspects of a large settlement in Caracas, Venezuela. Bronze in the region Latin America went to Silvia Soonets, Isabel Cecilia Pocaterra, Maria Ines Pocaterra and Victor Gastier, architects, Proyectos Arqui 5 CA, Caracas, Venezuela.

Light eyes
Germany: “Main Station”, Stuttgart
The project places the railway station underground to recover land and to create a new urban area, combining structural and landscape aspects. Silver in the region Europe went to Christoph Ingenhoven, Ingenhoven Architects, Düsseldorf, Germany.

Water power
Italy: “Waterpower – Renewal strategy for the Mulini Valley”, near Amalfi
The project uses water as the central theme with the preservation of a number of historic buildings and maintaining aesthetic balance between existing and new structures. Gold in the region Europe went to Luigi Centola, architect, Centola & Associati, Rome, Italy and Mariagiovanna Riitano, professor for economic-political geography, University of Salerno, Fisciano, Italy, with partners from Italy, Spain, the USA and the UK.
Roof policy
Argentina: “Green roofs for Buenos Aires”
A conceptual project for a public policy to promote roof gardens (green roofs) on existing buildings in the city of Buenos Aires on a large scale. Gold in the region Latin America went to Hugo E. Gilardi, architect, Gilardi y Asociados Arquitectos, Buenos Aires, Argentina; Juan C. Rautenstrauch, industrial engineer, Sociedad Bracht SA, Buenos Aires, Argentina, and Raúl M. Halac, architect, Instituto del Ambiente Humano, University of Córdoba, Argentina.

Countering migration
Morocco: “Socio-economic equipment in a mountain village”, Tamtarga
A community-empowerment facility located in a mountain village in Morocco using local materials and construction technology. Gold in the region Africa Middle East went to Abdelrhni Fenjiro, architect, Agence d’architecture et d’urbanisme Fenjiro Abdelrhni and Abdeslam Dahman, ONG Targa-Aide, both Rabat, Morocco.

Reef fabrication
Philippines: “Concrete substrates for accelerated coral restoration”
Precast concrete elements are used to assist the regeneration of the marine environment using incremental infrastructure. Silver in the region Asia Pacific went to Lemuel R. Alfeche, marine biologist, Mindanao Polytechnic State College, with Ernesto F. Pelaez, Duka Reef Diver Foundation, Ronald R. C. Rodriguez, Diamond Marketing and Severo E. M. Yap, all in Cagayan de Oro, Philippines.
Global Holcim Awards

Jury meeting

February 2/3, 2006, in Zurich, Switzerland

From left:
Ashok B. Lall, Dean of Studies, TVB School of Habitat Studies; Principal of Ashok B. Lall Architects, India
Olivia la O’Castillo, Chair and President, Asia Pacific Roundtable for Sustainable Consumption and Production (APRSCP), Philippines
Enrique Norton, Principal, TEN Arquitectos, Member of the Advisory Board, Holcim Foundation, USA/Mexico
Thom Mayne (seated), Architect, Morphosis, USA
Hans-Jürg Leibundgut, Professor for Building Technology, Swiss Federal Institute of Technology (ETH Zurich), Member of the Technical Competence Center, Holcim Foundation, Switzerland
Mohsen Mostafavi (seated), Dean, College of Architecture, Art & Planning, Cornell University, USA
Rachid Benmokhtar Benabdellah (top, standing), President, Al-Akhawayn University (AUI), Morocco
Adèle Naudé-Santos, Head of Jury; Dean, School of Architecture and Planning, Massachusetts Institute of Technology (MIT), USA
Uns Bieri, Deputy Chairman of the Management Board, Holcim Foundation, Switzerland
Banasopit Mekvichai, Director, Urban Design Program, Chulalongkorn University, Thailand
Claude Fussler, Advisor on Business Innovation and Sustainability, Member of the Management Board, Holcim Foundation, France
Kazelin Taïpale (top, standing), Senior Visiting Fellow, CKIR Helsinki School of Economics, Finland, Visiting Professor, Chalmers University of Technology, Sweden
Hans-Rudolf Schalcher, Chair of Planning and Management in Construction, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and Head of the Technical Competence Center, Holcim Foundation, Switzerland
Tim Macfarlane, Materials Engineer, Partner, Dewhurst Macfarlane & Partners, United Kingdom
14 specialists from all regions of the world identified the best of the 15 qualified projects. The global jury meeting was held in February 2006 in Zurich and lasted two days. The authors of the nominated projects had each submitted seven large-format presentation panels plus detailed additional information, which the jury members analyzed and discussed.

“The decisions we made as a jury were difficult, and we struggled hard,” said jury head Adèle Naudé Santos, Dean of the School of Architecture and Planning at Massachusetts Institute of Technology (MIT). “During our two days of deliberation we dealt intensively with many fundamental issues of sustainable construction.” The diversity of the projects to be assessed required a

jury with membership covering a broad range of disciplines. Adèle Naudé Santos: “As jury members we were constantly mindful of our great responsibility. The international community of professionals will be watching closely which projects we award. The winners will not only receive a prize from the Holcim Foundation – they give to the Holcim Foundation and the Holcim Awards distinctiveness and a certain charisma.”
One of the two projects that won a Holcim Award Gold 2006 is a plan to improve the informal settlement of San Rafael-Unido in Caracas, Venezuela. The detailed ethical and environmental concept improves the inhabitants’ socioeconomic livelihoods. The winning team, Proyectos Arqui CA from Caracas, were Silvia Soonets, Isabel Cecilia Pocaterra, and Maria Ines Pocaterra. Jury member Kaarin Taipale (Finland; picture above), Senior Visiting Fellow, CKIR Helsinki School of Economics, explained that the project sensitively and skillfully treats a challenging range of environmental, cultural, and communal issues. “The urban integration project not only stands for local pride and imagination, it is an ethically openminded and ecologically sensible approach to minimizing extreme socioeconomic need.” See pages 38 and 122.
A Holcim Award Gold 2006 was also conferred for a new central train station in Stuttgart, designed by Peter Pistorius, Christoph Ingenhoven and Hinrich Schumacher (from left), Ingenhoven Architects, Düsseldorf, Germany. Jury member Enrique Norten (USA/Mexico; picture above), founding principal of TEN Arquitectos and member of the Advisory Board of the Holcim Foundation, praised the project for its stimulating power to breathe new life into an urban center. “This project innovatively incorporates material, structural, and product research into a straightforward and sustainable design for reclaiming urban space that will link two urban quarters that were divided, promoting social cohesion and providing new opportunities for leisure and interaction.” See pages 48 and 82.

“Main Station”, Stuttgart, Germany

Jury appraisal

Lost space in the city regained through sophisticated use of technology and resource management, generating timely debate on the future of municipal sustainability while also stimulating social pride in a new emblematic urban setting by conveying an ambience of aesthetic intelligence as well as material finesse.
“Waterpower – Renewal strategy for the Mulini Valley”, near Amalfi, Italy

Jury appraisal

Acupunctural sensibility to regional renewal promoted over wholesale reconstruction or development, establishing a persuasive dialogue between the natural and built environment that serves to raise awareness of the local context itself as a dynamic factor in forming a collectively sustainable sense of place.

The Holcim Award Silver 2006 was conferred for a regional master plan for the Mulini Valley in Italy. Through preservation and innovation, the natural and manmade environments are united in an aesthetically appealing way to improve the economic opportunities of the valley. The project was developed by Luigi Centola, Centola & Associati, Rome, and Mariagiovanna Riitano, the University of Salerno, with partners from Italy, Spain, the USA and the UK. Commenting on the project was jury member Ashok B. Lall (India; picture above), Professor at the TVB School of Habitat Studies and principal of Ashok B. Lall Architects: “The project elegantly answers a diverse range of concerns,” said Lall. It shows awareness of the evolution of the site and dexterity in integrating contemporary materials and technologies into historic buildings. See pages 58 and 80.
The Holcim Award Bronze 2006 went to an affordable housing and urban renewal project in Montreal. The design incorporates various sustainable technologies for optimum building performance and efficiency. The design team was led by Daniel S. Pearl, Mark Poddubiuk and Bernard Olivier of L’OEUF (L’Office de l’éclectisme urbain et fonctionnel) in Montreal. The project was presented by jury member Olivia la ’O Castillo (Philippines; picture above), Chair and President of the Asia Pacific Roundtable for Sustainable Consumption and Production (APRSCP). She explained the great ecological and social merits of the project. “The integrated method of planning is applicable for many other projects. This is a reference project that can be an inspiration for similar projects elsewhere in the world,” she said. See pages 68 and 98.

“Greening the infrastructure at Benny Farm”, Montreal, Canada

Jury appraisal
Community empowerment enhanced through proactive participation of respective stakeholders in a publicly and privately financed venture, promoting self-sustaining measures of neighborhood reinvigoration as well as offering insight into a range of robust technologies that increase building performance beyond conventional standards.
“Bangkok 2006” offered exciting speeches, an abundance of show elements, and unforgettable impressions. 800 visitors from over 50 countries – among them the teams of the 15 Awards finalists from all continents – gathered in the ballroom of the Shangri-La Hotel in Bangkok to take part in the climax of the first cycle the Holcim Awards, the presentation of the global Awards.

The guests agreed: “Bangkok 2006” was not just the crowning conclusion of a successfully run competition; for most it was an unforgettable event that offered a very special mixture of Awards ceremony, entertainment program, and a close look into the world of sustainable construction.
The first big surprise of the evening was announced by jury head Adèle Naudé Santos: “We were unable to single out one ‘shooting star’ that outshines all the others, one that alone deserves the gold Award,” she explained. “In consideration of this, the global jury decided to confer the Holcim Award Gold to two equally deserving winners. So you will not be learning about three winning projects, but four.”

The festivities continued with an excellent dinner, then a gathering in the garden of the Shangri-La on the riverside. The show after dark included instrumental music, choral singing, traditional performances, illuminated barges and an impressive fireworks show.
It is indeed an outstanding honor for me to be asked to deliver the keynote address here tonight. I hope that I appear younger than ever before. But of course, I have to fill you in as to why this might be so. It is probably linked to the fact that some days ago I could pass on the baton of responsibility for UNEP – the United Nations Environment Programme – to my successor, Achim Steiner. But it is mainly due to the fact that I have been a grandfather now for eight months to the day. At the very moment Helen was born, I became preoccupied with a burning question: What will the world be like when she is as old as I am now? That year will be 2072. All the grand statements made during the course of my career prior to becoming a grandfather and being responsible for a grandchild are now...
linked to that concrete date 2072. Then I asked myself: What was the world like when you were born 68 years ago? Moreover, how would you respond if your answer was limited by the few things that you now know?

**The environmental question**

In those days the earth, this wonderful blue planet, had a population of 2.4 billion people. This number has increased to 6.5 billion within the short span of one lifetime. I sincerely hope, irrespective of my age, that I will live to see the next 75 million inhabitants per year for some time to come. When I was born, the concentration of CO₂ in the atmosphere was 30% less than what we have today. When I was born, there were just over 1 million cars on the globe; there are more than 1.5 billion cars today. So we must ask ourselves: Can we today extrapolate from what has occurred during our lifetime? Is it possible to anticipate how developments might unfold?

When considering the question of population, development is differentiated based on geographical location. In the region where I grew up in Western Europe, one encounters a more or less stable demographic condition, in some cases even a decline in population. Additionally, there is an increase in the average age overall, significantly changing the structure of society. On the other hand, in Asia, one encounters an entirely different situation. On this continent, there are 3.5 to 4 billion people, comprising roughly 60% of the current global population. If we now do the math and take into account a relative decrease in the rate of population growth, we will count in 2030 at least 5 billion people on this continent alone. Predominantly, such increases occur in cities. I have learned that there are an additional 180,000 dwellers in metropolitan regions per day. This adds up to 65 million new urban inhabitants per year. Altogether, it is clear that the impact of population development will be significant.

What Marshall McLuhan referred to as a *global village* must now be changed to *global city, global agglomeration, global scenario*. What are the consequences of this shift in condition? What needs to be done? In this situation, Holcim decided to create a foundation. Of course, if one is an outsider, you will
first assume that it will be a foundation focused on sustainable cement production. Wisely, the foundation pursues a more expanded range of objectives pertaining to sustainable development in general. This, however, raises the ante, for Holcim is very aware that to ask for sustainable construction, one must follow the words of wisdom that charity begins at home. So, we must ask, what does Holcim do at home in its own company? All jury members of the Holcim Awards competition as well as members of the Advisory Board of the Foundation have asked this question first: What is the profile of the company? Is it performing according to its own standards set for sustainable construction? Based on the reports that I reviewed, it is relieving to know that Holcim is indeed taking measures in accordance with the Global Reporting Initiative. In that respect, it is equally good to know that efforts are being made to convert waste into an alternative source of energy as well as into raw material for cement production. Keep in mind that the city in which we are now produced slightly more than 3,000 tons of waste per day in the 1980s. Today in Bangkok more than 9,000 tons of refuse are generated daily. Mountains of garbage have to be collected and disposed of. This brings us to the question: Can we make better use of waste than only depositing it in the next landfill, already knowing that this landfill is a time bomb for the future? This question is crucial, touching upon challenging considerations. Regarding incineration plants, we must also ask: Can we not make better use of existing processes with respect to energy production? Well aware of all the difficult questions raised with regard to the manufacturing of products, with regard to emissions, transportation, and waste, it is good to know that much is already underway in view of sustainability, especially in the production of cement. As a matter of fact, tremendous care is given to the processes involved in making cement.

The green chain
I was recently chairman of the advisory board for environment of the Winter Olympics in Turin. We were not necessarily convinced of branding the games with the label Green Olympics, it being winter and all. But this green was placed, so to say, in quotation marks. Nevertheless, great efforts were made.

Can the expression green be generally applied, for example, to the building industry? We need not go into details. Still, it is comforting to know that Holcim is taking the necessary measures at home first. Consider what is being done to lower CO2 emissions. What the company pursued is tied to the question of efficiency, an issue that was intensively discussed and involved considerable self-scrutiny. With an increase of production, you also have an increase in CO2 emissions. What is obviously needed is a relative decrease in these emissions. The target set by Holcim was a 20% reduction between 1990 and 2010. This objective is sensible in view of the ramifications of a company whose reach is global in scope. Furthermore, this is even more significant because the globalization process of the company also involves a globalization process of smart technologies.

I am happy to learn that Holcim is very active on these fronts, for example, in Costa Rica with a clean development program that gives incentives to those who are changing their production processes. I could go on and on with such examples. One thing in particular is worth mentioning. You are certainly aware of the overall value chain; from reports on hand I learned that in 2003 there were 6.8 billion US dollars available to purchase or buy products from other companies. Here it is necessary to ask: What is the supplier’s qualification program? How can you convey your ideas pertaining to sustainability to those benefiting from the 6.8 billion dollars used in business transactions? Were this to be achieved, if your message were spread, you would have a multiplication factor raised to its highest. In this respect again, the Holcim Awards are not for sustainable cement production alone, although it is good to know that this company places such a demand upon both itself and its suppliers. It should be noted that these examples do not only concern the environment, but just as importantly pertain to the social aspects of sustainable development in construction.

This topic is at the center of a paper that I strongly recommend for reading, a paper delivered by my good friend Simon Upton at the first Holcim Forum 2004 in Zurich. As he thoroughly covers the subject matter, I need not provide you with yet another definition of
sustainable development, as you well know there are plenty thereof.

The energy wave
One must be aware that to establish a foundation for sustainable construction is a noble endeavor. It also serves to lend a new credibility to the construction industry in general and the pursuit of sustainable building practices in particular. Of course this must first of all be linked to the production of individual buildings. It is not only a question of how to address sustainability during the construction phase, as important as this is, but to specifically take into account the use and maintenance of buildings long after construction is completed. There are already many good examples for autonomous structures. One such example is the UNEP regional office here in Bangkok, a facility that is for the most part self-sufficient in terms of water, sewage, and energy. I am convinced that such examples demonstrate not only what we can achieve, but moreover, what we must achieve. More has to be done along such trajectories. However, this does not have to result in ugly architecture. The challenge is to make buildings environmentally, socially, and economically viable without compromising aesthetic quality – all the while accommodating the necessary functional and structural requirements. That is the challenge and not the other way around. Within this complex framework, energy plays a significant role. For a long time, experts responsible for the built environment, for monitoring climate change, for waste management, etc., always had to, in a sense, “apologize” in that they called for renewable energy. These apologies came more often than not in the form of unsettling information concerning thawing glaciers, melting Arctic ice caps, and so on. Many apologies and doomsday scenarios later, we still do not have sufficient bravado and support to advance the cause of renewable energy. President Putin’s decision, for example, to halt the gas supply to the Ukraine, offers a very clear example of how important it is to broaden our options and to make better use of energy. So, to integrate the issue of energy into our practices is a very big challenge indeed, reaching into politics, economy, and the socio-cultural realm.

The urban dimension
We have arrived at a moment in time when the model of life-cycle economies predominantly frames debates on sustainability. For a very long time there were those who wanted to retain a linear model of thought according to which every person and every task was compartmentalized. There was somebody responsible for production, another for packing, another for selling, another for consuming, and yet another for waste. As long as this structure was maintained, it could not be expected that those responsible for one area would be concerned for those in another. Those in production and packing would never ask what is done with their waste. But to bring these diverse activities together means a change in the overall development of products. This is what we need: to make the market work with respect to the field of waste management. Therefore we developed the life-cycle economy, the circular economy as it is called in China. Of course, the same goes for water and sanitation. We must implement the “Millennium Development Goals.” These goals were ratified by more than 180 heads of state and government leaders in 2000 as a comprehensive agenda for development. The objectives go beyond the realm of pure technical solutions and implicate the more extensive sphere of political action. For to have 2.4 billion people with access to proper sanitation – in Bangkok a third of the population suffers from this deficiency – is certainly a political issue. So the interrelated themes of waste management, water, and sanitation must be integrated in the question of what constitutes the scope of sustainability.

Discussion about sustainable construction tend to focus on the fabrication of buildings and their attendant processes. But the building alone soon becomes a white elephant if not seen in the larger context of cities. Without a doubt, the city is one of the most outstanding creations of mankind. Cities have always been a center of cultural concentration; they have always been places of social interaction. As we say in German: “The air of the city makes you free.” Large numbers of people have migrated from rural areas and have left their close-knit social fabric seeking a chance for upward social mobility. Such is their common desire. Cities, the place for economic development, are linked with the urbanization and globalization of the economy. A case in point is the city of Bangkok, which is responsible for up to 40% of the GNP of Thailand. A similar case can be made for Jakarta in
Indonesia. So, if a city loses its economic function and raison d’être so to speak, we cannot possibly reach the targets of the Millennium Development Goals. Therefore to link construction to the city and not just to individual buildings is an issue of greatest relevance. Until now, we had a hunch that such questions pertaining to construction were connected to discussions on sustainable development. Now we know that we have to do our utmost to make cities a key part of the solution. This is a challenge that calls again for innovation and creativity concerning sustainability. How do we face it? How do we do it?

At a global level up to 1 billion people live in slums. Many are convinced that these are problems specific to developing countries alone. A huge increase of the population within a short time period implies naturally a genuine growth of the city – yet cities lack the necessary infrastructure to accommodate such increases. Indeed, slums are a problem endemic to developing countries! I should know, I lived for more than eight years in the city of Nairobi in the middle of Africa, in Kenya. There, 3.6 million people live in a wonderful part of the world, but 60% to 70% of them in slums, in total poverty – you cannot even begin to imagine. And if you walk around here in Bangkok you will encounter poverty as well. So how do we deal with this condition? Is it possible to make cities and their agglomerations a part of the solution?

The issue of slums, however, also concerns the developed world. We must ask ourselves whether we encounter similar problems at home. To answer honestly, we need to admit that this is already a problem of developed countries as well. My feeling is that we are creating cities that can not fulfill their functions, whether in the North or the South. Cities are losing their function irrespective of geographical location. And with this loss, slums are being created at an ever increasing rate. Were you to return with me to my home country Germany, you would see areas in which industries like coal and steel have dramatically decreased. It’s very difficult to avoid this. The main difference is that in developing countries slum settlements lie in a peripheral ring in what could be called the suburbs of the city, while they are in the center of the city in developed countries. Inner cities have become slums due to the migration of retailers from the core to the outlying greenbelt. As a result, ever more malls and retail chains spring up on the margins as the city’s generative function becomes progressively weakened. So please do not delude yourselves that such processes belong only to the structure of developing countries. For they are active in all parts of the world.

To return function to cities is just as important as to promote good construction. How can we integrate people back into the municipal body again? The answer to this question is surely linked to that of the social fabric, to its socio-economic condition, yet another topic that deserves our attention.

