Technological & Green Architecture

Technological Architecture

Norman Foster

James Stewart Polshek

Rafael Vinoly

Renzo Piano

Richard Rogers

Santiago Calatrava

Gluckman Mayner

Christian Portzamparc

Grimshaw

SHoP Architects

“Technological Architecture” is a term used to describe a wide group of architects and buildings:

It can refer to buildings that adapt new technology.

“Techno” architecture also refers to buildings that feature the structural or mechanical systems of a building as its primary design feature.

“Techno” can also be used to describe buildings that try to mimic the digital world.

Adapting new technology

Norman Foster

Photo: internet

Norman Foster

"Sir Norman Foster's buildings set a standard for design excellence in the use of modern technology pushed to its artistic limits."

Bill Lacey

"…….the expert use and expression of the structural technology of the 20th century. The work is also distinguished by a sensitivity to site and surroundings."

Ada Louise Huxtable

Norman Foster

Willis Faber Dumas Building, Ipswich, Great Britain 1970

Photo: internet

Norman Foster

Sainsbury Centre for Visual Arts, Great Britain 1974

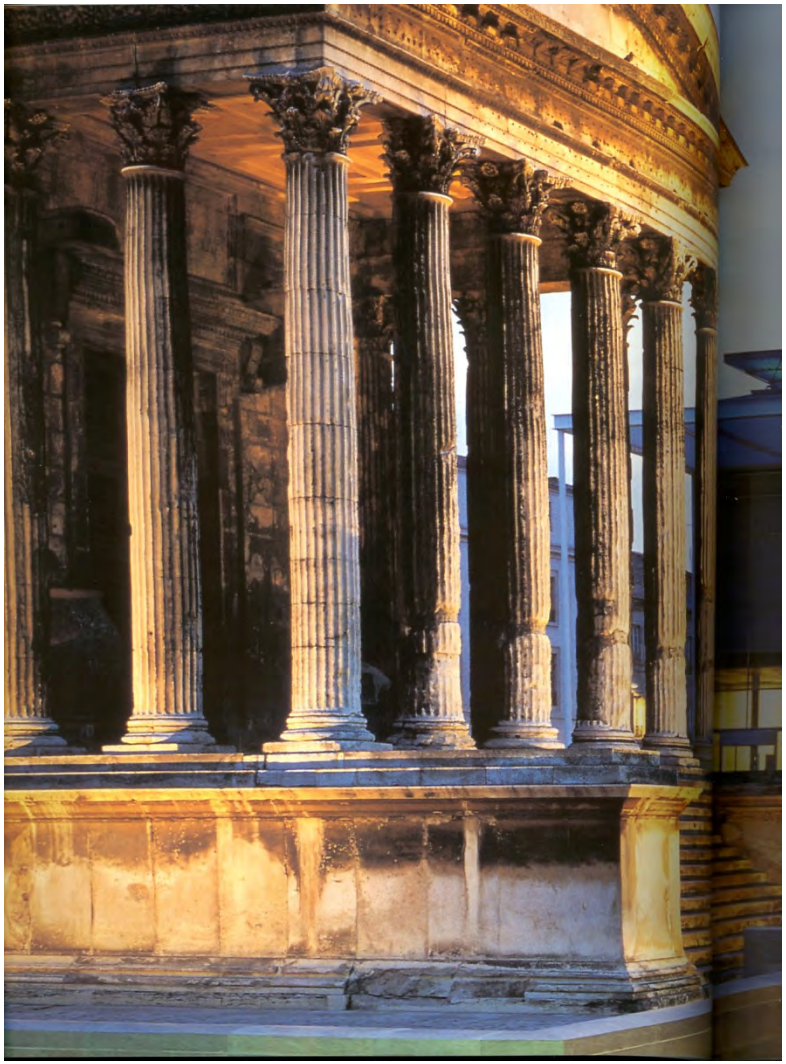
Photo: internet

Norman Foster

Torre Barcelona, Spain 1988

Photo: internet

(Norman) Foster and Partners



Carre d'Art, Nimes, France 1985-1993

Photo: James H. Morris

Norman Foster

Reichstag renovation, Berlin, Germany 1997

Photo: internet

Norman Foster

Reichstag renovation, Berlin, Germany 1997

Photo: internet

Norman Foster

British Museum Renovation, London 2001

Photo: Internet

Norman Foster

British Museum Renovation, London 2001

Photo: P Sperling

Norman Foster

British Museum Renovation, London 2001

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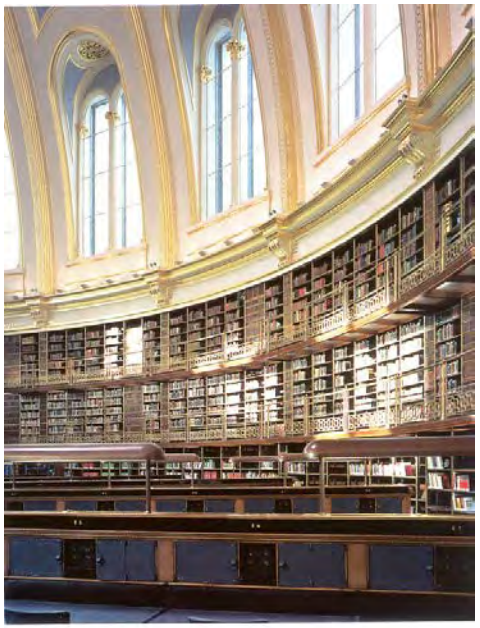
Norman Foster

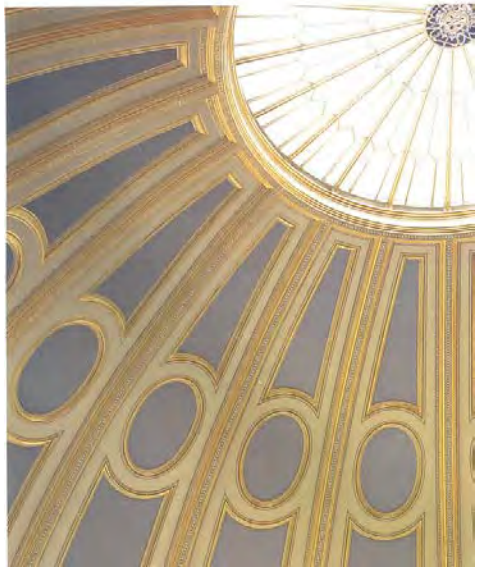
British Museum Renovation, London 2001

Photo: P Sperling

Norman Foster

A steel-and-glass bridge leads from the upper level of the ellipse to the galleries in the north wing, creating a new route through the museum. Specialists repaired cracks in the Reading Room dome (opposite, bottom) with a flexible fabric and restored the original 1857 color scheme. The stacks (opposite, top) now hold a public reference library.