The global village
I believe another main concern that must be addressed is how to handle the large so-called conurbations. These are not unified entities, however, but rather dispersed, decentralized arrangements. In this sense, Marshall McLuhan’s call for “the village” was accurate, notwithstanding its global extent. We are unfortunately no longer stabilizing large metropolitan regions with the aid of comprehensive master plans, instead people are disbanded in decentralized neighborhoods. This is completely foreign to daily life in developing countries where people have a totally integrated understanding of communities, of neighborhoods, of families – call it tribes. In other words, these people are much closer together and are therefore able to integrate. We have to bring this type of integrative capacity back to cities of the developed world. In the so-called developed world, whether one goes to Paris or to Berlin, the majority of inhabitants are unable to integrate themselves into a larger sense of belonging, to identify with a community. Thus the question arises: How can we respond to globalization and its impact on the population at home? Currently, this question cannot be answered sufficiently, and so we must continue to live with this tension. So sustainable development also demands bringing people together in order for them to forge a stronger sense of collective identity. This is a giant challenge! Otherwise we end up with segregation, a type of differentiation without benefits. Thus sustainability in light of globalization necessitates tolerance, not by abandoning your position, but making the effort to understand the other person’s position. Tolerance means first being aware of your own position! Only
then can you open to others in a reasonable way. Otherwise, tolerance means to have no position and to accept everything. So in cities, that remarkable invention of mankind, we will have to prove that sustainable development is viable, not as a closed concept, but an open one, one that implies flexibility – vis-à-vis different ethnic groups, religions, beliefs – and flexibility vis-à-vis the built environment which echoes this change in society. This is not to suggest a singular master plan, but to make a plea for changes in the notion of development, to make a plea for better solutions in the future, even at the smallest scale. This is an appeal for integrating the village in the city, learning from them and bringing that knowledge back to the urban realm. I make a petition for the global village.

The sustainable turn
Some months ago I heard an interesting anecdote, a story about Albert Einstein. Perhaps some of you already know the story, but it is still worth mentioning. Once Einstein gave a test question to his students and after some minutes one of the students asked: “Professor Einstein, it’s surprising that these are the same questions you gave us four years ago.” Einstein smiled and replied: “These are the same questions but in the meantime I have new answers.” I believe that is exactly what sustainability is about: to be aware that we need to continuously revise our answer, that we have to be open to new answers. At the very moment we believe we have found “the answer,” we become ideological and we might as well be forgotten. But, at the very moment that we are willing to integrate concerns for the environment with social empowerment and economic performance, then maybe we can begin to solve the problems for the year 2072.

I am certain that my granddaughter, Helen, will have a great, great time to discover what Holcim has and will achieve. Congratulations! I saw the last figures of Holcim, and I can only say that they are really a great signal of a dynamic and successful company. I would be glad if I had had the same increasing figures for UNEP in the last few years of my tenure. Then I could not have hoped for such success, nor could I have imagined possible a world in 2072 where one resource that is unlimited – the brains of young people – might be used to its full extent. The brain and thinking are always linked as well as encouraged by new challenges, by the same questions that need to be answered anew again and again.

This, I believe, is the message from the results of the Holcim Awards. Congratulations to the Award winners, congratulations to those who participated. Above all they know the significance of giving an answer without being certain that it is the right answer indeed, for they are also aware that such an answer will be the seed of a very important question in the future. So don’t believe that only the prize winners have the right answers. For again and again answers are linked with the intelligence of young people around the world. For sure, we will always have new resources of energy; we will have for sure new chances for recycling water, we will have for sure better chances to avoid waste and to integrate it in the production process, and we will have for sure a planet able to handle 9 billion people in a very humane way. This is the vision that I link with the Holcim Awards.

1 “Welcome to contested territory”, keynote speech by Rt. Hon. Simon Upton (New Zealand), Chairman of the OECD Round Table on Sustainable Development. Published in First Forum, proceeds of the Holcim Forum for Sustainable Construction, Switzerland, 2004 (ISBN 3-766-0069-8).
The three architects of Proyectos Arqui 5 in Caracas are giving the residents of San Rafael-Unido not only new streets, public stairs, and squares for social interchange – but also the reassurance that their neighborhoods are worth preserving in spite of the poverty and crime.

Fate smiled upon Venezuela. With a favorable climate, the country between the Andes and Caribbean coast is exceptionally fertile. The land has oil reserves that rank among the largest in the world. And the capital of Venezuela, Caracas, is also blessed with outstanding conditions; it lies in a beautiful, elongated valley flanked by densely wooded hillsides. Nature flourishes here, and a constant breeze provides natural cooling.
A beautiful city – from a distance

However, Venezuela is not a highly developed country – and Caracas is no Garden of Eden. On the contrary, the city is among the most dangerous in the world. Visitors seldom witness a crime, but will feel the omnipresence of the violence here. Locals constantly advise against using this street or visiting that park; on the streets the law of the jungle rules. The “better neighborhoods” are actually high-security zones. Visually, many parts of Caracas also give a desolate impression – from a distance the city looks appealing, set amidst large green areas, but once you are in the city it loses its charm. The skyline is marked by huge residential silos, ugly office buildings, and construction ruins. Rattling cars spew coal-black exhaust; trash lies around everywhere.

Informal settlements on the hillsides

Nevertheless Caracas is a magnet that has been attracting the people of Venezuela for decades. Today – in 2006 – it is the most densely populated city in Latin America. Of the estimated 4 to 5 million inhabitants about half live in so-called barrios. These informal districts grow outside the city limits as poor people build huts and shacks as cheaply as possible, wall to wall. There are no gardens or public squares in a barrio – and no infrastructure. The residents have no money for streets, lighting, or playgrounds, and the government hardly invests anything in these neighborhoods. Because the flat terrain of the valley has been long since occupied by the formal city, the barrios spread up the steep slopes surrounding Caracas. At night their lights create a gorgeous backdrop – Caracas then looks a bit like a garden with beautiful Christmas lights – but the situation on the slopes is more than unpleasant, because the paths through the barrios are extremely steep, and many slopes are sliding.

Roughly half of the 4 to 5 million residents of Caracas live in barrios, or slums.
is such a chore that they often spare the effort and just drop trash anywhere. Ambulances and fire trucks cannot reach any of the houses.

“This here is my world!”

The barrios are so densely built that they can hardly be significantly changed – or only when they are demolished. In Latin America, projects have been proposed again and again to tear down informal settlements and move the people into new developments. Because of the size of the barrios, doing such in Caracas would be an illusion. Furthermore, people are gradually realizing that it makes more sense to accept informal settlements as a type of urban morphology – to accept and upgrade instead of demolishing. Of course improvement is often more expensive
than new construction; but demolition destroys the social network and eliminates the environment in which the people have lived for decades. Even if crime rates are high in most barrios, the people feel at home there; their roots are in the barrio. “When I come home, first I greet all my neighbors,” tells one resident, “perhaps play a game of dominoes with one, chat with another. This here is my world; here I am home!”

A barrio with 100,000 inhabitants

In 1998 the former Venezuelan government initiated a program to improve the barrios. The quarter La Vega in Caracas was chosen for pilot projects. Here the barrios have already reached a high level of development and the land is owned by public institutions. La Vega is 400 hectares large – one of the largest and oldest unplanned settlements in Caracas. People have been living here since the start of the 20th century. About 40 years ago the population began to explode. Today La Vega is home to about 100,000 people. To launch the improvement program, the government held design competitions for the various districts of La Vega. The competition for the district San Rafael-Unido was won by Proyectos Arqui 5. Behind this name stand 3 architects who have been working together since they studied together 20 years ago: the sisters Isabel and Maria Inés Pocaterra as well as Silvia Soonets. Together they work for the government and private clients, designing houses and residential developments, commercial buildings, urban development projects – with such success that they now employ 3 people.

Steep, steep, steep ...

The district of San Rafael and Unido that Proyectos Arqui 5 CA was commissioned to upgrade is the smallest district of La Vega. Its 26 hectares contain 1,000 houses in which 5,000 people live. Because of the difficult topography this area should in fact have never been allowed to be developed. In San Rafael-Unido there is one main street and 2 secondary streets that are extremely steep. The higher up the house sits, the poorer the family – because the few streets are all in the valley.

“This is our home” – Consensus is gradually forming that the barrios should not be demolished but improved.
narrow and treacherously steep. When it rains they become so slick that they are barely usable. From the side streets stairs lead to the individual houses. The stairs were built without any consistent plan; each resident just built what he needed to reach his house. Thus there are stairs with restricted width, irregular pitch, without handrails, and with excessive steepness. In the highest neighborhoods no stairs are built at all; dirt paths lead to the houses, which are in correspondingly poor condition.

... and too few paths
Proyectos Arqui 5 was commissioned in 2000 to analyze the situation in San Rafael-Unido, develop a concept for upgrading the barrios, and draw up plans for the initial construction work. The 3 architects began by classifying each house. There were no plans of the barrios; work began literally from scratch. The research showed that the situation in San Rafael-Unido was characterized by 4 main problems: difficult topography, poor accessibility, a lack of services (for example trash collection) and the lack of public spaces. The architects considered the most urgent requirement to be the street and walkway system, which also provides access to the buildings situated further uphill. They designed a new circulation system with a new main road uphill from the barrios and with numerous stairways within the settlement. Designing stairways for the barrio is easier said than done – because very little space is available between most buildings, and slopes sometimes exceed 60 percent.

Public squares and an urban facade
The project to upgrade San Rafael-Unido of course involves more than new stairways. Because there are no public spaces where people can meet or children can play, the 3 architects integrated every open space, regardless of size, into the walkway system, and using modest means developed these into public places. Because the district
this prevents idle time and ensures the effective application of the limited finances.

More public squares – more drugs?
Thus the upgrading project has become a project of the residents of San Rafael-Unido. They formulated their needs, but also their fears – which were for the 3 architects sometimes surprising. “We were amazed for example that at first there was resistance to public spaces,” says Silvia Soonets, “until we learned that the residents feared that these places would be taken over by drug dealers. So we worked out models with various control mechanisms.” They managed to scatter the apprehensions – and build some small squares. On one such terrace at the end of a stairway 3 boys now play soccer, a tipsy man...
Arqui 5 is largely finished. The plans of the architects are ready for execution – yet the women continue their engagement in La Vega, striving to push the work forward. Why do these architects, who are among the very small minority of better-off people in Venezuela, invest themselves so much in this project? Why do they search for sustainable solutions in a barrio, a neighborhood most people of their class prefer to have nothing to do with? Isabella Pocaterra answers promptly: “Over half the people of Caracas live in barrios. If I can’t help solve the problems of this multitude – then why am I an architect?”

Delays and empty promises
The dedication of the 3 women is admirable. They won’t let themselves be

proudly shows the flowers growing next to the square. Compared with its neighborhood, the little square is remarkably clean and in good condition. The people use it and take care of it. From here one not only overlooks all of San Rafael-Unido, but also looks across to the next barrio, situated on the opposite hillside. In that barrio are only the shabbiest corrugated metal shacks. “They say it takes 18 years for such a barrio to reach the level of San Rafael-Unido,” tells Silvia Soonets.

Ethos of the architects
The sub-projects of the renewal strategy began being implemented in San Rafael-Unido in 2001. The new streets still exist only on paper; improvement comes slowly. But there is visible success. The design work of Proyectos

The residents are not simply beneficiaries of the upgrading strategy, but partners of the architects.
discouraged; they continuously push the project forward, even though the work in San Rafael-Unido has stopped in the meantime. After being supportive in the beginning, the current government practically blocked the programs through constant delays and empty promises. “Today everything creeps forward unbelievably slowly,” says Maria Ines Pocaterra, pointing to the partially built frame of the community center. The work here was stopped just as the very first walls of the structures were being erected; the building shell is now deteriorating.

“Oil is a curse!”
The government hardly seems interested in long-term projects such as at La Vega; it prefers fast solutions, which are poorly sustainable, and stamps new neighborhoods out of the ground. In Caracas there is not only too much sub-standard residential space, but generally too little residential space. “The government got blamed for doing too much for the existing barrios,” tells Silvia Soonets. “So now it prefers to build new neighborhoods rather than deal with the old ones.” That the upgrading of San Rafael-Unido is currently not progressing as it should is not even a matter of financing. Isabella says: “Even if we got the money from private sources to finish our project – we could do nothing! San Rafael is on government land. Our hands are tied.” Even the residents of the barrios hardly push any more from the bottom since the government has been constantly launching its new so-called “missions.” These are social aid programs that give poor people money. These days 2 or 3 people in almost every family receive such direct payments. The government can afford these “missions,” through which it secures broad support among poor voters, because the high price of oil has brought huge amounts of money into the country. In the long term, this form of welfare support is poison for the development of the
Residents are partners

Even though the project is not progressing at the pace that had been previously planned, it is unquestionably a great success that it has already thrived so far in the face of so many adverse circumstances. The people do not have the feeling that the strategy developed by Proyectos Arqui 5 was forced on them. Does the fact that the people behind the project are women add to the high acceptance rate? One of the people in the group following the architects as they walk through the neighborhood laughs aloud and shakes his head: “No, no!” In fact, these types of projects in Venezuela are often implemented by women, tells Maria Ines Pocaterra: “The money paralyzes people!” Interest has clearly dwindled in projects that noticeably change conditions only over time. “Oil is a curse for Venezuela” agrees Maria Ines Pocaterra, “because it gives the message that our country is rich and you don’t have to work to get somewhere.”

Where time almost stands still

The plans of Proyectos Arqui 5 are slow to be realized not only because the government shows little interest and the welfare payments kill the motivation of many poor people to work toward long-term improvement of their living conditions. Another reason is that in the barrios, although life is anything but calm, it is without the least trace of dynamic. One has time. There is no entertainment; every opportunity for diversion is gratefully accepted. The people here are glad to talk about every detail of the project – and of course about private things also. When the women of Proyectos Arqui 5 walk through the sector, a whole train of people always grows behind them and follows along. The architects show admirable patience, listen to all concerns, and remain attentive and open. “I have lived here for 30 years,” complains a woman at a house Silvia Soonets, Isabel and Maria Ines Pocaterra pass, “but only since that stairway was built does my house get flooded!” Silvia Soonets calms her and promises to take care of the problem. “Of course some people are angry because they don’t agree with a certain sub-project,” tells Silvia Soonets. “But in general, the people of San Rafael-Unido do support our work.”

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Pocaterra. “Here more women than men are active in the design profession. Men work rather as engineers – probably because here construction projects are headed by engineers, not architects.” But the high acceptance of the project is certainly due to the fact that the women of Proyectos Arqui 5 take the residents seriously and give them the feeling of being genuine partners – and not just beneficiaries of government programs.

Home – in spite of everything
“We don’t want to change this barrio – we want to upgrade it!” stresses Isabella Pocaterra. “The people here form a functioning community. They help each other, watch out for each other’s children, they are there for each other. These structures must be maintained! But we also want the people here to get an infrastructure similar to that of the formal city.” If the people are more or less happy in spite of all the poverty and crime – why start an upgrading project here anyway? Isabella Pocaterra: “These barrios are of course not sustainable. If we don’t do something now, build better streets and drainage systems, the settlement will collapse at some point” – and would cease to be to the residents what it has been for 40 years: Home.
Christoph Ingenhoven and his team in Düsseldorf have been working on their design for the new central train station in Stuttgart since 1997 – a period of time commensurate with the urban and social significance of the project.

“Stuttgart is a city which a king ordered next to his castle,” says architect Christoph Ingenhoven. “We don’t know why the king loved this valley, but we do know this place is not well suited for a city.” Stuttgart, one of the largest cities in southern Germany, suffers as it were from a birth defect. It sits in a constricted basin with steep sides at the end of a narrow valley. When the railroad was built in the 19th century, the tracks were laid from the open north, through the valley, to the main station in Stuttgart, and again back out of the

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<td>Principal author</td>
<td>Christoph Ingenhoven, Ingenhoven Architects, Düsseldorf, Germany</td>
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his head: “Train stations belong in the city center! One of the greatest advantages that trains have over airplanes is just that – travelers arrive directly in the center.”

Through the mountain instead of through the valley
A solution was sought for Stuttgart that would bring the high-speed trains into the city center despite the difficult topographic situation. Early in the

Train stations in the suburbs?
The geographical defect of Stuttgart cannot be corrected. But one can change what has developed from this situation – for example the previous routing of the tracks. Dead-end terminals are poorly suited to our age of high-speed trains; they prevent rapid continuation of the journey and hinder smooth traffic flow. Many European cities have a centrally located terminal like Stuttgart, and many have also a station for high-speed trains in the outskirts. In France the stations for Trains à grande vitesse are sometimes 20 or 30 kilometers outside the city centers, somewhere in nowhere. Christoph Ingenhoven can only shake his head: “Train stations belong in the city center! One of the greatest advantages that trains have over airplanes is just that – travelers arrive directly in the center.”

valley to the north. The tracks divided valley and city, forcing Stuttgart to the backside of the valley. The city was and is effectively squeezed against the valley walls.

The new train station will be covered by a minimalist 420-meter-long concrete shell structure.

The vaulted structure is supported by 28 so-called “light eyes.”

Daylight streams in through the organic-tectonic columns.

Christoph Ingenhoven “Optimal is a building that is as self-sufficient as possible.”
Christoph Ingenhoven was sure from the start to be able to meet the challenge of “Stuttgart 21” with an unconventional solution. Christoph Ingenhoven: “You have to clear your head of all preconceived notions of train stations – the classical giant hall over the tracks. When the first stations were built in the 19th century, these halls were necessary so that the steam from the engines could rise. Today steam engines are no longer in use – nobody needs halls anymore.” Nevertheless train stations are still being built to great heights, as evidenced by the new Berlin Main Station inaugurated in the summer of 2006. “The idea has always been to impress arriving passengers with the station,” says Christoph Ingenhoven. “But today travelers just want to move on as fast as possible, to change

1990s the county, the federation, and the railroad company presented a spectacular collective project: “Stuttgart 21.” It proposed that the railroad should reach the center not through the valley but through tunnels. The tunnels would pass through the sides of the basin and then run underground to the site of the present station – thus eliminating the division between valley and city center. Moving the tracks underground would free the immense area they occupy today. In this area 11,000 people would then live and 24,000 would work. No question: “Stuttgart 21” is a project of grand scale.

Other locomotives – other stations
The new rail routing would mean that the current railway station – an architecturally significant building from 1914 by Paul Bonatz – would be replaced by a new one. On one hand the new tracks would come in perpendicular to the existing ones; on the other the new tracks would lie 8 to 10 meters deeper. In 1995 the initiators of “Stuttgart 21” started to work out a competition for the new station and announced it in 1997. The winner was ultimately the Düsseldorf firm Ingenhoven Architects.

Legendary building: The Stuttgart Station built by Paul Bonatz in 1914 is integrated into the new project.
nates at ground level. The basic concept of our design was born very early on.”

Station experiments
In the summer of 2006, after uncounted revisions and nearly ten years of refinement, the design looks like this:

The tracks are covered by a minimalistic concrete-shell structure 420 meters long. The vaulted shell is supported

No cavern
For Ingenhoven Architects it was clear: only a totally underground railway station would suit this special situation. “We asked ourselves, how can we avoid having a subway atmosphere in our station? How can an underground building be a landmark of Stuttgart with great urban merit? We didn’t want a ceramic-tiled subterranean void! The Muscovites have shown us that subway stations can be splendid. Our station should not be a cavern. We wanted to create a space with aesthetic value – 420 by 80 meters in size.” Ingenhoven’s long-time employee Hinrich Schumacher recalls how he and Ingenhoven went to Stuttgart at the beginning of the project in order to appraise the situation on site. “Christoph Ingenhoven said we need something that stays underground and has controlled openings – not something that domi-

Instead of north-south, the new tracks will be aligned on an east-west axis – and will be underground. This will free up enormous space for the city.

Stuttgart lies in a basin – today the valley is cut by the incoming and outgoing rail lines.

The light eyes give new perspective to the word “underground.”
by 28 “light eyes.” These are sort of organic-tectonic columns that flare and open as they rise, ultimately opening into inverted bells through which daylight flows inward. The geometry of these structures and the entire building is extremely complex; at the thinnest point the concrete shell spanning the station is just 8 centimeters thick. “We wanted the shell to be as thin as possible,” recounts Christoph Ingenhoven. “First we designed tensile structures. After experimenting for some time, we realized – no, the shell must be concrete!” Legendary German engineer Frei Otto, now more than 80 years old, calculated vault structures that looked as light as possible. “And in fact the shell gives the impression that the observer is underwater looking up at the water surface,” says Ingenhoven. Because the gigantic openings allow daylight and fresh air to flow into the station, and because the concrete shell reflects the light, very little energy is required for heating, cooling, and lighting. In winter the station is never colder than 10, in summer never warmer than 25 degrees centigrade.

Light as a feather and highly complex
The design of the new Stuttgart station is exceptionally sustainable not only regarding energy efficiency. The consumption of material for such a large structure remains extremely small – as does the consumption of space. Because the concrete roof structure can support pedestrian traffic, the entire surface above the station is usable. On top of the shell, even with ground level, the new Strassburger Platz will be created. The subterranean station also helps conserve a significant urban green space – the palace garden bordering on the east, which would have been partly destroyed by an above-ground station. The Bonatz building from 1914

World-famous engineer Frei Otto used models to perform the static and dynamic load calculations for the light eyes.
Architecture should be less elaborate – and less pretentious. In every project, I want to find out what is necessary and appropriate – and what helps people. That doesn’t mean we are trying to practice some sort of good Samaritan architecture, but we also don’t want architecture for architecture’s sake. We have our feet on the ground and we try to build sensibly and well.

“Making things lighter”

Such lightness is typical for Ingenhoven Architects. Christoph Ingenhoven says he strives to achieve “aesthetics of disappearance; making things lighter”:

“Architecture should be less elaborate – and less pretentious. In every project, I want to find out what is necessary and appropriate – and what helps people. That doesn’t mean we are trying to practice some sort of good Samaritan architecture, but we also don’t want architecture for architecture’s sake. We have our feet on the ground and we try to build sensibly and well.

is also integrated into the new project – its main hall will continue to be used. But all this will probably impress future rail travelers less than the unusual aesthetics of the new station. The 3D renderings show a design of great harmony, natural fitness, and holism. The complexity of the construction is not visible to the eye. Because the tracks are on a slope, each of the 28 daylight-columns has a different height – graduated from 8 to 13.5 meters. It all seems as light as a feather, easily thrown together, nearly weightless.

The project blends old and new... ... offers thrilling views... ... and gives a new urban outlook.
in a practical way.” Does Christoph Ingenhoven therefore advocate simple functionalism? The winner of the global Holcim Award Gold and the Holcim Award Silver for the region Europe smiles: “On the contrary. When you question what is really necessary, you can achieve highly refined solutions. In our work there is a lot of emotion and a lot of playfulness.” Someone once told him that the designs of Ingenhoven Architects contain nothing superfluous; if you take anything away a hole will be left. “That’s precisely what I strive for! To find and express the difference between two things is less exciting to me than integrating those two things into a unified design. Like the light-well columns at the Stuttgart station that integrate multiple functions: they are at once structural columns, building shell, light reflectors, and more.”

**What comes in? What goes out?**

Christoph Ingenhoven comes from a family of architects; he himself has 5 children between 5 and 18 years – an unmistakable sign of his belief in the future of this world and his desire to contribute to it. How does he reconcile his large projects and his large family? “Of course I work a lot. But on one hand I don’t spend my weekends in the office, and on the other I am convinced that if my children can follow my work and if they find it good, then they will be more open to accept my absences.” And he has the impression his children support what he does: building sustainably. Christoph Ingenhoven: “The term sustainability comes from forestry: You don’t cut more wood than can regrow before you need more. In construction, this concept is unfortunately not so simple. One can look at sustainability in any number of ways: How much energy is consumed to transport the materials to the construction site? The deeper you go into detail, the more complicated it gets. When I work on a project, I try to reduce the issue of sustainability to another issue: what goes into a building and what comes out – energy.”

The shell structure is multifunctional.
water, waste, exhaust gas, waste heat, and so on. These individual factors can be managed relatively well; you can reduce energy consumption and waste generation. I think the optimal building is one that is as self-sufficient as possible.” Christoph Ingenhoven uses his private house as a sort of experimentation lab for sustainable construction. He strives to achieve maximum autonomy of his single-family home, for instance by using rainwater, geothermal energy, solar energy and optimal insulation. His house is a work in progress: “For backup heating we installed a furnace that burns wood pellets. That’s a good fuel source, but it generates particulate exhaust – for which we now have a new type of filter system.” The enthusiasm with which Ingenhoven tells of his experiments at home shows a touch of playfulness – he steps forward to challenge the system. But not the political or social systems, the building systems. He is not burdened by ideologies. Ingenhoven is not an alternative environmentalist.

Environmentally sensible – not oversensitive
Around 1980, as he was studying at the Aachen RWTH, an ecology wave washed across Germany, released chiefly by the movement against nuclear power. “About a third of my fellow students were as green as could be; that was in fashion then. They lived by the motto ‘jute instead of plastic’, wore bib-overalls, and tried to find the best ecological solution for everything. I found this philosophy of life very interesting but unrealistic. You can’t control everything! You never know what the organic farmer really feeds his animals – in the end you can always find something wrong everywhere you look”. The bib-overall environmentalists have now been succeeded by environmentalists less guided by ideology – and in Germany the Green Party has become part of the political establishment. Christoph Ingenhoven: “Germany has a tradition of science and technology, and we are proud of it. I advocate combin-
ing this tradition with our environmental concerns. If you have something that is well made and also meets environmental criteria, then you will be taken seriously. But environmental criteria should not be applied dogmatically. A watch that I wear my whole life does not have to be recyclable! Cutting down a teak tree to build a house that will last a hundred years is acceptable – but it is not acceptable to make matches out of teakwood. We must judge which reactions are appropriate in which situations.” We know that the use of an office building can change fast. One could respond by building a structure to last just 10 years – or by building a long-lasting structure that can accommodate change. “Just look at our office. The building will last forever. The 1,600 square meters that we occupy today could alternatively accommodate 20 apartment units. Or a university institute. I like such highly flexible buildings – and I like renovation strategies.” Buildings can be seen as organisms that evolve. “They shed parts and gain new ones.”

Save where it counts
In sustainable construction one should concentrate on the essential things, insists Ingenhoven. Questions such as: How long will the building be used? How much land will it occupy? “Land use is a critical aspect because a dense city is an energy-saving city. The Danish capital Copenhagen is for example 20 times more compact than Houston, Texas – and uses only a twentieth of the energy. Density cuts travel distances. Today we use half our energy

for houses, a quarter for industry, and a quarter for transportation. You can well imagine what enormous energy savings could be achieved by well insulated houses and dense cities in which residential and commercial uses are next together!”

Symbol for new mobility
The promotion of mass transit is also important in energy saving. The design of the new Stuttgart station is a symbol of a new and attractive mobility, a new feeling of arrival. The public recognizes this significance and supports the design of Ingenhoven Architects. The clients were at first skeptical of the proposal, but German Railways finally decided to stand behind the proposal of Ingenhoven Architects. Innovation requires endurance. And so
Mineral water beneath the train station

Like all large projects, “Stuttgart 21” has its share of special circumstances. One of them is that the famous spa and mineral springs Stuttgart-Bad Cannstatt and Stuttgart-Berg must be protected. Subterranean interventions and impact on the regional groundwater and mineral water supplies must be minimized or avoided throughout the construction period. This leads for example to the relatively high elevation of the train station tunnel – and to extensive prophylactic measures: any water that becomes contaminated during construction must be cleaned and treated; groundwater levels will be continuously monitored, as will be the chemical quality of the groundwater and mineral spring water; and finally an extensive groundwater and rainwater management system will ensure that a great part of the water required for construction can be safely percolated into the soil.

At the thinnest point the concrete shell is a mere 8 centimeters thick.

The new train station – a masterpiece of interdisciplinary collaboration.
The power of water

Luigi Centola is relaxed in and around water. The power of water also drives the most important project of the Roman architect – and could ensure that the cultural heritage of one of the world’s most beautiful places is preserved.

“I am a man of the sea,” tells Luigi Centola. “My favorite pastimes are swimming and fishing.” No wonder – the architect, born in 1968, grew up

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<td>Principal authors</td>
<td>Luigi Centola with Michele Albanelli, Eliana Cangelli, Raffaele Gambardella, Monica Giannattasio, Roberta Mansi, Vincenzo Pagano, Valentina Piscitelli and Arabella Rocca, Centola &amp; Associati, Rome, Italy; Mariagiovanna Riitano and Teresa Amodio, University of Salerno, Fisciano, Italy; Paolo Turbolente and Rodolfo Piscopia, Acquatecno srl, Rome, Italy; Ugo Rocca and Sanni Rocca, Resit Renewable Energy, Italy; and partners from Italy, Spain, the USA and the UK</td>
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<td>Regional Award</td>
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in the port city of Salerno; he spends nearly all his free time at the nearby Amalfi coast, considered one of the most beautiful coastal areas in the world. Luigi Centola is not only a man of the sea, but a man of the word. When he is not plowing with sure strokes through the emerald-green waves off the shore from his weekend house, or drifting about on his small boat, he is practically always communicating. His cell phone rings continually; on the street, cars stop him again and again because the drivers know him and want to say hello.

**Interaction as a principle of life**

Enjoyment of exchange with others typifies not only his outings, but also his everyday professional life. Luigi Centola is not an architect who builds a lot (yet), but one who is involved in uncounted projects. He works for various universities, conducts competitions, negotiates with authorities, coordinates, talks with specialists – always calmly and with a sense of humor, but always with purpose. Centola is convinced that interacting with people is typically Italian. “The best and most important place in an Italian village or city is the piazza, the central square.” Here the people meet in the evening, when it’s no longer so hot – old people, young people, women and men. Here the talk, the scolding, the laughter, the story-telling is wild and gesticulated. Not even the popular television set has been able to sweep life from the Italian piazza.
A piazza in his head
In a certain sense Luigi Centola carries his piazza along wherever he goes – in his head. Here ideas grow, quarrel, combine, thrive. His strength, says he, is vision – but not of castles in the air.

“I work openly in various technical disciplines with specialists from all areas; I seek contact with politicians, sponsors, clients. Some of my projects are only proposals, ambitious intentions – but they are always realistic.” The architecture that interests Centola consists of much more than just buildings. “My architecture has to do with archeology, with geography, infrastructure, political strategies, social issues and ecology.” There is no better example to illustrate this than the project “Renewal Strategy for the Mulini Valley,” for which he won the Holcim Award Gold for the region Europe and the global Holcim Award Silver – and which is situated at the center of the universe in which Luigi Centola lives: in Amalfi.

Paradise falling
“When the people of Amalfi enter paradise on Judgment Day, this will be a day just like any other for them,” it is written, freely translated, on a sign at the entrance to Amalfi. The town, picturesquely situated on the brusque coastline, is actually a little paradise on earth – which is why in the warm summer months it almost drowns in swarms of tourists. Amalfi has a magic that is hard to describe. Each stone seems to breathe history. For hundreds
of years this small town, which today counts 5,500 residents, was a global player. The maritime republic Amalfi controlled a great part of the region and the international trade. On their journeys the merchants from southern Italy became acquainted with the secrets of the world. In the 12th century they saw in China how paper is made, and in that era they brought home the lemon. From that time on, Amalfi would be known for its lemons and paper. Lemons shaped the landscape, as terraced lemon orchards spread extensively. Paper drove the economy, as Amalfi paper – made from old clothing – became a leading export product. Countless small paper factories sprang up along the small Canneto River in the ravine behind the town. From Amalfi the chain of mills stretched 3 kilometers inland, climbing from 40 to 225 meters in elevation. The mills were carefully built over the centuries with enough space between them to optimally conserve the waterpower.

**Threatened heritage**
The paper factories gave people work and made some of them rich, even very rich. But that was long ago. Amalfi still radiates strength and confidence when one approaches the town along the coastal road or from the sea. But behind the radiant town, where the “valley of the mills” stretches in the shadow of high hills and shade of old trees, Amalfi shows a completely different face – one that speaks of downfall. The mills, where the once-fashionable paper was produced until a few decades ago, have long since deteriorated. Now, in the
summer of 2006, they stand as impressive ruins and reminders of better times at Amalfi. Besides tourism, there are hardly any businesses left in the region that offer people work and income. “The few months of tourism each year is not enough to keep Amalfi alive,” says Luigi Centola. The young people – especially the better educated ones – are moving to the cities. “This causes more than demographic problems. The cultural heritage of the coast threatens to vanish.” Without a population that knows and upholds local traditions, Amalfi will lose its roots. There are still many terraced lemon orchards with a lot of history, but many others have already been hopelessly destroyed. The hand-picked fruits from Amalfi have no chance to compete against industrially produced lemons on the international market.

Cultural hotspot
Already years ago UNESCO appealed to the Mediterranean countries to conserve their terraced slopes, which so impressively characterize the coastlines. Many people also want to save the stone remains of the proud economic history of Amalfi – the paper mills. A few years ago Professor Mariagiovanna Riitano, geographer at the University of Salerno, began registering the endangered structures as historic buildings, designating the ruins of 40 buildings as significant examples of
regional tradition. Fifteen of these buildings are in the valley of the mills – a hotspot of heritage. The decision was made to launch a large pilot project here. In 2004 the university and Salerno Province commissioned Luigi Centola, the visionary communicator who knows all the people here and loves the region, to develop a master plan for Mulini Valley.

Driven by water
The concept that Luigi Centola devised foresees the complete renewal of the valley for modern and sustainable tourism. Mulini Valley is not to be mummified – or museumified – but is to develop a whole new dynamic. Centola’s master plan includes 11 sub-projects, each for a different former paper factory. These include hotels, artist studios, a museum, a parking garage at the entrance to the valley, and so forth. The plan calls for renovating 20,000 square meters of building substance.

The sub-projects all support one overarching idea: returning vitality to the original driving force of the valley, waterpower. There were never motors in Mulini Valley because the mills were powered by the Canneto. The paper sheets were carried by donkey into the town. A street was never built – and so in the future one will reach the renovated buildings of Mulini Valley not by car but by water-powered elevators of 3 types: floating platform, pressure, and variable weight. And a water-powered cableway will be built to transport materials and goods – including lemons.

Then the only energy source, today the cleanest
Centola’s plan calls for using the water in 3 key ways. First, the water channel system will be restored to supply the terraced houses with water and air conditioning. Second, water will power...
people in Italy, Spain, the USA and the UK, worked out the details of the renewal strategy. Such international and interdisciplinary teamwork is typical of many sustainable construction projects. Some of the consultants have known Centola for years; some architects studied with him in Italy or England. “All are extremely well suited for this project,”

hydro-mechanical machines: elevators, cranes, pumps, and transport and cooling systems. And third, waterpower will be harnessed as a renewable energy source. The various applications show the diverse options of using waterpower to supply energy. “Each sub-project is marked by technological innovation; alternative energy is involved everywhere,” boasts Centola. “Our ancestors used the water because it was the only available energy source in the valley – we use it now because it is a clean energy source.”

International and interdisciplinary teamwork Centola hired another architect or office to handle each sub-project. 150 Sailors brought the secret of papermaking home to Amalfi. Amalfi paper was a highly valuable export product for centuries.
such a project can be realized only by people who know the land. The knowledge we need originates here. We are working with people who know for instance how to build dry rubble stone walls under the local conditions.”

The project has hardly met resistance; in Amalfi everyone is associated with the tradition of lemons and paper – Grandpa worked in the paper mill; the family has always grown lemons. The project is presented at exhibits and discussed with the people. “Young people react enthusiastically. Older people of course have some fears.” But in the meantime even they have become convinced of the long-term importance of the project; the revitalization of the Mulini Valley will ultimately create about 500 long-term jobs. One estimates that a thousand visitors a

he says. “They have the necessary technical understanding and the right vision.” As ideas were studied, discussed, rejected, revised, and developed, the project became a sort of platform, a piazza. “Even if this process by no means made the work easier, I knew from the beginning that I wanted to work with many different architects on this,” tells Luigi Centola. “This gives the valley true richness!”

**500 jobs, 1,000 visitors**

In spite of the international participation, the strategy is not a creation of foreign specialists that is being forced on the locals. Luigi Centola constantly consults regional specialists because “such a project can be realized only by people who know the land. The knowledge we need originates here. We are working with people who know for instance how to build dry rubble stone walls under the local conditions.”

The project has hardly met resistance; in Amalfi everyone is associated with the tradition of lemons and paper – Grandpa worked in the paper mill; the family has always grown lemons. The project is presented at exhibits and discussed with the people. “Young people react enthusiastically. Older people of course have some fears.” But in the meantime even they have become convinced of the long-term importance of the project; the revitalization of the Mulini Valley will ultimately create about 500 long-term jobs. One estimates that a thousand visitors a
day will come to the renovated buildings to attend meetings, enjoy leisurely vacations, or take advantage of wellness programs. Visitors will have a choice of 300 beds in hotels of various categories.

**Action required**
A sea of water will have flowed down the Canneto by the time the first guests will be able to stay the night in the valley of the mills. Many of the buildings are in pathetic condition; there is hardly anything here that could be used for new construction – a few foundation walls, a basic architectural idea – and of course the extraordinary location. One thinks the dilapidated ruins are hardly capable of some day housing a hotel or a studio. “But everything can be stabilized with steel,” tells Centola. The plan is to wrap the old structures in a steel-framed shell. “This can be easily removed say in 50 years, when one has new ideas for the valley – and then one will stand again where we stand today.” The poor condition of the buildings is a good project partner, chuckles Centola. “The buildings will collapse soon if we don’t do something now – and if one falls into the water it will cause a lot of problems and will be very expensive.”

**Only handwork**
The need for action is thus given, and in any case a lot of money must be invested in the valley of the mills. The investment called for by Centola’s master plan amounts to about 120 million euros. Public authorities will contribute 30 percent; the rest must come from private investors. The schedule for realizing the ambitious project extends over 10 years. One reason is that access to the construction sites is so poor. One cannot drive to the site with large construction equipment and machines, as one can everywhere else along the coast. “Here handwork is the rule,” says Centola, “that’s why restorations here cost about twice as much as elsewhere.” That the master plan calls for the recycling and reuse of the original building material thus has not only ecological but also economic reasons.

“**Sustainability will become natural!**”
Amalfi’s history revolves around paper and lemons, and therefore “Waterpower – Renewal Strategy for the Mulini Valley” treats more than just the mill ruins. Centola aims to conserve 25 hectares of
so. Each part is strongly linked with the other parts. You can’t do one part and leave the other out – without water-power the entire project would lose its credibility.” Everyone who visits the valley or hears about the project should know how important it is to use natural resources in a thoughtful and sustainable way. Luigi Centola repeatedly stresses how important the whole of the project is – this entirety is what makes it sustainable. “We are not just renovating old buildings – we are establishing a dialog between yesterday, today, and tomorrow.” A conversation among the epochs – that’s something the communicator Luigi Centola, who loves tradition just as much as modernity, of course likes. “Yes, this could be the most exciting project of my life!”

terraced lemon orchards, which are now difficult to reach and irrigate. “That’s a small but important contribution to the preservation of cultural heritage and to the local economy. If we fail to maintain these orchards, 2,000 small producers will lose their income – and the Amalfi coast will lose its face.” In Italy the awareness of tradition is great, and the awareness of the importance of sustainable construction is also growing, Luigi Centola is convinced: “A hundred years ago nobody cared that the Colosseum in Rome was being used as a quarry, that the Romans were taking the marble to use in new buildings. Today this would be unimaginable. A rethinking has occurred, and in few years sustainability will be completely natural.” Perhaps to be able to recognize the value of the landscape it was also necessary to destroy a lot of things. “Horrible industrial buildings have been built along the beaches – today we recognize the negative effects and learn from the experience.”

A dialog among the epochs
Because his master plan in the meantime has gained very broad support, there is no question for Luigi Centola: “We will realize it. In two or three years the first buildings will be standing.” Isn’t there a danger that the more commercially oriented sub-projects – the hotel, the youth hostel – will be built quickly and the sustainability-oriented aspects – regarding water power, ecology, and cultural heritage – might get pushed to the side? Centola hesitates. He knows the pragmatism of the people. Then he says: “I don’t think so. Each part is strongly linked with the other parts. You can’t do one part and leave the other out – without water-power the entire project would lose its credibility.” Everyone who visits the valley or hears about the project should know how important it is to use natural resources in a thoughtful and sustainable way. Luigi Centola repeatedly stresses how important the whole of the project is – this entirety is what makes it sustainable. “We are not just renovating old buildings – we are establishing a dialog between yesterday, today, and tomorrow.”
With enormous and extended commitment the architects of L’OEUF – “L’Office de l’électisme urbain et fonctionnel” – working in Montreal, prove that implementing environmentally adapted building systems is not a question of money but of determination.

No, at first glance Benny Farm is nothing spectacular at all. Driving by, you hardly even notice the residential development in the neighborhood of Notre-Dame-de-Grâce on the edge of the inner city of Montreal. 60-year-old brick buildings like these are everywhere in Montreal. But Benny Farm is far more than what meets the eye. “Benny Farm is a dream,” says Daniel Pearl, architect at L’OEUF – a dream to which he and co-founding partner Mark Poddubiuk have been committed for the past 15 years.

**Global Holcim Award Bronze**

Green, social and complex

Marius Leutenegger

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<th>Title of project</th>
<th>Greening the infrastructure at Benny Farm, Montreal, Canada</th>
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<tr>
<td>Principal authors</td>
<td>Daniel S. Pearl with Mark Poddubiuk and Bernard Olivier, L’OEUF, Montreal, Canada</td>
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<tr>
<td>Regional Award</td>
<td>This project was previously conferred the Holcim Award Gold in the region North America. See page 98</td>
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</tbody>
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that “at one time there were so many children living at Benny Farm that they had their own hockey league!”

Tabula rasa
By the late 1980s the development had become old and outdated. The building envelopes and infrastructure (mechanical, electrical, and plumbing systems) were no longer up to modern standards. More recently their third partner, Bernard Olivier, and bioclimatic engineer Martin Roy have also thrown themselves into building this shared vision — one that brought the team not only the Holcim Award Gold for the region North America but also the global Holcim Award Bronze.