British Museum Renovation, London 2001

Photo: AR 3/01

Norman Foster

Greater London Authority, London 2001

Photo: P Sperling

Norman Foster




Greater London Authority, London 2001

Photo: P Sperling

Norman Foster

Greater London Authority, London 2001

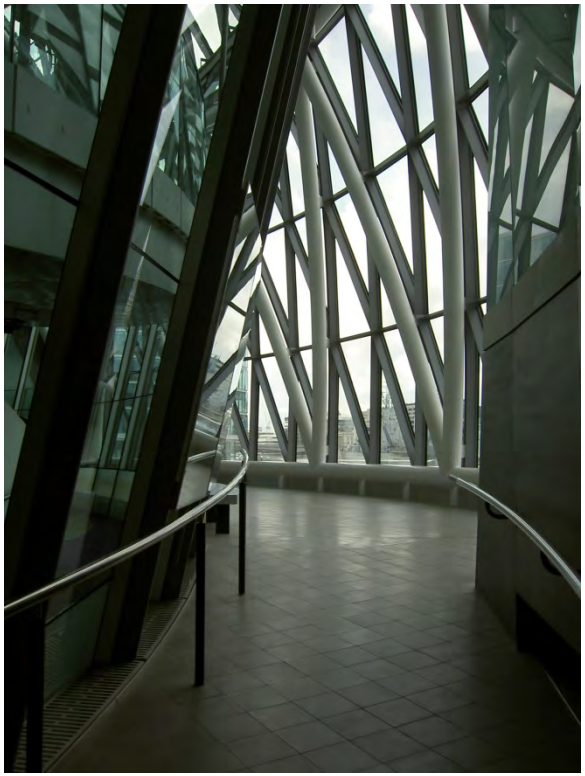
Photo: internet

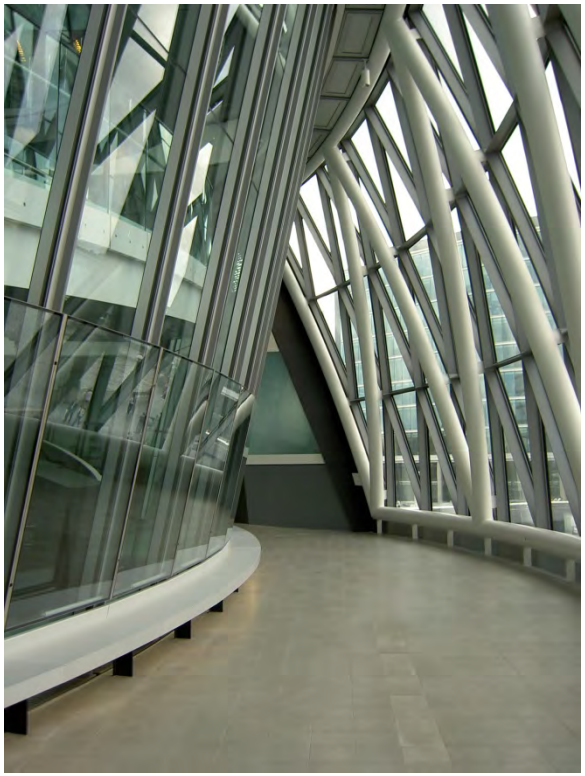
Norman Foster

Greater London Authority, London 2001

Photo: internet

Norman Foster





Greater London Authority, London 2001

Photo: P Sperling

Norman Foster

Greater London Authority, London 2001

Photo: P Sperling

Norman Foster

Greater London Authority, London 2001

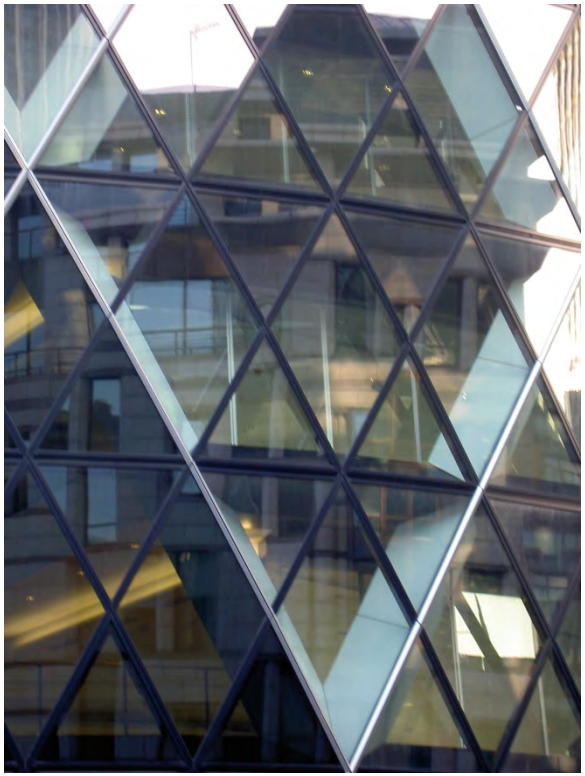