Inspired by Clarence Stein and Le Corbusier
The story of the dream begins after World War II. In 1947 a residential complex was built on the grounds of the former Benny Farm for war veterans and their families. With nearly 400 apartments on 18 acres, this government-financed residential project was one of the largest of its kind in Canada. The architect, Harold Doran, drew inspiration from the progressive thinkers of his day and designed Benny Farm as a garden city in the style of Le Corbusier. He grouped the 3-story buildings around spacious green areas; Benny Farm became a residential park with a diverse range of outdoor social spaces. The veterans valued the quality of life in the complex, especially the community feeling. Most of them remained for decades, raising their sons and daughters here. Daniel Pearl tells Daniel Pearl: “Benny Farm made us into political activists.”
standards. More and more apartments were being vacated as the residents either died or moved into seniors homes. Early in the 1990s the owner of Benny Farm, CMHC (Canadian Mortgage and Housing Corporation), considered privatizing the development. CMHC commissioned Montreal architects to study the issue; the recommendation came back tabula rasa for Benny Farm – the obsolete complex should be completely demolished and replaced. Bulldozers were soon on the site and in fact the first buildings were knocked down. Benny Farm would have been completely leveled – were it not for sudden, broad-based and loud protest against the demolition. “It was not the redevelopment itself that interested us, but what it stood for: social life in an interesting setting,” says Daniel, who along with his colleague Mark at L’OEUF, was among the most vocal critics of the demolition plans. Daniel Pearl: “When I was a child, on my free days I would leave the house in the morning and come back in the evening. My parents never knew where I was floating around the whole day. Today children no longer have a relationship to their neighborhood like the one I had; they cannot move about freely in the city. But at Benny Farm they can! Here young people can still grow up in the green spaces between the houses.”

The demolition protestors gained great sympathy. The media covered the story; Benny Farm triggered discussion of how to deal with old building fabric. The bulldozers left the site, and the state transferred the land and buildings to another crown corporation, CLC (Canada Lands Corporation), which sought alternatives to demolition. Architects were asked to develop constructive proposals for the future of Benny Farm – among them L’OEUF.

Architects, idealists – activists

L’OEUF is not an architecture office in the classical sense. Preparing social and environmental assessments constitutes a large part of the everyday work of the ten employees. And this is reflected in the project that L’OEUF designed for Benny Farm: L’OEUF proposed keeping most of the buildings, renovating them extensively, and installing environmentally progressive building systems. “We wanted to provide low-cost, high-quality residential space with a green infrastructure,” explains Daniel. At the
same time, new social concepts for the project were being developed and proposed: “The entire management should be in the hands of non-profit organizations. ‘We are idealists,’ says Pearl:

‘And through Benny Farm we also became political activists. We knew that if Benny Farm were to be privatized the residential units would end up being affordable only for the wealthy. But we want people with less money also to have a good living environment. In our society there is an alarming lack of respect toward people who are financially not so well off. We wanted to fight against this!’

3 buildings for 3 occupant groups
The heart of L’OEUF’s demonstration project is an ensemble of 3 buildings containing a total of 187 residential units. Each building is designed for a different group of occupants. The first building comprises 30 renovated units and a new wing of 16 apartments for financially challenged families. The second is a new building that is well integrated into the overall complex: a seniors home with 91 low-cost units. In the summer of 2006, just a few months after its opening, this building was already nearly fully occupied. The third building was one of the earliest at Benny Farm; it will be renovated to provide affordable condominiums for first-time buyers. It includes 30 renovated units and a new wing with 20 more housing units. Each building is managed by a different non-profit organization established specifically for the project. The shared infrastructure for the 3 buildings is managed by a further non-profit organization – Green Energy Benny Farm (GEBF). “Yes, we helped establish many companies in recent years,” laughs Daniel Pearl. “For the past 2 years I have been occupied much more with legal, social and political issues than with architectural ones.”

30-year business plan
The name Green Energy Benny Farm says it all – because with a comprehensive action plan L’OEUF and its collaborators have made Benny Farm into an impressive laboratory for green infrastructure. In the renovation projects, bricks, radiators and wood flooring are being removed from the building, sorted, cleaned, stored, and reused on site. Seventy-five percent of the energy...
required for the infrastructure of the 3 buildings is produced on site – with solar thermal panels and geothermal wells. Graywater (wastewater from showers and baths) will be filtered and used for flushing toilets. This cuts water consumption in the 3 buildings by about 6.7 million liters a year – and cuts the amount of wastewater produced by about 11 million liters. The design also includes green roofs, natural ventilation, and a great many other environmentally sensible features. A 30-year business plan shows that the costs for these systems will be amortized by the savings in the long run.

**Nothing new?**
Separately considering the individual aspects of L’ŒUF’s project, there is hardly anything especially innovative here: solar power, geothermal energy, water retention systems – these can all be found elsewhere, and at much grander scales. “Yes, each of these things has been done hundreds of times and has been tried and tested,” says Daniel Pearl. The special thing about Benny Farm is the combination of green infrastructure and social residential construction. “With our project we show that green infrastructure is also feasible at a modest budget! We are helping to make green infrastructure become the norm in the long run.” Many people still distrust the idea of green infrastructure. “They think it costs a fortune and it won’t last. That’s why we urgently need projects like Benny Farm. They prove that green does work – technically and economically!”
Twenty years ago insulating glass was considered innovative – “today it’s standard; it’s no longer in the domain of sustainable construction, but simply of construction. And so it must be with other things too – things we are promoting here.”

Social, green – and complex
According to Daniel Pearl, proving that environmentally sound construction does not have to be expensive is not the only thing that makes Benny Farm an innovative project: “The innovative thing is that the project has created a new organization; its social orientation is innovative. Here young families and elderly people live together. Another innovation is that we are confronting industry with green infrastructure. We are not working with subtrade specialists because we cannot afford to. The innovation is the combination of all these various steps!”

But this combination also raises many problems. “When you change one thing somewhere, everything else changes too!” That’s why only 3 core buildings – from a total of about 20 buildings in the complex – are connected to the GEBF. Daniel Pearl: “Even with just 3 buildings the project was almost too complicated.” The organizations involved have to count every penny. Daniel describes problems that arose when certain items overstepped the budget many times. These costs were not big, but they were enough to upset the sensitive financial structure of the project. For example, the engineer revised the mounting of the solar collectors to withstand greater wind loads – “That cost 20,000 dollars more! Additional costs mean we have to cut costs somewhere else.”

Impossible without volunteer work
In the Benny Farm project literally every dollar is precious. The project is financed chiefly by the state, which
Women indeed played an outstanding role in this project, “but in this case it was often women from an older generation.”

Jeanne Mayo is such a woman. The lively retiree has been engaged in the project for years. She is chair of the board of directors of Coop Chez Soi, the nonprofit organization that manages the seniors home, and she also sits on the board of the GEBF. “I keep everything here in order,” she says while swiftly signing checks and filling out the books. The occupants in the seniors residence are between 65 and 94 years old and two thirds are women. Over half come from the neighborhood or have children living nearby. To qualify to
live in the building, one’s income must not exceed a certain limit. The seniors pay 565 dollars a month for a modest one-room apartment, including electricity, heating and cable television – that’s roughly half the normal market price.

**Boom complicates financing**

Even if these demonstration projects at Benny Farm do just barely make ends meet, the timing of the project is somewhat unfortunate from the point of view of economic cycles. Well into the 1960s Montreal was an important goods distribution hub for Canada and the USA because ships could bring goods here via the St. Lawrence River. Then a canal was opened that allowed ships to bypass Montreal and access the Great Lakes. Montreal lost its privileged position, and at the same time the independence movement of the French-speaking Québécois disconcerted the large companies. Many companies moved their head offices to Toronto, Calgary or Vancouver. Thus up until the turn of the millennium, residential space in the inner city of Montreal was available at affordable prices. But Montreal’s high quality of life was then rediscovered, demand for residential properties grew, and rental rates exploded. The city decided to invest in social housing again and to build 5,000 new apartment units over the past few years. The construction of social housing then boomed; contractors had too much work and prices consequently rose. This is why the renovation of the third housing project has not yet begun.

**A long battle**

The apartment building for young families, ZOO (Zone of opportunity) has been occupied for quite some time. Of course the tenants particularly like the affordable conditions and the unusually beautiful environment – but many are also interested in the project itself. Daniel Pearl: “They see what effects our actions have and they recognize the
connection between costs and energy consumption. They grew up during a time in which ecology was an issue. People recognize that things cannot continue as they have been going. The planet was not necessarily better off 20 years ago than it was 10 years ago – but the thinking of the people has changed during that time." L’OEUF has been working on Benny Farm already for 15 years – and an end of the engagement is nowhere in sight. The office is overseeing two projects as a consultant and has been directly responsible for the architecture of four projects (264 units in all). “We’ve had to fight a long battle,” says Daniel Pearl. “Everything has been very involved, complicated, and labor intensive. We did something completely atypical: We started at the very bottom. Projects of this scale are typically designed from the top down, from the general concept to the details. Mark and I began the other way – with the details.” The advantage of this method is that many painstakingly developed solutions can be easily adapted for use in other projects.

The demolition goes on
“ We have been able to realize about two thirds of what we wanted to,” says Daniel Pearl, “and that’s a lot.” It was not possible to save all the buildings. Another old residential building at Benny Farm, which could have been easily integrated into the project, will be torn down soon to make room for a medical clinic, although “there is plenty of space available in the neighborhood.” Daniel smiles when he says that, even if it maybe hurts a little. But the architects of L’OEUF have learned to make compromises. And that’s one reason their ideas are taken seriously. In Ottawa the government is now starting a huge project that is supposed to take advantage of the experience gained at Benny Farm.

It’s not easy being green
In spite of the readiness to compromise, Daniel remains convinced: “As an architect, you have to have your own values; you have to live by your own philosophy!” Because L’OEUF will not let themselves be corrupted, and because they insist on going their own way, the success with Benny Farm sometimes puts them to the test. “Usually green projects are in the upper price segment – and we get offers today to work on expensive private homes. Working on
affordable housing is important to us, but of course high-price residential buildings should also have a green infrastructure.” Here Pearl ponders what he thinks is more important: pure ecology with no consideration of the socio-economic environment – or the combination of environmental and social concerns.

“We build one house a year at the most,” he says. “And we choose our clients very deliberately. They have to be very green; they have to want to go our way. Nine out of ten potential clients who come to us don’t even come into question for a commission.” Being green is not easy – because in society, as at Benny Farm, everything is tied in with everything else. Daniel Pearl: “Montreal is a unique city – large and small at once. We oppose the trend of people moving to the suburban outskirts. This puts us in a dilemma sometimes – for instance, when the question arose whether the city metro should be extended into the suburbs. Of course I am against people driving into the city by car. But if we extend the metro to the suburbs now, this benefits above all the people who live even further away. That only feeds urban sprawl."

Optimism as a foundation
Whether the dream of L’ŒUF and everyone else involved in Benny Farm will ever be fulfilled, whether the ecological concepts will work, whether a functioning social structure can be regained here – all this will be known only after some years pass. Daniel Pearl: “You can be as enthusiastic as you want about our project right now, but we have no guarantee that it will all turn out as we envision – but I am secure it will all turn out well!” Jeanne Mayo, the energetic collaborator, laughs: “Oh, Daniel is always so optimistic!” And she knows that if L’ŒUF weren’t, the bulldozers would have finished their work at Benny Farm 15 years ago.

The climate challenge
Heating and cooling is a challenging undertaking in Montreal. Summers are very warm and humid, and winters are very cold. During the year the temperature fluctuates by more than 70°C. In winter, when the average temperature is minus 10°, you don’t open the windows. If the walls are poorly insulated and the windows poorly sealed, the cold will penetrate into your apartment – meaning you will need more energy for heating. But you will also gain some fresh air. If the walls are well insulated and the windows airtight – as at Benny Farm – you save heating costs, but the indoor air exchange will be very low, making ventilation necessary. L’ŒUF decided on a ventilation system with heat recovery. Using solar energy, outdoor air is heated up to about 20°C, and then brought up to the desired final temperature by means of geothermal heating. In Montreal the average family spends 2,000 dollars a year for heating and cooling energy – the residents of Benny Farm not even 1,000. For families with an annual income of perhaps 40,000 dollars, such savings are significant – and as energy prices increase, so do the savings.
Gold Award Europe

Water power

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<th>Title of project</th>
<th>Waterpower – Renewal strategy for the Mulini Valley, near Amalfi, Italy</th>
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<tr>
<td>Principal authors</td>
<td>Luigi Centola with Michele Albanelli, Eliana Cangelli, Raffaele Gambardella, Monica Giannattasio, Roberta Mansi, Vincenzo Pagano, Valentina Piscitelli and Arabella Rocca, Centola &amp; Associati, Rome, Italy; Mariagiovanna Riitano and Teresa Amodio, University of Salerno, Fisciano, Italy; Paolo Turbolente and Rodolfo Piscopia, Acquatecno srl, Rome, Italy; Ugo Rocca and Sanni Rocca, Resit Renewable Energy, Italy; and partners from Italy, Spain, the USA and the UK</td>
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Global Award | This project was conferred the global Holcim Award Silver in 2006. See pages 28 and 58 |

Set in the picturesque slopes of the Mulini Valley in Amalfi, Italy, the scheme is comprised of a collection of discrete interventions that form a unified ensemble. The overall objective is to provide a new lease on life for the region. Proposed is an ambitious effort to reanimate the landscape as well as a series of preindustrial water mills that are currently in a state of decay and thus threatened by collapse. The scheme calls for a full renovation of these structures as well as their integration into a system of modernized waterfalls, pools, and irrigation channels. In sum these measures serve not only to generate hydro-power, but also work to improve biodiversity. An additional merit of the work needs to be mentioned – a much needed revitalization of the socioeconomic condition of
the region plays a central part of the development. All this is achieved through the medium of architecture that pays respect to both the heritage of the context while expressing a contemporary sensibility.
This next project takes us to central Europe and foregrounds the role of architecture and engineering in the urban context. As part of a much larger program of infrastructural renewal, the scheme is actually a node within the new high-speed railway network of Europe. Notwithstanding the enormous scale of the operation, the proposed main station for Stuttgart offers a very refined solution from the overall ensemble down to the smallest detail. While solving all the necessary technical requirements, the design also acknowledges the need for quality public space in the city center. The roof of the station is punctuated by an innovative system of light wells that illuminates the subterranean platforms while also forming the most prominent feature of a generous public park above. This work

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<tr>
<td>Principal author</td>
<td>Christoph Ingenhoven, Ingenhoven Architects, Düsseldorf, Germany</td>
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<tr>
<td>Global Award</td>
<td>This project was conferred a global Holcim Award Gold in 2006. See pages 27 and 48</td>
</tr>
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promotes the need for interdisciplinary collaboration between architects and engineers as well as between the private and public sectors.
Urban shades

Title of project  Metropol Parasol – Redevelopment of Plaza de la Encarnación, Seville, Spain

Principal authors  Jürgen Mayer H. with Sebastian Finckh, Wilko Hoffmann, Dominik Schwarzer, Jan Stockebrand, Andre Santer, Ingmar Schmidt, Georg Schmidthals, Daria Trovato, Julia Neitzel, Paul Anguilliers, Thorsten Blatter, Marcus Blum, Klaus Küppers, Hans Schneider and Marta Ramírez Iglesias, J. Mayer H., Berlin, Germany; Carlos Merino and José de la Peña, Arup, Madrid, Spain

The design is located in southern Europe in a peripheral region of Spain. Proposed is a covered market on the main square of an old town, a square currently squandered as a parking lot. The new roof acts as an umbrella shading the social activities below. The project responds to the emergence of large shopping centers at the periphery.
of the city by attempting to reinstitute the value of public space within the urban fabric. Additionally, the structure is conceived as a landmark and combines a series of functions: a metro station, an archaeological site, a parking garage, the market, and on the roof a belvedere for tourists visiting the town. This is a commendable effort by city officials to promote their small city within a highly competitive market and to create identity through the power of architecture by means of programmed activities on the square both day and night.
The innovative proposal for the reuse of an abandoned facility – a former slaughterhouse – in Italy is merited for the effort to bring new life to a historical setting. Specifically noteworthy is the idea of site recycling, a measure that promises to generate new activities and connections within the city. Considerable effort has been made to respond to communal needs while remaining sensitive to the existing context. Social equity and cooperation is encouraged at all stages of the project’s development. Instead of pursuing a purely profit-oriented goal, the team expresses respect for ethical values by promoting the use of organic and fair-trade products. Also significant is the collective initiative established between architects, planners, and politicians. Great care has been given to the integration of new functions within the vacant structure without altering its original form, promising a rich program of cultural activities.

Acknowledgement Prize Europe

“Alternative economy city in a former slaughterhouse”, Rome, Italy

Project author Luciano Cupelloni, Luciano Cupelloni Architettura, Rome, Italy
This entry from Spain is given distinction for its innovative response to the challenge of reactivating urban space in the metropolitan periphery. The approach is functionally flexible in that it allows for programmatic variety; yet the formal expression is architecturally specific. The work offers valuable lessons in how to harness the untapped potential of outlying areas of the city.

The public character of the work makes a positive contribution to the local community by providing a wide range of uses to a diverse population of users. It is formally appealing and will act as a social attractor. Also to be commended is the proposal for the use of clean energy, which is then resold to large distributors. The project promises to have a beneficial impact on the street and will serve as a collective reminder of environmental concerns.

A skillful combination of natural and artificial building materials lends the scheme aesthetic refinement.

Acknowledgement Prize Europe

“Ecological boulevard in a new urban quarter”, Madrid, Spain

Project authors  Belinda Tato Serrano with José Luis Vallejo Mateo and Diego García-Setién Terol, Ecosistema Urbano Arquitectos, Madrid, Spain
This project for a public garden in Spain is merited for making a beneficial contribution to a characteristically dry region. The scheme makes the most of the existing qualities of the site in order to maximize water retention. Also commended is the proposal for time phasing. Whereas priority is given to water recycling, careful guidelines are provided for gradual development of the park. This ensures that no resources are wasted. Another significant contribution of the project is the transformation of deserted land into “green” resorts that function to preserve, recycle, and purify water. Such a measure also supports the generation of new species of flora and fauna. The authors achieve a balance between urban and landscape design, yielding spaces with unrestricted access for all visitors, including the handicapped and those with reduced mobility. Highly sensitive to the context, the work promises improved economic performance of the region.

Acknowledgement Prize Europe

“The mysterious story of the garden that makes water”, Cehegín, Spain

Project authors Mónica García Fernández with Javier Rubio Montero, Madrid, Spain
Located in Portugal, this project presents a successful merger of tectonic research and experience. The work deserves merit for the ambition to establish a common research platform between nations of the European Union, thus serving to draw attention to sustainable construction on a continental scale. Also important is the notion of an ecological architecture that can be transferred to a wide range environmental applications. Displaying a high degree of technical sophistication, the systems promise to yield optimal air purification and treatment – through the use of interprogrammatic buffers – as well as with energy production – through the use of wind turbines. Both measures are skillfully integrated into the design proposal rather than being applied externally. The prototype is aesthetically convincing and makes a valuable contribution to the chosen context, serving as a catalyst for similar future endeavors.
This entry from Switzerland deals with sustainable construction in its very conception. The project is merited for its innovative spirit in rethinking the terms of what constitutes a sustainable environment. The author pursues an integrative approach to design by utilizing available products and existing structures as well as through the reuse of existing materials. This is an intelligent method for conserving resources. Also commended is the effort to link decentralized locations throughout the city as new meeting points and supply stations. Such a consideration suggests how the performance of the city itself can be enhanced. Although speculative in nature, the work nevertheless follows an economically viable logic for generating social ties and communal exchange, while at the same time offering lessons in self-sustaining facilities and waste reduction. Special merit is given to the contextual response, one that yields a refined tectonic effect.
This entry from Italy is merited for what the authors call a renaturalization program. An important environmental contribution is made in that the proposal calls for restoring a landscape left ecologically impoverished after drainage intervention and intensive farming during the last century. In this respect, the project offers a beneficial environmental “refund,” serving to establish a zone protected from future urban development. An assertive yet responsible stance is taken toward purely market-driven speculation. The choreography of the site, integration of the building with the terrain, and material combinations are carefully considered. Equal care is given to creating an attractive social environment for recreation while respecting natural wildlife habitats. By harnessing the natural capacity of the environment, the work is economically viable and offers aesthetic enrichment of an otherwise neglected area.
Jury meeting for Europe
June 23/24, 2005, ETH Zurich, Switzerland

From left:
Hansjürg Leibundgut, Professor for Building Technology, Swiss Federal Institute of Technology (ETH Zurich), Member of the Technical Competence Center, Holcim Foundation, Switzerland
Brigitte Cuperus*, Project Manager Technical Competence Center, Holcim Foundation, Switzerland (since 2006)
Mario Cucinella, Director, MCA Integrated Design, Italy
Kaspar Wenger, Country Manager, Holcim (Schweiz) AG, Switzerland
Simon Keller*, Project Manager Technical Competence Center, Holcim Foundation, Switzerland (until 2005)
Hans-Rudolf Schalcher, Chair of Planning and Management in Construction, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and Head of the Technical Competence Center, Holcim Foundation, Switzerland
Marc Angéli, Chair of Architecture and Design, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and of the Technical Competence Center, Holcim Foundation, Switzerland
Matthias Sauerbruch, Architect, Sauerbruch Hutton Architekten, Germany
Anne-Françoise Jumeau, Architect, Peripheriques Architects, France
Mohsen Mostafavi (Head of Jury), Dean, College of Architecture, Art & Planning, Cornell University, USA
Radu Teacă, Associate Professor, Ion Minuc University of Architecture and Urbanism (LAUIM), Romania
Cristina Díaz Moreno, Principal, AMID/Cero9, Spain
Kees Christiaanse, Professor of Urban Design, Swiss Federal Institute of Technology (ETH Zurich), Switzerland
José Morales Sánchez, Professor, Escuela Técnica Superior de Arquitectura, Spain

* Support staff. Only members of the jury were present during the deliberations and selection of projects
The first Awards ceremony in the history of the Holcim Awards ran with the precision of a Swiss watch: In the impressive Bâtiment des Forces Motrices 300 guests experienced a dynamic ceremony led by Markus Akermann, Chairman of the Board of the Holcim Foundation. 16 Holcim Group companies invited guests. A special attraction was the cultural program the day following the ceremony. Held in the beautiful countryside of the region it was attended by most of the guests from 18 countries.
In many tropical countries, entire villages, country houses, barns, and other structures shared a common natural resource: bamboo. Constructions of all scales were dependent on this native material for centuries. Bamboo is not only a strong and flexible material, it is also aesthetically appealing. In regions vulnerable to earthquakes, bamboo also proves to be highly resistant to collapse. The material was easy to obtain and easily replaced when aged or damaged by weather conditions. In this respect, bamboo was always fresh and affordable. Why then was it replaced by other materials? Why did some cultures allow its near extinction?

The answer is not simple. As with so many processes related to development, such a question has many an-
swers, some of which are based on facts and others on observation alone. Development and modernity have been closely associated with images of skyscrapers, large housing tracts, big cars, sleek sidewalks, vast stadiums or cultural facilities, all representing wealth and – unfortunately – a misunderstanding of what constitutes a “higher standard of living.” Not only was bamboo lost in the wake of this momentum of progress, but with it traditions, local identities, and values.

In the race to imitate the attendant structures of modern progress, a new formal and material vocabulary was substituted for that derived from local resources. In many developing countries, the import of a new housing typology – i.e., huge, tall buildings, often with constrained spaces that engender unfamiliar patterns of behavior and relationships – generated new problems, namely, a weakened or nonexistent social network. The ingrained notion of neighborhood rapidly took on a different connotation. There was no longer any space favoring communal solidarity. Public space no longer was considered necessary for a public now at large. Services were limited to those who could afford them. The lack of vision endemic to decision makers – primarily those in government who promoted the replacement of traditional settlements with modern towns – gave birth to conglomerations of families and people with little or no cohesion.

As it so often happens with new trends and products, speculators in the market did not take into account the social impact when assessing the advantages and risks of substituting some materials for others. The actual challenge would have been to combine the best of both worlds. Factors such as population increase, urban growth, as well as unexpected forms of development all called for alternative models of housing at reasonable costs. For developers, however, low costs meant the production of few models and materials in the name of pragmatism. In the end, diversity was too difficult to manage.

But now at the beginning of the new century, the tendency to once again consider traditional values concerning materials and design is mounting as a counter response to monotonous constructions and homogenization of lifestyles of low-income communities. Directed mainly through the initiative of local leaders, communities are generating programs to recuperate construction traditions. “Sustainability” is the oft-used buzzword for such initiatives. If the word is not deployed, at least the ambition is there, for society cannot evolve within changing economic conditions if its cultural values are not recognized.

Current discussions on designs that integrate efforts to merge social dynamics with practical constructions are in themselves incentives to create and strengthen the social network of a community. New plans for housing must involve the community. In other words, stakeholders should be included in decisions made on form, scale, and material. Families are not only concerned with comfort; they also desire the opportunity for social interaction. Together with local leaders, social workers, and urban planners, architects have come to acknowledge the importance of traditional resources in relation to cultural values..

Bamboo is one such material. Economic incentives such as eco-tourism, urban development plans, educational programs, and other cultural directives are making use of and creating opportunities for those who invest in plantations. These incentives aim to bring bamboo back into the lives of people living in tropical countries. The same is occurring with other species of bamboo around the world as plantations have begun to flourish. Equally significant, new technologies are being developed in order to comply with present standards pertaining to safety and resistance without compromising the natural beauty of bamboo.

Bamboo is only one example of the importance of reconsidering the renewal of natural material resources in contemporary development. New generations are aware that the issue of sustainability is not a matter of “either or” but rather of integrating the old and the new. The issue also entails the production of viable housing options for low-income communities. Participation is yet another theme. Not everything should remain in the hands of public officials. Instead, members of a community must be given the chance to identify and choose what constitutes a better solution based on past successes. Local wisdom is the essence of sustainable development.
Gold Award North America

Grass roots

Title of project  Greening the infrastructure at Benny Farm, Montreal, Canada
Principal authors  Daniel S. Pearl with Mark Poddubiuk and Bernard Olivier, L’OEUF, Montreal, Canada
Global Award  This project was conferred the global Holcim Award Bronze in 2006. See page 29 and 68

This project is situated within a community in Montreal, Canada. A non-profit, collectively run company oversees the ownership, management, and investment of the development. At the core of the design was the establishment of participatory models. This social framework was invested in sustainable construction, centered on common energy, water, and waste management.

The authors exercise great care in bringing together the triple-bottom-line of ecology, society, and economy through the development of innovative models for implementing sustainable systems, proactive community processes, and cost efficient performance. The project can be understood in an extended sense as sets of protocols...
that steer a complex array of parameters, all the while respecting the cultural heritage of the context.
Green science

The project is located on the west coast of the United States. This is a so-called green building design focusing specifically – as many other projects did – on a sophisticated roof construction as an integral part of the design. The entire ensemble is centered on the performance of the roof: the roof as enclosure, as a filter for daylight, as a public terrace, and as a membrane satisfying a...
series of technical requirements such as water retention, drainage, heat absorption, solar protection, and insulation. A full-scale prototype was built on site to test the proposed roof assembly as well as disassembly. The lifecycle of the building was considered at the outset of the design process. This facility for a natural history museum will use 30% less energy than a standard structure of comparable size. Additionally, its sustainable features will be part of the exhibition, demonstrating to the viewer how the project works.
Concrete conserved

This experiment undertaken in Canada offers an approach to saving concrete in a variable-section beam that results in significant reductions in material and dead weight. The project is ingenious in that it applies accumulated knowledge to future-oriented thinking. On the one hand, standard engineering principles are deployed as to the location of reinforcing bars either at the top or the

<table>
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<th>Title of project</th>
<th>Material reduction: Efficient fabric-formed concrete</th>
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<td>Principal author</td>
<td>Mark West, Center for Architectural Structures &amp; Technology, University of Manitoba, Winnipeg, Canada</td>
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bottom of the beam. On the other hand, an innovative type of formwork is implemented made of fabric in order to fabricate double-curved beams. Prototypes were built and tested in a university laboratory. This is a project involving material engineering. The results reveal the unexplored potential of concrete to produce amazingly beautiful and sensuous forms.
municipal infrastructure problems brought about by flooding, erosion, sewage infiltration and groundwater pollution. A transferable land-use model for watershed management based on ecological engineering is proposed, a model that supersedes traditional methods. In this respect, the authors are merited for their innovative solution to strengthening ecosystems and increasing biodiversity. Not limited to the natural environment, the research is also aimed at improving the sustainability of the human habitat. A sensitive social agenda is pursued by augmenting existing public services and by providing recreational amenities that are responsive to communal needs. With this integrated approach, urban form is enhanced by the heightened performance of a self-organizing landscape.

Acknowledgement Prize North America

“Urban greenway: Riparian meadows, mounds and rooms”, Warren, USA

Project authors

Stephen Luoni and Aaron Gabriel, Community Design Center, University of Arkansas; Jeff Shannon and Mark Boyer, School of Architecture, University of Arkansas; Marty Matlock, College of Engineering, University of Arkansas, all in Fayetteville; Bob Morgan, Beaver Lake Water Management, Lowell; Laura Chioldi, Kinslow, Keith and Todd, Inc, Fayetteville; Alan Noah-Navarro, Handel Architects LLP, New York and Jena Rimkus, USA

This project for the redevelopment of a riverbank and surrounding area is located in Arkansas, USA. Applauded is the overall ambition to resolve communal infrastructure problems brought about by flooding, erosion, sewage infiltration and groundwater pollution. A transferable land-use model for watershed management based on ecological engineering is proposed, a model that supersedes traditional methods. In this respect, the authors are merited for their innovative solution to strengthening ecosystems and increasing biodiversity. Not limited to the natural environment, the research is also aimed at improving the sustainability of the human habitat. A sensitive social agenda is pursued by augmenting existing public services and by providing recreational amenities that are responsive to communal needs. With this integrated approach, urban form is enhanced by the heightened performance of a self-organizing landscape.
As part of a larger master plan for a new research park in Canada, the headquarters building draws on innovative technologies for regulating the climate of the facility. By proposing to utilize nearby lake water as the primary resource for a deep water-cooling system, this scheme is important in promoting transferable solutions for energy conservation through the use of an available and renewable resource. Of equal significance is the attempt to offset initial installation costs with long-term calculations of projected savings. The entry is also merited for its sensitivity to the surroundings and its minimal impact in the environment. The work successfully demonstrates that sustainable construction need not necessarily involve costly high-tech products and procedures. Instead, an effort is made to deliver a high-performance envelope made of simple materials that deliver maximum return while remaining discreet in appearance.
Located in Canada, this entry is driven from the outset by a concern for sustainable construction. The authors are merited for their innovative effort to produce a facility that reflects the environmental factors to which it responds, most notably variable wind conditions. Such forces are put to work in an ingenious way by the warped concrete roof that is shaped so as to increase the velocity of air currents, thus eliminating the need for mechanical ventilation. Cooling is facilitated throughout by wind towers that pull fresh air upward through the building, while natural light is directed downward into the interior. Much consideration is also given to how the building is situated in the larger context of the campus. The work is as convincing economically as it is aesthetically. Furthermore, the proposal provides a clear vision for community improvement at both the planning and architectural levels of design.
Situated in the western part of the United States, this project is commended for the ambitious effort to harness untapped resources of natural energy. The work is the product of interdisciplinary collaboration of specialists brought together in a series of design workshops. Not only serving to raise awareness of the importance of sustainability within the local community, the findings of this expert panel could prove highly beneficial to similar projects, as well as to the building industry in general. Of significance are the integration of state-of-the-art construction technologies and the use of longlasting materials with low embodied energy. The academic facility is well integrated in its context and takes full advantage of the setting in order to reduce the ecological footprint. The collective return of such considerations is an optimally functional building that skillfully demonstrates the poetics of place-making.

Acknowledgement Prize North America

“Applied research and development facility”, Flagstaff, USA

Project authors William Taylor with Michael Taylor, Hopkins Architects (USA), Burns Wald Hopkins, London, UK
Large infrastructural projects are often implemented with little thought given to the amount of waste produced in the process. This entry from the east coast of the United States makes a central issue of this frequent oversight. The authors call attention to the potential of recycling construction materials for novel purposes. While highlighting the need for more efficient use of public funds, the project conveys a proactive sensibility in considering how to reduce the quantity of waste and at the same time provides much-needed affordable housing for the community. Careful thought is given to numerous energy-saving strategies at various scales.

The design promotes a shift of attitude concerning urban development from demolition to reconstruction, thereby extending consideration not only to the creation of new employment opportunities for the region, but also to new sources of livelihood for inhabitants of the city.

Encouragement Prize North America

“Big Dig building”, Boston, USA

Project authors  John Hong with Jinhee Park, Single Speed Design, Cambridge, and Paul Pedini, Jay Cashman Inc., Quincy, USA
This entry is sensitive to the particular coastal conditions in the northeast of the United States. Merited is the innovative proposal for the reuse of existing water resources for a socially sound objective. The author calls attention to the threat of contamination in everyday life patterns as might be transmitted through food, water, and air. In this respect, the work promises to perform a rehabilitative function for the local ecosystem. Another notable ambition is the plan to combine natural systems – sun, river water, green roof, etc. – with technical infrastructure to produce a hybrid between landscape and building. A creative approach is taken to profit from the specific features of the site while minimizing impact on the local environment. Equally sensitive is the concern for minimal environmental impact of the intervention, demonstrating that less design can deliver superior results with high aesthetic effect.

Encouragement Prize North America

“Beacon river pool”, New York, USA

Project author

Thomas Shingo Nagy, graduate student, Princeton University, School of Architecture, Princeton, USA
Although deceptively simple in its outward expression, the project is merited for its insightful deployment of sustainable construction techniques. The collaborative scheme between the US Department of Energy and a polytechnic university in Spain is particularly innovative, for example, in proposing a roof shape determined by wind forces as well as a movable patio that is responsive to seasonal changes in sunlight. The deployment of phase-change materials is also to be commended, as is the functional flexibility of the design. In view of such measures, the entry promises a high degree of adaptability to variations of climatic conditions, thereby providing a lesson on contextual responsiveness. Despite the small dimension of the case study, the research nevertheless offers promising potential for application at many scales and according to different environmental parameters. Of equal merit are the spatial qualities achieved with economy of means.
Partner of the Holcim Awards for North America: Massachusetts Institute of Technology (MIT) in Cambridge, USA

Jury meeting for North America
June 16/17, 2005, MIT, USA

From left:
Thom Mayne, Architect, Morphosis, USA
Andrew Scott, Associate Professor, Massachusetts Institute of Technology (MIT), USA
Robert E. Somol, Professor, Department of Architecture and Urban Design, University of California in Los Angeles (UCLA), USA
Ellen Dunham-Jones, Director, Architecture Program, Georgia Institute of Technology, USA
Patrick Dolberg, CEO, Holcim (US) Inc., USA
Franz Knoll, Vice President, Nicolet Chartrand, Knoll Limitée, Canada
Adèle Naudé Santos (Head of Jury), Dean, School of Architecture and Planning, Massachusetts Institute of Technology (MIT), USA
Leon Glicksman, Head, Building Technology Program, Faculty of Architecture, Massachusetts Institute of Technology (MIT), USA
Gilles Sauzier, Principal, Sauzier + Perrottes Architects, Canada
Andrew Hoffman, Associate Professor, University of Michigan, USA
Hans-Rudolf Schalcher, Chair of Planning and Management in Construction, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and Head of the Technical Competence Center, Holcim Foundation, Switzerland

Not pictured:
Mahadev Raman, Principal, Ove Arup & Partners Consulting Engineers PC, USA
A focus on architecture

Holcim Awards North America

The most intimate but just as enthusiastic as the other regional ceremonies: The North American Holcim Group companies invited 200 guests from 7 countries. The guests enjoyed a two-day program that offered stimulating cultural and architectural highlights. Particularly impressive was the keynote speech by Simon Upton. The former longtime environment minister of New Zealand is today Chair of the OECD Round Table for Sustainable Development – and member of the Advisory Board of the Holcim Foundation. Rolf Soiron, Chair of the event, and Patrick Dolberg, Master of ceremonies, ensured a relaxed atmosphere.

Ceremony in Boston, USA
September 29/30, 2005
Why does one have to think about sustainability? Probably because a majority has come to realize that current means of occupying the world cannot be sustained for an extended period of time. Overconsumption of resources as well as inequities in the distribution of wealth present two formidable challenges to all disciplines concerned with the built environment. In its mission statement, the Holcim Foundation addresses sustainability in relation to five key criteria without giving special weight to any of them. From my point of view, however, the two pertaining to ecology and economy require greater attention than the other three (i.e., quantum change, social impact, and aesthetic quality). More precisely stated, humanity is essentially threatened by the dissipation of natural resources.
resources and the concentration of capital. In both cases, the issue is a problematic channeling of flows: that of material and money.

The dissipation of resources
The first risk-laden phenomenon is the precarious exploitation of natural reserves. For the past two centuries, humanity has selectively scarred the earth to an extent unprecedented in history, extracting materials and thereby changing their flows or setting them on new courses. A few examples suffice to illustrate this condition:

Our chief power source is provided by fossil fuels that are extracted from the earth. After combustion, CO₂ is produced, 50% of which remains in the atmosphere for decades. The human impact on the natural fossil fuel cycle in turn has a significant influence on future climatic conditions, and thus on the future economy. Therefore to counter this tendency, the concentration of CO₂ must be reduced by a factor of four.

Copper is used extensively in all branches of industry. A steady stream of Cu is dispersed through corrosion, contaminating the soil and water due to inadequate recycling processes. In that copper is becoming increasingly scarce, it must be set aside for conducting electricity rather than being squandered on such building applications as gutters and facades.

Rare elements such as palladium have already been exploited and dissipated to such an extent that industry can no longer count on their future use. Uranium is excavated and converted into materials that may not be discarded under any circumstances. Harmful radioactivity on the one hand, and the high explosive yield of materials made from uranium on the other hand, require very strict control of this rather recent material deployment. Dangerous substances should be removed from the environment at the expense of those who produce them.

The example of asbestos calls attention to what enormous damage can result when harmful elements are dispersed minutely throughout the environment. In this case, it was shown that negative consequences of using this material far outweighed any positive effect.

What is evident from such examples is that the current state of material flows is highly problematic. One of the most troubling consequences is the concentration of CO₂ in the atmosphere, a dilemma whose threat is growing at a rapid pace. And yet, the extent to which fossil fuels are consumed far exceeds human energy requirements, far beyond what indeed is needed. This part of the problem is clear.

Not so evident is how this challenge is related to the energy needs of mankind. The sun radiates 10,000 times more energy to the earth than is currently utilized. As a matter of fact, technology already exists to convert solar energy into electrical power for practical applications. The yearly costs for energy derived from solar power within the building sector are, for example, less than the yearly replacement costs within the automotive industry. It is a purely economic question of when and if the production of the human environment and its attendant energy flows will be satisfied by ecologically unproblematic material flows.

The concentration of capital
The second risk-laden phenomenon is the problematic tendency of how monetary resources are distributed, with capital routinely concentrated among a few. Capital is extracted from work and materials in a collective effort – in what meanwhile has become a global society. Materials are made available by the earth free of charge. The exploration for materials takes place fundamentally in the form of work. Capital provides the means, for example, to enhance human performance in the exploration of materials through technical processes. For their part, those technical means require work and material. Capital also serves in this process to increase the effect of human labor in an ever escalating chain.

The accumulation of capital in the hands of a privileged few enables a concentration of power, which in turn generates envy and resentment. This is to say that disparities in the distribution of wealth engender social tensions due to differences brought about in productive potential. In order to sustain these continuously increasing differences, more elaborate measures of segregation and their reinforcement have to be established that again lead to new problems.
Correlation between resource dissipation and capital concentration

More than likely, the squandering of resources and hoarding of wealth are closely related phenomena. The exploration rights for terrestrial resources are granted to very few organizations, and thus to a small number of individuals. The refinement processes of raw materials into goods are frequently under the same control as those in possession of exploration rights and those with facilities for extracting raw materials. Private assets of the capitalist economy originate from the reserves of the production economy. And so the cycle continues.

The intimate link between the flow of material and the flow of capital—not to mention the fact that the concentration of wealth was and still is facilitated by a gratuitous dissipation of resources—explains the enormous obstacles to attain an effective transition from today’s unsustainable economy to a new sustainable economy. This new economy must and will be marked by a drastic reduction in material indulgence.

The transition from a primarily fossil fuel economy with limited source facilities in the world—which by the way enables the concentration of wealth—to a non-centrally developed, financed, and serviced solar energy economy—based for example on wind, photovoltaic, waterpower, heat pumps, biomass, etc.—would solve not only a large portion of the resource-flow problem, but also would alleviate the problem concerning the concentration of capital.

This is to emphasize that the issue of sustainability must come to bear upon current practices of extraction and concentration. Such practices can be countered through careful monitoring of material flows and establishing more equitable flows of capital. To achieve these objectives requires an integrated understanding of how ecological and economic processes are interdependent rather than constituting mutually exclusive systems. The dissipation of materials is directly linked to patterns of capital concentration and vice versa. By implication, decentralized resource systems demand a distributive justice of monetary resources in order to ensure not only sustainable ecologies, but also sustainable livelihoods for all.
Roof policy

This project, entitled Green roofs for Buenos Aires, is conceived at the scale of an entire city. Working with a very simple detail, i.e., the necessary layers to fabricate a grass surface, the proposed scheme gains its significance through the application and multiplication of that detail to a dimension of metropolitan proportion – in this case the city of Buenos Aires. On the one hand, the authors propose a multilayered construction addressing an array of issues, including noise reduction, the improvement of air-quality, heat absorption, thermal insulation, and water retention. On the other hand, a political process has been negotiated with city officials in order to implement the plan. While the project addresses the specific challenges endemic to Buenos Aires, it offers techniques and policymaking...
strategies that can be applied to many other contexts. Time phasing has been considered as an integral part of the scheme’s overall design logic.
Schools have always played a significant role in the formation and reinforcement of communities. In this project for a new school in Rio de Janeiro, Brazil, ingenious strategies are devised for nesting the program for an educational facility within a framework of new and innovative solutions for sustainable construction. Conceived as an arrangement of ecologically sensitive technologies, the scheme plays all the keys of environmental measures to develop a matrix within which the school’s performance is maximized. The careful implementation of green roofs, of facade layers, and of non-toxic building materials work in concert to achieve an economically viable functionality. These features enrich the overall architectural presence of the work and demonstrate that sustain-
ability need not compromise the aesthetic quality of architecture.
Achieving improvements in an impoverished context is a challenge. With the next project an entirely different social and cultural situation is being addressed – that of desolate urban conditions in a poverty-stricken neighborhood in Venezuela. A group of female architects led the efforts to introduce the necessary infrastructure for water, sewage, and electricity along the paths and steep stairs winding through the settlement. Furthermore, the design proposes a series of interventions at the lower edge of the neighborhood. These structures are intended to fill the wasteland and form a bridge between the existing fabric and the neighboring context – with small shops along a street as well as various public buildings for education and health services. Great care is exercised with the design.