Photo: P Sperling

Norman Foster

39 St. Mary Axe, “the Gherkin”, London, England 2003

Photo: P Sperling

Norman Foster



39 St. Mary Axe, “the Gherkin”, London, England 2003

Photo: P Sperling

Norman Foster

39 St. Mary Axe, “the Gherkin”, London, England 2003

Photo: internet/P Sperling

Norman Foster

Hong Kong and Shanghai Bank, Hong Kong 1979-86

Photo: (Steele)

Norman Foster

Hong Kong and Shanghai Bank, Hong Kong 1979-86

Photo: (Konemann)

Norman Foster

Cambridge University Law Faculty, Cambridge, UK 1996

Photo: (Konemann)

Norman Foster

Caja Madrid Tower, Madrid, Spain, 2007

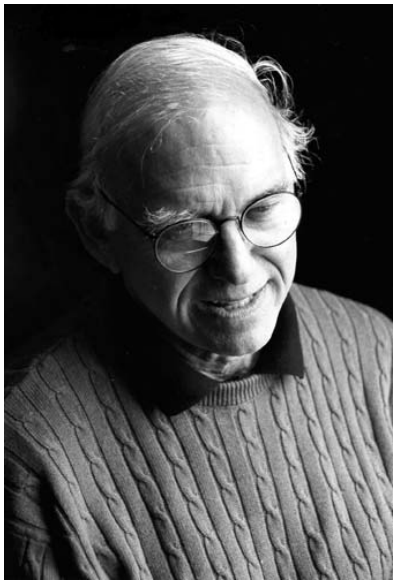
Photo: (Konemann)