**Title of project**
Upgrading San Rafael-Unido, urban integration project, Caracas, Venezuela

**Principal authors**
Silvia Soonets with Isabel Cecilia Pocaterra, Maria Ines Pocaterra and Victor Gastier, Proyectos Arqui 5 CA, Caracas, Venezuela

**Global Award**
This project was conferred a global Holcim Award Gold in 2006. See pages 26 and 38
of the outdoor spaces for the community as is evidenced, for example, in the articulation of the stairs as the locus for social interaction. These stairs are also given added value in that they integrate all the necessary technical infrastructure.
A comprehensive set of measures pertaining for sustainable construction is considered in this high-rise building located in Brazil. Careful attention is given, for example, to water conservation, waste reduction, as well as to lowering CO2 emissions, while equal efforts are made to utilize natural resources such as solar and wind energy. In this sense, the building strives to catalyze environmental performance and thus further the cause of regional sustainability. The responsible stance of the entrepreneurs is commended in that they adopt sustainable techniques in residential buildings to be sold directly to consumers in the Latin American market. Consequently, such contributions promise to improve the quality of life for the community. Furthermore, the project exercises restraint with respect to the surrounding context, minimizing the ecological footprint while maximizing the quality of usable space for the inhabitants.
This entry calls for the innovative renovation of an existing structure to increase its overall environmental, functional, and aesthetic performance. Multiple solutions are explored to increase energy efficiency, most notably through the use of a green roof, green facades, and a technologically advanced window design. Such measures promise a significant decrease in energy consumption while also serving to buffer the building from its noisy surroundings. The authors also pursue an ethically sensible design process, taking into account the input of affected stakeholders. The proposed model for financing is economically viable in that the overall costs for refurbishment and subsequent maintenance are greatly reduced. Equally worthy of merit is the positive impact on the community. An important case study in ecological and architectural design is put forward and is to be commended for its level of accomplishment.
This proposal for improving social vitality in the city center merits distinction for the innovative approach to designing public space. The work offers a significant contribution to the community by implementing a multifunctional facility including a bus terminal connected to an elegantly designed cultural center via an elevated pedestrian path. Such coordination of diverse demands is highly applauded. Also commended is the skillful integration of different municipal services within the cultural facility, a solution that is socially relevant because it serves to bring a combination of activities to the community. Flexible architectural systems are introduced that accommodate necessary modifications of the overall building configuration. Equally notable is the socially responsible attitude to providing a diversity of safe, collective spaces whose appeal is accentuated by their refined architectonic treatment.

Acknowledgement Prize Latin America

“Plaza del Sol – Public market and transfer terminal”, Caracas, Venezuela

Project authors
Giorgio Jorge Rigamonti with Elena Margarita Correa de Rigamonti, Rigamonti & Asociados Consultores CA, Caracas, Venezuela
This proposal for an office facility is notable for its novel approach to employing sustainable construction technology. The work is unique in its use of unconventional materials for roofing as well as the use of sophisticated water retention slabs. Envisioned as part of a “living organism”, the adaptable roof is a commendable innovation in its own right, altering its geometry in order to effectively collect solar radiation in winter and provide shade in the summer. Such measures make the building energy efficient and promise to have a positive aesthetic impact on the community. The research expands the notion of ecology to include material performance as a driving force in environmental processes. This makes the project all the more interesting as a hybrid between architectural, urban, and environmental design. Overall, this scheme presents an exciting exploration of tectonic ingenuity.
This entry from Brazil is merited for its consideration of fundamental human needs in developing regions. Highly commended is the effort to add small toilet facilities to the large Brazilian social project of providing cisterns to peasants in the poor and dry semi-arid regions. Of equal significance is the use of locally available materials for the undertaking. The authors are aware of the need for ecological and economic sustainability in such areas, while exercising respect for local customs and levels of technological skill. In this sense, the proposal promises highly beneficial social impact, not only raising the hygienic quality of life, but also serving to further collective involvement in directing the course of communal development. The proposed structures are easy to build and require no complicated resource management, thus offering cost-efficient improvements to the local environment.

Encouragement Prize Latin America

“Sanitation facilities in semi-arid regions of Brazil”

Project authors  Luciana de Resende Alt with Vitor Marcos Aguiar de Moura, Belo Horizonte, Brazil
This project is given distinction for its socially ambitious vision to provide affordable housing in areas where temporary shelters prevail. Due to political and financial limitations in the region, almost all provisional shelters tend to become permanent houses, yielding as a result unsustainable conditions for human residence. To counter this tendency, the authors convincingly demonstrate the potential of introducing sustainable construction techniques, proposing to utilize modular wooden volumes that are upgradeable to a permanent house through the addition of new modules. The proposal also takes into consideration measures to involve the inhabitants directly in the construction process, thus increasing a sense of pride in collectively constructed space. In this sense, the project promotes the actual building of a community. As a result, a former emergency shelter area is transformed into a new human settlement.
This library project from Colombia is given distinction for promoting the uniqueness of the local culture as well as for attempting to improve ethical standards and social equity in the greater region. The scheme is literally conceived as a means for educating the community, promising to raise awareness of the potential of sustainable construction while providing an aesthetically refined social attractor.

Resource conservation and thermal comfort for the users are to be achieved through passive energy, which includes such features as a double-skin roof and walls. The proposed use of materials from the area is likewise merited for helping to lower implementation and maintenance costs. Also contributing to the performative efficiency of the building is the situational strategy that takes advantage of solar heating throughout the year. The author proves that conventional standards need not limit a project’s formal appeal.
Jury meeting for Latin America
July 7 to 9, 2005, USP, Brazil

From left:
Marc Angélil, Chair of Architecture and Design, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and of the Technical Competence Center, Holcim Foundation, Switzerland
John Martin Evans, Director, Research Center Habitat & Energy, University of Buenos Aires (UBA), Argentina
Carlos F. Bühler, CEO, Holcim (Brazil) S.A., Brazil
Vanderley M. John (Head of Jury), Professor, Department of Civil Engineering, University of São Paulo (USP), Brazil
Hans-Rudolf Schalcher, Chair of Planning and Management in Construction, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and Head of the Technical Competence Center, Holcim Foundation, Switzerland
Carlos Alberto Ricardo, Director, ISA – Instituto Socioambiental, Brazil
Norman Goijberg, President, Green Building Chile, Chile
Roberto Lamberts, Professor, Department of Civil Engineering, Federal University of Santa Catarina (UFSC), Brazil
Paula Gómez Ortega, Project Director, Fundación Urbana, Urban and Environmental Development, Argentina
Bruno Stagno, President, Bruno Stagno Architect y As., Costa Rica
Felipe Leal Fernández, Director, Faculty of Architecture, Universidad Nacional Autónoma de Mexico (UNAM), Mexico

Not pictured:
Enrique Norten, Principal, TEN Arquitectos, Member of the Advisory Board, Holcim Foundation, USA/Mexico
A tribute to enthusiasm

Ceremony in Rio de Janeiro, Brazil
October 21/22, 2005

Rio was the largest of the five regional Award ceremonies: 10 Holcim Group companies invited 450 guests from 12 countries. The guests enjoyed an authentic Latin American program bursting with vibrant life and placed in an attractive setting. The evening brought a touch of carnival to the first cycle of the Holcim Awards. The event – chaired by Markus Akermann, Chair of the Management Board of the Holcim Foundation – was carried out simultaneously in Spanish and Portuguese. But translation was no issue as the guests savored the party atmosphere into the next morning. The following day offered architectural highlights and stunning scenic views in the region of Rio de Janeiro.
Gold, Silver, Bronze: The winners of the Holcim Awards for Latin America.

Jaime Lerner, keynote speaker, former president of the International Union of Architects.

Music, entertainment, and speeches. Banquet in the Museo Histórico National in Rio de Janeiro, the most important museum in Brazil.

The essence of Rio de Janeiro: Show block during the ceremony.

Carnival on stage: Vibrant Brazil at its best with a performance by Beth Carvalho (top right), one of the most famous Samba singers in Brazil.
On the road to sustainability

Urbanization of emerging economies

Ashok B. Lall

More than half of the world’s population lives in urban communities. Large geographic regions in emerging economies will undergo a rapid shift toward further urbanization in the coming decades. It is presumed that they share attributes that produce equivalent conditions for sustained and fast economic growth, even though they have divergent geographies, political systems, and social histories. There are both euphoria and trepidation concerning such predictions of accelerated and uninterrupted economic development. The euphoria results from an enhanced knowledge base as well as an increased productivity spawned by the integration of institutional infrastructures with global markets. The trepidation is voiced by those who view the present severe disparities of wealth and opportunity being further...
exacerbated by the developmental process which is centered largely on those already privileged rather than the majority of citizens.

The city has always been the province of the wealthy and powerful. It is built in their service. The large numbers who migrate to metropolitan areas from rural hinterlands with the hope of securing their livelihood are neither accommodated by the formal systems of city management, nor able to afford the high cost of “legitimate” urban land and conventional urban services. This inequity characterizes contemporary cities within emerging economies and constitutes the most direct social challenge of sustainability.

In emerging economies the overarching force that drives the current process of urban development is globalization. Ushered in are the habits and expectations associated with the highly visible multinational corporation lifestyle promoted as the ubiquitous symbol of progress and success, which precipitates a growing preference for construction materials with high embodied energy – i.e., steel, glass, and aluminum. This increases demand for artificial lighting and air-conditioning in malls, offices and multiplexes. When this culture of images, rather than of substance, is compounded with an unregulated use of energy, carte blanche is given for both an explosion and a subsequent bush fire of energy consumption. The proverbial explosion is an immediate result of excessive utilization of high-embodied-energy materials as exacerbated by the sudden construction boom. The veritable bush fire is a consequence of the spiraling demand for energy needed for the operation of buildings and urban infrastructure. To the bush fire is added a drought of water – its increasing pollution and shortage of supply. Consider too the social and ecological pressure throughout the countryside brought about by the increasing demands of urban growth. These factors constitute the most dire environmental challenge of sustainability.

Do we expect the gains of accelerated economic development, centered on cities, to contribute to general social and environmental wellbeing? Yes, but only if the initiative is seized to find alternatives to the negative impacts of urbanization as outlined above. Undoubtedly, conventional models of urban systems and capital-intensive structures are not going to be affordable. Thus, innovation is necessary on many fronts: First, a wealth of locally produced and low-embodied-energy materials – for example, stabilized soil, processed stone, and the use of biomass – can provide most of the resources required for building construction. We must call upon the creative skills and imagination of the design and engineering professions to create a new aesthetic founded on environmental principles pertaining to the intelligent use of material resources. Second, if buildings are designed to moderate unfavorable climatic conditions, then this can significantly reduce the demand for air-conditioning and heating. Third, to build highrise buildings is unwise. Moving goods and people against the force of gravity – while holding them secure up in the sky – is a formula for the highest possible consumption of energy in building construction and operation. Urban planning must seek a balance between horizontal distribution and density, keeping building close to the ground. Fourth, public transportation systems of bus and train combined with pedestrian, bicycle, and small vehicle access routes must be given preference over private automobile transportation. Fifth, decentralized technologies for water and waste management – combined with spatial systems of built-up and natural ground – can provide low-energy and low-cost solutions to environmental upkeep. If the above strategies are coordinated to meet the environmental challenges, then several benefits are foreseeable. A significant benefit: the indigenous creativity and enterprise that is required to bring these strategies about will form the circuit for a wider distribution of wealth and thus respond to the social challenges.

The light that signals the hopeful potential of meeting the social and environmental challenges of rapid urbanization emanates from the combination of two factors. First, emerging economies are youthful societies that form a storehouse of creative energy, never before seen. Second, the information and communication revolution is reaching far and wide, giving these nascent societies access to knowledge and the capability to choose their futures intelligently. Thus the question must be asked: might these factors lead governments and corporate powers on the path toward a vibrant society based on environmental wisdom? Will the opportunity be seized?
This project is at the scale of a whole region located in a scenic landscape of agricultural plateaus south of Marrakech in Morocco. At the core of the approach is a strategy to strengthen rural communities and thus to counter migration from the countryside to urban areas. The project includes a series of measures for re-enforcing the role of women in society by supporting their efforts with micro-credits – undertaken in order to promote agriculture and small businesses as well as the construction of modest buildings for educational purposes. A primary school and a vocational center for young adults – both to be built with local materials – form the social center of the community. The project shows the potential of integrating...
vernacular architecture in an effort to modernize existing settlements.
This scheme takes us to South Africa, specifically to a small community that is rigorously engaged in the making of its own physical environment. The work proceeds by means of bottom-up decision-making processes at the political level, as well as through the participation of the community in construction. A catalogue of low-technology building components was devised and tested – pertaining mostly to energy, sewage treatment, water collection, and material management. These components and methods will be applied to a camp site, providing a source of income for the local population. The measures taken are part of a comprehensive financial plan to improve the economic wellbeing of the community. Of interest is the resourceful combination of economic and social objectives.
with very modest and straightforward construction techniques utilizing local materials. Minimal environmental impact is paired with maximum collective involvement.
This project takes us to Cape Town, South Africa, and forms the nucleus of an effort to promote sustainability in a context marked by poverty, unemployment, and environmental degradation. It is conceived as a local catalyst for sustainable development. The proposed scheme is meant to heighten awareness of the importance of ecosystems and energy conservation in the framework of a reinvigorated social network. These measures are spearheaded by a community-based education agency whose main goal is to design processes that help create jobs, improve environmental conditions, and instruct the local population on ways to stimulate their economic wellbeing. All materials used for construction are indigenous, as are the techniques for building. These are deployed in a sophisticated
manner and satisfy the aspiration toward modernization while showing sensitivity to traditional values.
While modest in scale, this entry from Morocco presents an innovative synthesis of bioclimatic knowledge. It responds both rationally and poetically to the harsh conditions of a semi-desert environment. The team is given merit for their integration of contemporary passive thermal control principles with traditional Islamic architecture. The work suggests broad-range applicability in similar climate zones. The dwelling unit is equipped with all the necessary amenities for residents and achieves autonomy in terms of energy use. Also worthy of merit is the use of natural material resources in construction that optimize operation and maintenance, as well as the selection of robust products and technologies. Noteworthy innovations include the wind scoop and underground coupling, as well as renewable resource technology such as wind generators for electricity. The work provides a clear example of design ingenuity coupled with sensitivity and technical skill.
This entry from Saudi Arabia deserves special merit for demonstrating how environmentally responsive design can incorporate traditional Islamic architectural principles. The team is successful in maintaining cultural continuity while at the same time delivering a contemporary tectonic expression to the work. Equally noteworthy in this respect is the effort to transform inherited typologies and still remain sensitive to local cultural values. Consequently, the project provides valuable lessons on sustainable construction that can be adapted to a variety of sites and contexts within the Islamic world.

The scale as well as the selection of materials is commended. The strategies for climatic control are derived from traditional methods, yet serve to further enhance the performance of the new technologies deployed. The proposal is skillful in creating fluid transitions between indoor and outdoor spaces, taking full advantage of the small site.

Acknowledgement Prize Africa Middle East

“Breathing house – Modern Saudi house”, Riyadh, Saudi Arabia

Project authors Luca Donner with Francesca Sorcinelli, Donner & Sorcinelli Architetti, Silea, Italy
This entry from southern Africa proposes noteworthy interactions of culture, society, and the natural environment in the plan for a new park. The park will serve as a community resource center that facilitates a variety of local economic development initiatives, cultural revitalization, as well as the conservation of natural biodiversity. The logic of systems thinking demonstrates an acute awareness of contextual needs at sociocultural and economic levels. The premise of energy conservation is followed through in the design of the facilities as well as the landscape. In this regard, the proposal promises to bring about economic improvement for the region. It will also stimulate a greater awareness of the benefit of community-driven initiatives. A convincing feasibility study guided the planning process to ensure viability and flexibility. The park and buildings are skillfully integrated to produce a seamlessly integrated environment.
This proposal is merited for the enterprising effort to rehabilitate a coastal region in Egypt. Many considerations for implementing sustainable construction technology are made at various scales. Especially worthy of merit is the attempt to address the overall urban environment, while also considering neighborhood planning and preservation strategies for particular buildings. The author expresses concern that tourism-oriented development pay respect to the Islamic culture and architectural heritage of the city. Also commended is the systematic approach. Along with securing a strong sense of cultural identity, the project would certainly contribute to the conservation of resources by facilitating the reuse of an existing stock of buildings. From an economic perspective, such a proposal for urban and building renewal would boost the economic opportunities of the residents, while encouraging further development in the region.
This project is given merit for its approach to the resettlement of households displaced by a slum settlement upgrade. Notable in this proposal for mixed-use development is the strategy of multilevel walk-ups to encourage density and efficiency, creative land-use, the harnessing of renewable energy, as well as the provisions proposed for water conservation. Of equal merit is the way that external spaces are clustered to increase security and facilitate maintenance. Also commended is the concern for community cohesion as treated, for example, through the use of pedestrian walkways. The scheme envisions local employment during the construction process that promises to stimulate a sense of communal belonging. The use of locally available materials is applauded, as well as the utilization of recycled and waste materials. Overall the project is as convincing as it is ambitious.
Jury meeting for Africa Middle East
July 21/22, 2005, Wits, Johannesburg, South Africa

From left:
Hans-Rudolf Schalcher, Professor for Planning and Management in Construction, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and Head of the Technical Competence Center, Holcim Foundation, Switzerland
Ovo Charles Majoroh, Principal Partner, Majoroh Partnership (Architects and Planners), Nigeria
David Kithakye, Senior Human Settlements Advisor, United Nations Human Settlements Programme, Kenya
Daniel K. Irurah (Head of Jury), Senior Lecturer, School of Architecture and Planning, University of the Witwatersrand (Wits), South Africa
Rachid Benmokhtar Benabdellah, President, Al-Akhawayn University (AU), Morocco
Peter Baccini, Professor, Swiss Federal Institute of Technology (ETH Zurich), President, Swiss Academy of Science, Member of the Technical Competence Center, Holcim Foundation, Switzerland
Renata Schalcher*
Saïd Mouline, Direction de l'Architecture, Ministère de l'Habitat et de l'Urbanisme, Morocco
Nina Maritz, Architect, Nina Maritz Architects, Namibia
N'Gueissan Kouadio, General Director, l'Ecole Africaine des Métiers de l'Architecture et de l'Urbanisme (EAMAU), Togo
Amira Osman, Lecturer, Department of Architecture, University of Pretoria (UP), South Africa
Mrs. N'Da Nguessan Kouadio*
Karl W. Meissner-Roloff, CEO, Holcim (South Africa) (Pty) Ltd, South Africa
Anna William Mtani, Project Coordinator, Dar es Salaam City Council Safer Cities Programme, Tanzania

Not pictured:
Hana S. Alamuddin, Principal Architect, Al-Mimariya Architects & Designers, Lebanon

* Partners of jury members. Only members of the jury were present during the deliberations and selection of projects.
The dynamic program elegantly wove together the various cultures of the region. 300 guests from 17 countries – invited by 14 Holcim Group companies – did not only enjoy the cultural sensations, but also listened with captivated interest to the keynote speech by Lindiwe Sisulu. The ceremony, chaired by Urs Bieri, Deputy Chairman of the Management Board of the Holcim Foundation, was held at Sandton Convention Centre, where in 2002 the United Nations World Summit on Sustainable Development was attended by nearly 200 heads of state.
Gold, Silver, Bronze. Winners of the Holcim Awards for the region of Africa Middle East.

Lindiwe Sisulu, South African Minister of Housing: An engaging keynote speaker.

A great delight. The banquet played a central role at all the ceremonies.

Pure joy of life. The “African Footprint”, a highly successful musical of international renown, transformed parts of the ceremony into a show extravaganza.
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From basic needs to cultural values and local identity

Said Mouline

Always the product of a particular history and of specific technologies, constructed space results from the complex interaction between human beings (anthropos) and their physical environment (topos). This dialectic relationship shapes and produces human settlements. Unrelenting growth propels humanity toward cities and raises the crucial question of what role sustainability can and should play in urban civilization. Within the next two decades urbanization will reach nearly 75 per cent of the earth’s total population.

Concerning the future of the urban environment, the world faces enormous challenges. Insights made and recommendations proposed at world meetings, despite their significance, unfortunately did not yield the expected...
results. But the issues must remain central vis-à-vis our collective efforts to improve our ecosystems. To achieve this common objective, another mode of understanding is required that entails acting in an efficient and accurate way. Such action necessarily comes to bear upon the construction industry. This fueled the incentive for establishing the Holcim Foundation for Sustainable Construction. The premises for this foundation are based on the results of the Rio Earth Summit held in 1992, which set out to draw the world’s attention to the need for rational ecological development. Holcim took up this challenge and decided to create an award program dedicated to giving merit to projects that promote sustainable construction.

The First Forum of the Holcim Foundation held in Zurich, Switzerland, in 2004 was essentially devoted to the theme of “basic needs” and their relation to the built environment. These discussions framed the target issues around which the subsequent award cycle was launched. What is sought is a proactive stance for innovation, specifically in fields involved with design and construction. And it is here that the work of architects and engineers prevails. Whereas most international architecture awards and competitions primarily place emphasis on the designer’s skills to produce signature work – giving priority to visual appearance – the Holcim Awards are distinctively different. Other criteria are established: a different base, a more comprehensive range of references, and alternative targets. Concerning the base, no one person or institutional will is given preference. Instead, multi- and transdisciplinary work as well as collective participation on projects is promoted – constituting the fruit of a widely shared vision as foregrounded by the worldwide network of universities involved in the overall undertaking.

Concerning the range of references, they are not centered on a specific community, neither are they affixed to a particular architectural theme. Instead, the operative parameters touch upon issues that cut across geographical borders and implicate a broad spectrum of architectural themes. Concerning the targets, the purpose of the Awards is not to narrowly classify works or design proposals in terms of a specific scale. Instead, evaluation is made regardless of scale, thus recognizing that achieving sustainable environments requires approaches from the very small to the very large. As a matter of fact, the Holcim Awards honor a matrix of considerations. The yield of these considerations must be born of a process of creativity and innovation driven toward the production of ecologically humane developments. In this respect, the Awards face both the present and the future. This is what distinguishes the Holcim Foundation, a distinction lent credibility by the results of the first cycle. Basic needs, while generally addressed, are now framed within a more specifically defined scaffold of objectives. These goals pertain to environmental technologies applicable to both the scale of buildings as well as to that of the urban domain. Moreover, cultural values and local identity are given a premium in defining such objectives. This is to say that the human factor must be integrated in upstream decision-making processes, and not treated downstream as an afterthought. It seems obvious that some aspects of sustainable development in urban civilization are not easy to understand. Some values, such as cultural ideals, local identity, communal solidarity, a sense of belonging to a place – whether a town, a city, or a country – are all values that are more difficult to grasp than are basic services such as road systems, sanitation networks, clean water supplies, electricity, or healthcare. Until now, only a few studies concerning the construction of human space and its attendant challenges have been successfully undertaken. This is where Holcim is making a contribution, providing leadership, fostering networks of knowledge, and promoting innovative practices by addressing diverse projects around the world. The knowledge gained is geared toward a sensible regulation of urban civilization. No sustainable construction could exist without maintenance and communal management, neither could it be conceived without urban and social regulation, regulations that above all respect cultural values and local identity.

3 Compare for example the Pritzker Prize, founded in 1979 by Jay Pritzker and considered the most prestigious annual distinction in Architecture, the Aga Khan Award for Architecture, founded in 1977 by His Highness Prince Karim Aga Khan for Islamic communities and held every 5 years, or the architectural prize of UNESCO, founded in 1983, and the Gold Medal given by the International Union of Architects and awarded every year since 1984.
How does one merge the old with the new? This entry brings us to the city of Hangzhou in China. It is an urban conservation and regeneration project working with the historic fabric of an existing neighborhood. Rather than demolishing the old substance, thus complying with so-called *tabula rasa* urbanism, the project combines preservation, remodeling, and new construction to meet contemporary lifestyle demands. Part of the undertaking also involves the introduction of public...
functions to existing landmark buildings. The proposal demonstrates how old and new can coexist, countering the modern dictum to erase the past. The project also addresses the importance of integrating extended families within a design that is sensitive to their diverse needs. The technique of layering is skillfully applied to form a complex texture of traditional and contemporary spaces. An understanding of the city evolving over time is central to the scheme.
Located in the Philippines, this project takes us to and even under the ocean. It offers a very simple but nevertheless ingenious solution to accelerated coral restoration. This is environmental engineering at its best, using a low technology concept to restore marine ecosystems damaged by humanity. The main idea of the proposal is to deploy concrete substrates that are found to be biologically friendly to coral reefs due to the presence of calcium bicarbonate in cement. A multi-legged structure insures the stability needed to withstand strong underwater currents. Prototypes were constructed to test the modules as to the efficacy of the design in terms of promoting coral growth while serving to attract fish and other marine fauna. Considered with respect to minimal construction cost.
and the exponential growth of coral, the project promises an extraordinary return on a low investment.
Face value

This project from Japan – entitled Air Suit – is representative of a large number of entries addressing facade construction. In this case, a new enclosure for an existing structure, dealing with strategies of how to potentially improve the energy performance of existing buildings, provides not only a novel approach to the design of high-yield envelopes, but also pushes the envelope in terms of aesthetics. The solution offers a sensitive strategy for dealing with building stock already in place. In this case, a middle-class apartment complex is wrapped in a new skin, forming a buffer and threshold between inside and outside. A distinction is made between the north and the south sides of the building, whereby a closed membrane is oriented toward the north, while adaptable louvers are
used on the south offering sun protection in the summer and solar gain in the winter.
From southern China, this entry makes a compelling case for reinterpreting the traditional building culture. An innovative translation of a historical house typology to a series of modern dwellings is proposed for the city center. Ecologically, the project is merited for its sensitive deployment of low-cost natural resources, reactivating the manufacture of low-tech, handmade structures, and the use of recycled materials. By promoting the use of local materials and traditional craftsmanship, the buildings require less maintenance, have a smaller impact on the environment, and are more energy efficient. In this sense, a balance is struck between nature and human occupation. A feasible economic solution is presented that could serve to stimulate employment and development in the region. Also merited is the combination of vernacular techniques of construction and contemporary tectonic expression, a synthesis that is aesthetically rich.
Another team from China explores sustainable construction techniques in their design for mass-developed, small-scale residential buildings. The proposal is merited for directly addressing the ever greater demand for affordable housing in the region. Although the units are quite compact, they nonetheless offer spatial variety as well as a diversity of environmentally intelligent qualities. Also applauded is the objective to stimulate communal interconnectivity. Added value is given in that such a goal is achieved while also promising zero energy consumption due to active and passive solar collectors, natural ventilation, ceiling fans, as well as the utilization of earth heat. Additionally, the use of state-of-the-art technologies for mass-production is successfully adapted to local skills. This work presents a technically competent architectural solution that is as aesthetically proficient as it is pragmatically considered.
Acknowledgement Prize Asia Pacific

“Chaupal – eco house”, New Delhi, India

This entry from India offers an exploratory case study in the use of environmentally friendly technologies. While conceived as a showcase of contemporary sustainable construction techniques, the project provides important lessons in the untapped potential of traditional design knowledge. With expressed concern for the ecological footprint of manmade constructions, a harmonic balance of natural, social, and material environments is sought. A high degree of competence is displayed in the amount of considerations given to issues like water retention and recycling, site irrigation, low-energy fixtures, wall and roof construction, as well as the use of solar energy. Such measures not only enhance the spatial qualities of the house, but also reduce costs for construction and maintenance. The project pays respect to local building practices, yet is up to date in its expression, offering a timely, stimulating debate on sustainable architecture.

Project authors

Satya Sheel, Suzuki Motorcycle India Pvt. Ltd, with Anamika, Environmental Design Solutions, and Tanmay Tathagat, all New Delhi, India
This project in China is given merit for innovation in exploring the benefits of eco-construction systems. The work demonstrates the possibility of bringing architectural research and practice into closer dialogue. The conceptual plan for a green community deploys a notable range of techniques and initiatives that are backed up by experiments undertaken in the field. Challenges such as rapid population growth, decreasing supplies of natural resources, and environmental pollution are addressed in a convincing manner. The team demonstrates awareness of the importance of engaging such challenges, as well as the urgency of deploying sustainable construction in the region. Consideration is given to striking a balance between natural and human environments. The scheme is also merited for considering the specific demands of local and regional planning, while using nature itself as a lead agent in the formulation of a new integrated community.
A significant aspect of this entry from the Philippines is the effort to directly involve local stakeholders in the decision-making process of the development. Another merit of the proposal is the negotiations made with government officials to guarantee the quality of the collective concept of the residents. Such an aim for social equity is praiseworthy. Also merited is the call for regionally sourced materials and recycling of material resources. Specifications are given for increasing the overall performance of the landscape. Various means of reducing runoff and erosion are considered as are numerous energy-saving measures. The projected economic plan is resourceful in that it accounts not only for the possible increase of agro-tourism to the region, but also for ways to incorporate the efforts of tourists in the maintenance of the cultivated environment. The project is convincing in its sensitivity to the needs of local culture.
Another project from China engages directly with the theme of aging populations. Special attention is given to accommodating the needs of elderly inhabitants with high quality dwellings. The work is merited for its sensitivity to social dynamics and transformations in lifestyles brought about by increasing urbanization and densification. Also commended is the effort to maintain links between generations, an effort that manifests an ambitious ethical vision. The team also skillfully addresses ecological and economic challenges by promoting moderate-cost, medium-density, multi-story residential units in a compact yet refined series of units. The flexibility of the changeable unit sizes is ingenious. The compactness of the architecture does not limit the freedom of inhabitants from directly influencing their living environment. The project is a sensible contribution to debates on the sustainable development of culture.
Jury meeting for Asia Pacific
June 30 to July 2, 2005, TJU, China

From left:
Donald Bates (Head of Jury), Director, Lab Architecture Studio, Australia
Siegfried Zhiquiang Wu, Dean, College of Architecture and Planning, Tongji University (TJU) and EXPO 2010 General Planner, Member of the Technical Competence Center, Holcim Foundation, China
Maria Cristina Turalba, Vice Chairman, Active Group Inc., Philippines
Hans-Rudolf Schalcher, Professor for Planning and Management in Construction, Swiss Federal Institute of Technology (ETH Zurich), Member of the Management Board and Head of the Technical Competence Center, Holcim Foundation, Switzerland
Ashok B. Lall, Dean of Studies, TVB School of Habitat Studies, Principal of Ashok B. Lall Architects, India
Surendra Shrestha, Regional Director and Representative (Asia & the Pacific), U.N. Environment Programme, Thailand
Stephen Siu-Yu Lau, Associate Dean, Faculty of Architecture, University of Hong Kong (HKU), China
Banasopit Melvichai, Director, Urban Design Program, Chulalongkorn University, Thailand
Yeqing Li, CEO, Huaxin Cement Co. Ltd., China

Not pictured:
Kenneth Yeang, Principal Architect, T.R. Hamzah & Yeang International, Malaysia
An event of emotions

Holcim Awards Asia Pacific

The Asia Pacific region is vast and contains many cultures. This was reflected in the intercultural exchange of the ceremony in Beijing. The program was conducted bilingually in Mandarin and English. Chair of the event was Rolf Soiron, Chairman of the Advisory Board of the Holcim Foundation. 300 guests invited by Holcim Group companies in 12 countries experienced a professionally organized and highly emotional Awards ceremony – and on the next day a cultural program filled with highlights.
This is an architectural story, an architectural fable. And it is a story about beginnings and ends. It is a story about the beginning of an idea and the end of thought.

Within a Judeo-Christian context, the important story is the beginning, a beginning that is also the end. For in the beginning, was paradise. In the beginning, all things were complete and without need or want or progression. The story of paradise, the story of the Garden of Eden, is the story of a world, a life, in which all is already given and nothing is lacking. It is therefore the end of all desire, and the end of all need. It is full and it is sustainable, as it is already complete. As such, the beginning is really the end.
For inexplicable reasons, out of actions that defy logic and rationale, Adam transgresses a prohibition and he and Eve are cast out of the Garden (image 1). They are cast out of Paradise. And in being cast out, they now begin the story of possible redemption, the story that is really the story about an End. From the Judeo-Christian point of view, all life after being cast out of the Garden of Eden is the start of a struggle for a return (redemption) to that completed beginning, the beginning which was in fact the End.

This story of beginnings and endings is an architectural fable because any architectural project has its own beginnings and its own ending. The question we must ask is where do these beginnings and endings occur in the story of architecture?

In the famous painting by the British artist, John Cole, we have the “The Architect’s Dream” (image 2). It too is a story that is also complete, a story that is at its end. It is complete because if you look closely you see that all possible architectures are in the painting, all the possible styles and typologies and histories of architecture can be seen in this one image. And up close we can see the Architect perched high on a column, with all his tools and equipment – not for construction, but for imagining. Because the task of the architect is the task of imagining at the beginning of the project what it should be at the end. It is the task of starting with an end – the completed idea – and moving through the complete process of design, documentation, elaboration and construction to arrive back to the beginning with a completed work.

Into this architectural fable I want to add another architectural dream. It is the dream of “The King and the Architect” (“Der Kaiser und der Architekt”) (images 3, 4). This dream comes from an amazing book by the illustrator Uriel Birnbaum. This book is a book of the most astonishing images of architecture – images of all possible architectures. It is the story of a dream, an architectural dream, which was also the dream (at the beginning of the story) of an end. It is the story of the dream of the king in which he experiences a city of all possibilities, a City of Paradise (image 5).
begins the construction. It is an immense task requiring unimaginable resources, human and material, to bring together these dreams into the one complete dream of the king and the architect (images 34, 35).

Perhaps I forgot to say at the beginning that this was not necessarily a story with a happy ending – especially for architects. Not all dreams are realized and some dreams become nightmares. But first we must take the story to its end. Because in the end, we have this incredible city, this city built to be a completion, to be the end to end all cities (image 36) – the culmination of a dream.

The king sends for the architect (image 6) and asks the architect to design the city as seen in the dream of the king. This is an amazing commission for the architect. It is the commission of all possible commissions (image 7). It is beyond all the commissions we now see in China, in Dubai, in India.

The architect produces the first project (which is seen as insufficient) and tries to make his imagination correspond to the dream of the king (images 8, 9, 10). The architect must start again. In this story by Birnbaum we have an encyclopedia of possible architectures; of marble cities and walled cities (images 11, 12), cities of towers (image 13), cities of bridges (image 14), island cities (image 15), black cities and white cities, cities of other colors (images 16, 17, 18, 19, 20), cities of lead – where the weight, malleability and softness of the material forms a particular architectural reality (image 21) – to cities of gold, silver, bronze, steel, mother-of-pearl and glass (images 22, 23, 24, 25, 26, 27), to kaleidoscopic cities (image 28), multilayered cities (image 29), towering cities, and rainbow cities (images 30, 31).

The architect brings all these glorious plans and drawings (image 32) to convey to the king his rich and fertile imagination, where he too has dreamed the “architectural dream.” The architect can bring, at the very beginning of this massive project, the image of the end. And having satisfied the king with his vision, with his imagining of the dream, the architect goes away (image 33) with his many, many drawings and now begins the construction. It is an immense task requiring unimaginable resources, human and material, to bring together these dreams into the one complete dream of the king and the architect (images 34, 35).

Perhaps I forgot to say at the beginning that this was not necessarily a story with a happy ending – especially for architects. Not all dreams are realized and some dreams become nightmares. But first we must take the story to its end. Because in the end, we have this incredible city, this city built to be a completion, to be the end to end all cities (image 36) – the culmination of a dream.

And at the end – the end of the story and the end of the work of the architect
— we have two cities. There is the city as a built reality, as a physical consequence of human action, the completion of a tremendous effort. And there is the city of a dream. Always already complete—complete at the beginning and complete at the end. A Garden City, a Paradise City (image 37). And in this story, coming out of the city of a dream, there is a terrible force, a force that destroys the constructed city, that shatters the efforts to build “it all” (images 38, 39).

I have said that this is not necessarily a story with a happy ending, no matter its beginning. And certainly it was not a happy ending for this architect (image 40). For the king, there is humility, penance, maybe even forgiveness. There is still the dream, far off and in the distant future (or the distant past) (image 41). There may well be other dreams for the king. For that we would need another story.

This story, on the other hand, is nothing more than an architectural fable. It does not aspire to provide a moral, to teach a lesson. Rather, it is a fable about the beginning and the end of thought, the beginning and the end of ideas, and about the beginnings and the ends of architecture. How do we begin without already being confronted by the dream of the end? How can we truly begin? To what end do we practice architecture? This is a fable in which we look at what is possible out of all possible architectures.
Selected entries Europe

A
Argentina Pablo Gustavo Coles “Equipamiento fotovoltaico Juegos Olímpicos Madrid 2012”
Argentina Edgardo Claudio Gil “Atocha corazón de Madrid”
Argentina Mauro Romero “Father Collins park”
Austria Harald Höllicka “Innovative bridge across the Mödling river”
Austria Heinz Neumann “Austrian house for research”
Austria Georg W. Reinberg “Clay passive house”
Austria Ursula Schneider “Sunny research, sustainable office and commercial building”

B
Belarus Alexandr Mitskikh “On the wave crest”
Belarus Vladimir Zubok “City in the city”
Belgium Ivo Van Ginderachter “Prefab house system”
Bosnia and Herzegovina Nevena Predojevic “Housing in central city area”
Brazil Flávio Almada “Viva fabrica”
Bulgaria Guergui Panayotov “Panayotov shopping center and swimming pool”
Bulgaria Enrico N. Repouz “ViaVamoVarna: 3V of shopping, greenhouse gas & entertainment”

C
Bulgaria Zhasmina Penkova “Zheleva business center”
Croatia Ivo Blazinic “Pyramid complex”
Croatia Ljubomir Miscevic “Solar town with university, technological park and housing”
Croatia Ljubomir Miscevic “Croatian solar house”
Croatia Ljubomir Miscevic “Croatian wooden family house with passive energy standard”
Croatia Ljubomir Miscevic “Croatian wooden family house with passive energy standard”
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Croatia Ljubomir Miscevic “Croatian wooden family house with passive energy standard”

D
Czech Republic Stanislav Kovar “South Bohemian open-air museum Sevetin”
Czech Republic Konstantin Polyak “La città ideale”
Czech Republic Radek Suchanek “The development strategy for the post-communist towns”
Czech Republic Petr Suske “Wellness centre – Prague”
Czech Republic Ivo Vsetecka “Former water mill reconstruction”

E
Denmark Palle Joergensen “Architecture and sustainability in Danish housing”

F
Netherlands Peter Westerlund “Lastu summer sauna”
France Bertrand Barrere “Sustainable housing project for the Strasbourg agglomeration”
France Antoine Beau “An urban answer to the desire of an individual home”
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“Integración de energía solar – en edificio de oficinas”

Spain
Montse Urbano Vázquez
“La integración en la vida diaria”

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Nunes

Juarez Cardoso Brazil

Brazil

Lontra

Marcio Gomes Brazil

Urban areas

Latin America

Monumentality

Jauregui

Jorge Mario Brazil

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Cuba
Michel Lugo
“Casa de cultivo protegido”

Ecuador
Angel Lautaro Jácome
“Habitáculo itinerante”

Ecuador
Pedro Antonio Jaramillo
“Plaza San Marcos”

Ecuador
Alicia Jaramillo
“Proyecto piloto de desarrollo sostenible en isla Santay”

Ecuador
Hector Hugo Mena
“Centro integral de apoyo a farmacodependientes”

Ecuador
Daniel Moreno
“Vivienda minima”

Ecuador
Verónica Alexandra Rosero
“Ecohabitat de estudios regeneradores”

Ecuador
Esteban Andres Torres
“Un techo para Ecuador”

Ecuador
Publio Roberto Valarezo
“Diseño urbano paso elevado peatonal”

Ecuador
Lotty Maria Zambrano
“Conjunto turístico habitacional ecologico”

France
Adriana Marcela Duran Gamba
“Habitat, housing and environments in two municipalities”

Germany
Leon Alegria-Ortiz
“Casa ciudad”

India
Anil Laul Vedaville
“Sustainable township in Jamaica”

Italy
Fernando Recalde Leon
“Amazon ecopark: sustainable development incubator”

Italy
Massimiliano Spadoni
“Dança das aguas, housing generator in Belem”

Mexico
Gas José Luis Aguirre
“Arquitectura, desarrollo urbano, y vivienda sustentable”

Mexico
Carlos Miguel Aldana Martinez
“Propuesta rescate de áreas cultivables en zonas conurbadas”

Mexico
Ricardo Astudillo
“Restaurante bar Josecho”

Mexico
Isaac Broid
“Biblioteca México José Vasconcelos”

Mexico
Juan Caballero
“Residencial ex-hacienda del angel”

Mexico
David Cabrera
“Biblioteca natural”

Mexico
Ricardo Candás Sordo
“Centro regional Acuicola”

Mexico
Mario Coutinho Victoria
“Simueve – sistema modular universal en evolución”

Mexico
Javier Cuevas
“Hospital Santa Cruz”

Mexico
Rodrigo C. Diez de Sollano Elcoro
“Espacios abiertos para el desarrollo sustentable”

Mexico
Deyanira Esteban Real
“Villas & spa canción del sol”

Mexico
José Manuel Fernández
“Propuestas de adecuación bioclimática para aulas del capfcf”

Mexico
Julio Gaeta Centia
“Universidad de las Américas”

Mexico
Carlos Eduardo García Velez
“Sunflower village”

Mexico
Jesús Goyeneche
“Disposición final de basura por oxidación térmica”

Mexico
Salvador Gütiler
“Centro regional estudios planeación educativa en Panama”

Mexico
Agustin Hernandez
“Casa pueblo”
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Austria
Franziska Orso
“Learning from Alex: An urban typological development model”

Botswana
Carl-Gunther Bauer
“The living park”

Brazil
Helleri Luis Leoncini Mazzi
“Cidades sustentáveis”

Bulgaria
Matey Nikolov Mateev
“Euroasianopolis – Expo city XXI century”

Bulgaria
Matey Nikolov Mateev
“Prefabricated system ‘MM’ – houses & small public buildings”

Burundi
Libere Ntungua
“Immeuble à structure en bois et murs en béton armé de bambou”

Egypt
Hisham Ali Gerisha
“Under water museum”

Ethiopia
Ahadu Abaineh
“Free housing for a low income group”

France
Suren Simonyan
“Monument consacré à l’adoption du Christianisme en Arménie”

Germany
Martin Geskes
“Aquarium in Muscat”

Germany
Martin Geskes
“German house”

Germany
Martin Geskes
“The cascade”

Germany
Marc Hoelscher
“Thirsty development of the oasis Nefta, Tunisia”

Germany
Antonia Schlegel
“Rehabilitation, preserving and development of El Quseir”

Germany
Astrid Weisel
“Nyanza – handling of sprawl based on closed cycle models”

Germany
Jochen Brandi
“Dakar en l’an 2030 – une ville en harmonie avec le paysage”

Italy
Andrea Ambroso
“Unidad de habitación dinámica: arquitectura social, Marruecos”

Italy
Alessandro Becherucci
“No man is free unless he is cultured”

Italy
Luca Donner
“Breathing house”

Italy
Marco Petrangeli
“Etude de réhabilitation du pont suspendu de Chihani”

Italy
Luigi Rebecchini
“Cultural training centre for Touareg girls”

Kenya
Lemmy Nyongesa
“Kibera slum housing for the slum dwellers”

Kenya
Antony Ngunyi
“Macharia urban cost-effective low income housing”

Kenya
Emma Kisha
“Miloyo sustainability in the face of disasters”

Kenya
Kenneth Wambugu Muraguri
“Naserian community centre”

Kenya
Mumo W. Musuva
“Community cooker”

Kenya
Charles Maina Mwangi
“Sustainable housing”

Kenya
Isaac Maina Njeru
“Re-development of Kibagare”

Kenya
Maranga Njoroge
“Renewal of Kibera settlement”
Morocco
Youssef Lotfy
"L’architecture symbiotique"

Morocco
Omar Mouline
"Rose des sables"

Morocco
Mohammed Taibi Mouline
"Casablanca’s hope: revitalisation de la corniche de Ain Diab"

Morocco
Adil Moutalal
"Ecosystème de la lagune bleue"

Morocco
Fatima Zohra Mirani
"Ville satellite sans bidonvilles"

Morocco
Mohammed Rahmouni
"Centre emergent en milieu rural"

Morocco
Amine Mohamed Siana
"Reloagement des habitants du bidonville de bloc El âssassa"

Morocco
Myriam Kenza Soussan
"Unité d’habitation écologique en zone semi-désertique"

Morocco
Rachid Taj
"Projet Ecotouristique Douar Zitoun"

Morocco
Ayoub Tlemsani
"Théorie du cube et le fondement d’architecture durable"

Morocco
Lucien Yanes
"Dinosaurium"

Morocco
Lucien Antoine Yanes
"Rehabilitation du grenier de tabant"

Mozambique
Luis Cardoso Vedor
"Construção sustentavel em terra"

Namibia
Memory Brunhilde Burger
"Katima Mulilo market"

Namibia
Brynard Jeremia Kotze
"Research and tourism center"

Palestine
Hani I. Mustafa Hassan
"House of Yaffa"

Palestine
Tarig Abdel-Hay Shawar
"Mix use development of Al-Haram Esh Sharif"

Philippines
Felino Jr. Albano Palafox
"Public schools in Bam, Iran"

Reunion
Patrice Ritter
"TzP, TzP: Toitures et façades photovoltaïques péri"n

Reunion
Philippe Zourgane
"Maison marronnage"

Saudi Arabia
Farahat Mahmoud Abdelmohsen
"Self-reliant desert community"

Saudi Arabia
Farahat Mahmoud Abdelmohsen
"Contemporary Bahri house"

South Africa
Paul John Carew
"The earth building"

South Africa
Sue Clark Khula
"Tourism precinct – St Lucia"

South Africa
Daniel P. Crafford
"Conceptual development plan for an ecotourism model, Red Sea"

South Africa
Quinton James Damstra
"Shanty Shique – hope for informal settlements"

South Africa
Braam Michiel De Villiers
"House van Dijk"

South Africa
Dahhene Carmen Dickens
"First year hut"

South Africa
Paul Joubert Elliott
"Environmental education centre at the Wolfgate nature reserve"

South Africa
Thomas Brian Ferguson
"Simplicity buildings"

South Africa
Andrew Raymond Horn
"Nieuwoudtville caravan site upgrade"
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<th>Country</th>
<th>Name</th>
<th>Project Description</th>
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<tr>
<td>South Africa</td>
<td>Ancunel Anna-Lucia Janse van Rensburg</td>
<td>“24 rivers heritage art center: space for eating”</td>
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<td>South Africa</td>
<td>Heinrich Kammeyer</td>
<td>“Clipspruit corridor Soweto”</td>
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<td>South Africa</td>
<td>Jan Patrick Klinger</td>
<td>“Xhosa restaurant, Kayamandi”</td>
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<td>South Africa</td>
<td>Sydney C. Kloppers</td>
<td>“Tomb wall – cemetery land management system”</td>
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<td>South Africa</td>
<td>Abby Loebenberg</td>
<td>“New HIV/TB unit for Khayelitsha”</td>
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<td>South Africa</td>
<td>Linda Mampuru</td>
<td>“The revitalization of Johannesburg stadium”</td>
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<td>South Africa</td>
<td>Robert Marneweck</td>
<td>“Timber housing in the Machangulo nature reserve Mozambique”</td>
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<td>South Africa</td>
<td>Nyiko Mashaba</td>
<td>“Hydrogen balloon”</td>
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<td>South Africa</td>
<td>Markus Georg Meyer</td>
<td>“Khaditshwene empowerment plant”</td>
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<td>South Africa</td>
<td>Tracey Mills-Brink</td>
<td>“Khanditshwene private wildlife sanctuary”</td>
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<td>South Africa</td>
<td>Nadia Franciska Molenaar</td>
<td>“Vetkati’s gallery – A wind from the north”</td>
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<td>South Africa</td>
<td>Ratanang Nage</td>
<td>“New cultural center on the edge of Pretoria CBD”</td>
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<td>South Africa</td>
<td>Ana Maria Nomico</td>
<td>“An ecological resource facility”</td>
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<td>South Africa</td>
<td>Marcel Paul Hubert</td>
<td>“Peeperkorn spiritual tower”</td>
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<td>South Africa</td>
<td>Arno Paul Pieters</td>
<td>“The rebirth of the heart of Pretoria”</td>
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<td>South Africa</td>
<td>Helene Potgieter</td>
<td>“Prairie giants retail centre”</td>
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<td>South Africa</td>
<td>James Jackson Rautenbach</td>
<td>“Village access roads and drainage structures”</td>
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<td>South Africa</td>
<td>Alastair Francis Rendall Tsoga</td>
<td>“Environmental center and local sustainability catalyst”</td>
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<td>South Africa</td>
<td>Robert John Rich</td>
<td>“Musuem in the Kalahari for the San”</td>
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<td>South Africa</td>
<td>Ravi Ronny</td>
<td>“Construction of the Qwasha and Tsitsa river bridges”</td>
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<td>South Africa</td>
<td>Nicholas Shapley</td>
<td>“Presidential job summit – 5000 houses-Witbank”</td>
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<td>South Africa</td>
<td>Gregory Simoes</td>
<td>“A housing proposal”</td>
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<td>South Africa</td>
<td>Richard Blake Turner</td>
<td>“Gansbaai sanitation master plan: sanitation for coastal town”</td>
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<td>South Africa</td>
<td>Terry Bertram Wayne</td>
<td>“A gallery and workshop for glassworks”</td>
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<td>Spain</td>
<td>Pedro Bustamante</td>
<td>“Ventilated coolant façade”</td>
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<td>Switzerland</td>
<td>Jacques Morel</td>
<td>“Valorisation du bambou au Cameroun pour la construction”</td>
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<td>Switzerland</td>
<td>Anna Roos</td>
<td>“Xhosa restaurant”</td>
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<td>Switzerland</td>
<td>Marius Scherler</td>
<td>“Carpet atelier in Kurdistan”</td>
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<td>Tanzania</td>
<td>Benitho Nicholas Lyakwipa</td>
<td>“Students hostel at Uclas”</td>
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<td>Tanzania</td>
<td>Ruth Nesje Tanga</td>
<td>“International conference center”</td>
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<td>Togo</td>
<td>Ambroise Khoy Billong</td>
<td>“Architecture écologique: le jardin du savoir”</td>
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<td>Turkey</td>
<td>Mehmet Akif Cinar</td>
<td>“Ecohouse and ecopath”</td>
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<td>Uganda</td>
<td>Dan Barigye</td>
<td>“Design of Kamba sewerage system”</td>
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<td>United Arab Emirates</td>
<td>Ahmed A. Monem Ragab</td>
<td>“Prince Sultan culture center”</td>
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<td>Zambia</td>
<td>Lawrence Spider Muonda</td>
<td>“Chilanga low-cost self-help housing scheme”</td>
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<td>Zimbabwe</td>
<td>Vusimbe Zivave</td>
<td>“Architecture for sustainable rural community development”</td>
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Australia
Aubrey John Harrison
"Tececo eco-cement"

Australia
Matthias Iger
"Design for nature – finding design in nature"

Australia
John Anthony Sargeant Kwok
"Build house & kwik build wall for tsunami house design"

Australia
Robert John Watson
"Architecturally integrated water storage wall panels"

B
Bangladesh
Rafiq Azam
"S.A. residence – a court for water"

Bangladesh
Sujaul Islam Khan
"An event space for Dhaka"

Belgium
Hou Liang Ningbo
"Science and technology museum"

Bulgaria
Alexander T. Naydenov
"Int'l. concept competition for the northern Osaka station area"

C
China
Gou Aiping Banda
"Tsunami underground refuge space"

China
Yann Bigant
"Architecture pulsante et habitat urbain mobile"

China
Yuan Bin
"Huangtai thermal power plant"

China
Huang Bu’ou
"Sustainable architecture design"

China
Zhaoying Dong
"Social weak-group-urban-sustainable construction"

China
David Gilbert
"The approach to fresh water shortage in tourism resort"

China
Hongying Gu
"Conservation planning of historic area in Kuanzhai Xiangzi"

China
Haoux Guo
"The sewage-treating building in Guangdong medical college"

China
Dan Hao
"Eco-community in desertification area in western"

China
Wei Ji Ho
"Changeing Gingkgo resort"

China
Yupeng Huang
"Xihu Tiandi development project"

China
Wang Jianguo
"Seagull island tourism plan & urban design for Guangzhou"

China
Wang Jianguo
"Planning and design for the site of Shanghai World Expo 2010"

China
Deng Jie
"Breathe the nature"

China
Li Jijun
"Sustainable city: the planning act as policy"

China
Liul Jiwei
"Urban design for culture plaza area"

China
Liu Kecheng
"Xi’an Banpo museum"

China
Peng Li
"New canal town in south China"

China
Shaofeng Li
"Landscape gridding city"

China
Dexiang Li
"Ecological planning of Beigang residential district"

China
Shi Liang
"Ruiba and Dongfeng ecologic park"

China
Zheng Lipeng
"The residential environment improvement in Pearl village"

China
Binyi Liu
"Sustainable tourism development for the Pamir region"

China
Xiangfeng Liu
"Office building with transparent water storage envelope"

China
Jin Ma
"District design"

China
Xianchuan Meng
"Redefining – high-rise building"

China
Sun Ming Jia
"Ecological house design"
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<tr>
<th>Country</th>
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<tbody>
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<td>China</td>
<td>Zhang Qi</td>
<td>&quot;Small and smart renewal&quot;</td>
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<td>Feng Qian</td>
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<td>&quot;New village of migrants&quot;</td>
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<td>China</td>
<td>Su Qin</td>
<td>&quot;Shifted cell&quot;</td>
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<td>Haizao Sheng</td>
<td>&quot;China water conservancy museum&quot;</td>
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<td>China</td>
<td>Shao Shidu</td>
<td>&quot;Rugao service-zone design, Yan tong highway&quot;</td>
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<td>China</td>
<td>Lu Sun</td>
<td>&quot;Kariz Village: A sustainable community in desertified area&quot;</td>
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<td>China</td>
<td>Shi Zhi Wei</td>
<td>&quot;The egg-shaped space&quot;</td>
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<td>Shu Wei</td>
<td>&quot;Chongming Xisha Mingzhu wetland park&quot;</td>
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<td>Tan Wendi</td>
<td>&quot;Changeable wall&quot;</td>
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<td>Fu Wenjun</td>
<td>&quot;Retractable roof of large span building&quot;</td>
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<td>Xu Xianfeng</td>
<td>&quot;Floating house&quot;</td>
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<td>Liu Yang</td>
<td>&quot;Responding house&quot;</td>
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<td>China</td>
<td>Yuzhen Yang</td>
<td>&quot;Gradual Renewal strategies &amp; low-cost building technologies&quot;</td>
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<td>China</td>
<td>Bao Shidu</td>
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<td>Ruan Yisan</td>
<td>&quot;Preservation planning of Pingjiang historic block&quot;</td>
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<td>Shao Yang Lijiang</td>
<td>&quot;Ancient town master conservation planning&quot;</td>
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<td>Feng Yuan</td>
<td>&quot;Corridor in Tangzha&quot;</td>
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<td>Feng Yuan</td>
<td>&quot;Renovation of Tongji university’s auditorium&quot;</td>
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<td>China</td>
<td>Zhang Yun Sheng</td>
<td>&quot;Kung house&quot;</td>
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<td>China</td>
<td>Xiaojun Zhao</td>
<td>&quot;National swimming center – the watercube&quot;</td>
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<td>China</td>
<td>Wang Zhu</td>
<td>&quot;From the original toward sustainability&quot;</td>
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<td>France</td>
<td>Jean-Jacques Zulianel</td>
<td>&quot;Cloud root village&quot;</td>
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<td>Germany</td>
<td>Armand Gruntuch</td>
<td>&quot;Penang turf club&quot;</td>
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<td>Germany</td>
<td>Thomas Jocher</td>
<td>&quot;Syria&quot;</td>
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<td>Germany</td>
<td>Christian Kohl</td>
<td>&quot;Fengjing gateway mall&quot;</td>
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<td>Germany</td>
<td>Rainer Mertes</td>
<td>&quot;Aisha-I-Durani school&quot;</td>
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<td>Germany</td>
<td>Andreas Schwarz</td>
<td>&quot;Tokyo delight: open-air-stage-design&quot;</td>
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<td>India</td>
<td>Bhushan Kumar Aggarwal</td>
<td>&quot;Innovative concept of sustainable construction as per Vastu&quot;</td>
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<td>India</td>
<td>Krishna Pada Bhattacharjee</td>
<td>&quot;Secondary school for girls in Bankura&quot;</td>
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<td>India</td>
<td>Sanjay Ektate</td>
<td>&quot;Renewable energy &amp; infrastructure development in highlands&quot;</td>
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<td>Anupama Kundoo Urban</td>
<td>&quot;Eco-community innovative low-cost housing prototype&quot;</td>
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<td>Ashish Sharan Lal</td>
<td>&quot;Integrated township at Asansol&quot;</td>
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<td>India</td>
<td>Anil Laul</td>
<td>&quot;Indigenous technologies: common man’s water filter&quot;</td>
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<td>India</td>
<td>Supriyo Mukherjee</td>
<td>&quot;A fistful of fresh air and a new living&quot;</td>
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<td>India</td>
<td>Tithagat Tanmay</td>
<td>&quot;Eco-housing&quot;</td>
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Philippines
Berni Canilang
Espiritu
"North triangle commercial center"

Philippines
Dominic Quimbo
Galicia
"St. Alphonsus Liguori parish church, rising from the ashes"

Philippines
Wilfredo Jesena
Kasilag
"Treehouse survivor – for calamity homeless and mass housing"

Philippines
Georg Kredler
"Design and implementation of cement substrates"

Philippines
Maximo Rico
Mendoza
"Structural u-bricks"

Philippines
Elmer Velasco
Sayre
"Sustainable community-based small scale construction"

Philippines
Albert Santos
Zambrano
"Low-income housing linked with income-generation"

Philippines
Alfeche Lemuel
Kasilag
"Design and implementation of cement substrates"

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Maximo Rico
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Elmer Velasco
Sayre
"Sustainable community-based small scale construction"

Philippines
Albert Santos
Zambrano
"Low-income housing linked with income-generation"

Singapore
Khai Hua Tan
"City square"

Spain
Andrés Perea
Ortega
"Concurso capital – plaza en Taipei"

Spain
Fernando Higueras
Rascacielos
"Horizontal for China"

Spain
Antonio Ruiz
Barbarin
"Nueva planificació urbanística Donghe, Mongolia"

Sri Lanka
Pinnaduwage Ariyasena De Silva
"Vehicle-free sustainable city with three-storied houses"

Sri Lanka
Ranjith Punchi
Bandage Dissanayake Ambuluwawa
"Biodiversity conservation"

Sri Lanka
Mudalige Thishan
Renuke Jayasinghe
"Cyclone-resistant and thermally comfortable roof slabs"

Sri Lanka
Chintha Jayasinghe Testing
"Structural properties of rammed earth"

Sri Lanka
Mihindu Keerthiratne
"Multi-purpose auditorium at university of Moratuwa"

Sri Lanka
Asoka Jayalath Perera
"Research and application of compressed earth blocks"

Switzerland
Architects Brnic Graf Rossbauer
"Students’ center for Bamiyan university"

Thailand
Soontorn Boonyatikarn
"The bio-ecological village"

Thailand
Bundhit Hanchanlaksh
"Naturally ventilated mud-brick dome housing in the tropics"

Thailand
Bernard Gilles Lefebvre
"Bhutan housing project"

Thailand
Stuart Saunders
"Yangmingshan line"

Thailand
Leifur Hayden Thor
"Exostructural housing"

United Kingdom
O’Carroll Declan
"Dongtan energy center"

United States
Gregory Kiss
"Harbin-Songbei district enterprise center"

United States
Fred Koetter
"Sewoon urban redevelopment project"

United States
Huo Li
"Linked hybrid"

United States
Peter Lizon
"The Osaka place: a new civic center of the city"

Vietnam
Tuan Anh Bach
"Iron-triangular tunnel historical site of Bencat Binhduong"

Vietnam
Muoi Van Khuong
"Ben Duoc Chu Chi memorial temple"

Vietnam
Tran Dinh Nam
"Binh Duong college of medicine and pharmacy"

Vietnam
Thiet Dinh Nguyen
"From a green tree house to a green tree city"

Vietnam
Tat Van Nguyen
"Rural habitat – together with inundation"

Vietnam
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"Radio and television station of Can Tho city"
Activities

The Holcim Foundation for the Sustainable Construction promotes innovative approaches to sustainable construction. The objective of the Holcim Foundation is to encourage sustainable responses to the technological, environmental, socio-economic and cultural issues affecting building and construction, regionally as well as globally – through a range of initiatives, including Holcim Awards, Holcim Forum, and Holcim Projects.
An international competition for future-oriented and tangible sustainable construction projects. The Holcim Awards recognize any contribution to sustainable construction – regardless of scale – in architecture, landscape and urban design, civil and mechanical engineering and related disciplines. Prize money of USD 2 million per three-year competition cycle encourages and inspires achievements that go beyond convention, explore new ways and means, and draw attention to and identify excellence. The competition is conducted in partnership with five of the world’s leading technical universities, which evaluate entries according to the target issues for sustainable construction, and lead the independent juries.

www.holcimawards.org

A series of symposiums for academia and practitioners to encourage discourse on the future of the built environment. The Holcim Forum supports sustainable construction in the scientific field, among experts in the construction sector, business and society. In addition to renowned specialists from around the world, promising international students from leading technical universities are invited, to represent the next generation and to share their visions. The first Holcim Forum was held at the ETH Zurich, Switzerland, in September 2004 with the theme “Basic Needs.” The second Holcim Forum will be held in 2007 at Tongji University in Shanghai, China, with the theme “Urban_Trans_Formation.”

www.holcimforum.org

Seed funding for research projects and building initiatives to accelerate progress and promote sustainable construction. The Holcim Foundation provides USD 1 million per three-year cycle to support research in sustainable construction and the implementation of building projects. Projects nominated for seed funding are evaluated according to the target issues for sustainable construction, and must be endorsed by a local Holcim Group company. The Holcim Foundation acts as an enabler for both research projects and building initiatives so that, whatever their origin, exciting and important new ideas can be more widely implemented and tested by a broader audience of specialists.

www.holcimprojects.org
Organization

The Advisory Board of the Holcim Foundation ensures that the activities of the Foundation are aligned with current interpretations of sustainable construction and inspires the Foundation’s activities by framing the architectural, scientific, cultural, and policy concerns that should be integrated into the initiatives.

The Management Board of the Holcim Foundation defines and approves the strategy and the programs of the Holcim Foundation and its initiatives. The majority of members of the Board must be independent from the sponsor of the Holcim Foundation.

The Swiss Federal Institute of Technology (ETH Zurich) operates as the global Technical Competence Center of the Holcim Foundation and provides academic and technical credibility by developing, supporting and implementing the Foundation’s initiatives in close cooperation with four partner universities.

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Holcimawards First cycle of the regional and global competition for sustainable construction projects