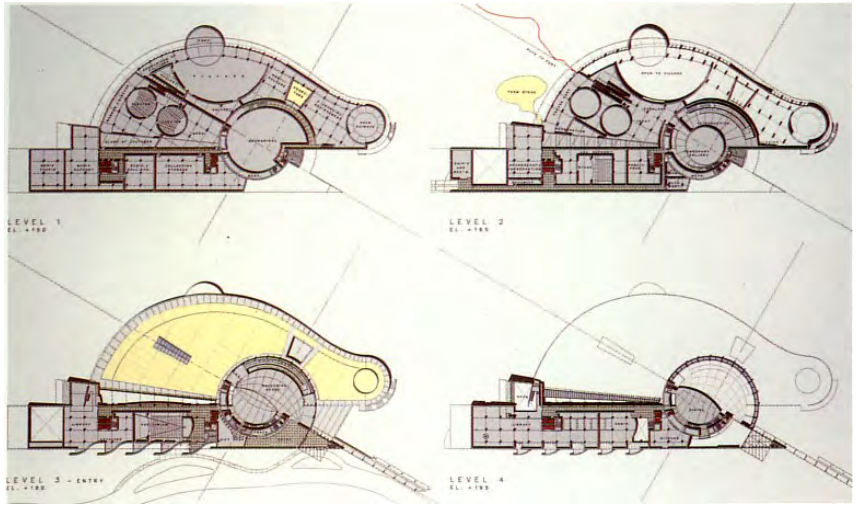
Norman Foster

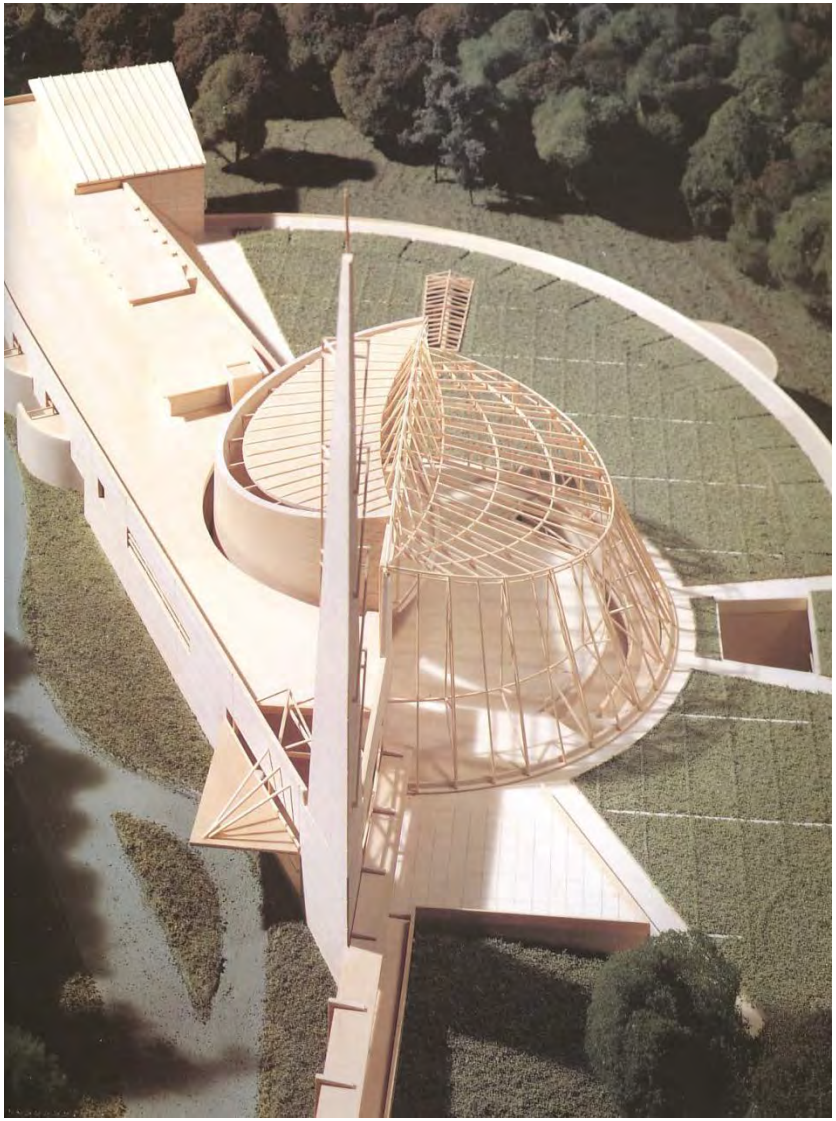
Kogod Courtyard, Old Patent House, Washington, DC 2007

Photo: (Konemann)

James Stewart Polshek



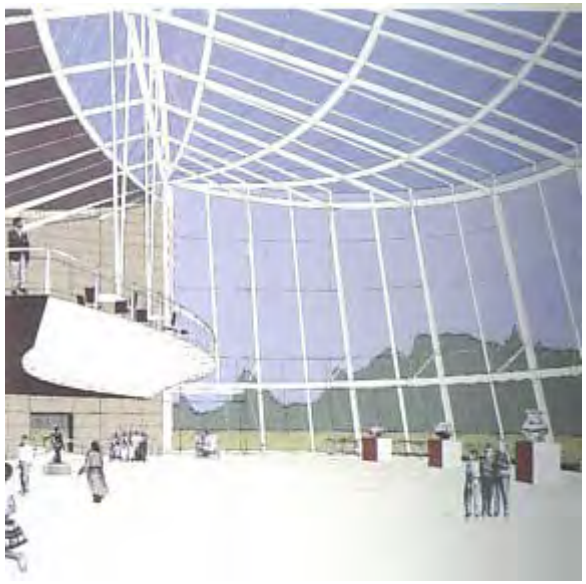


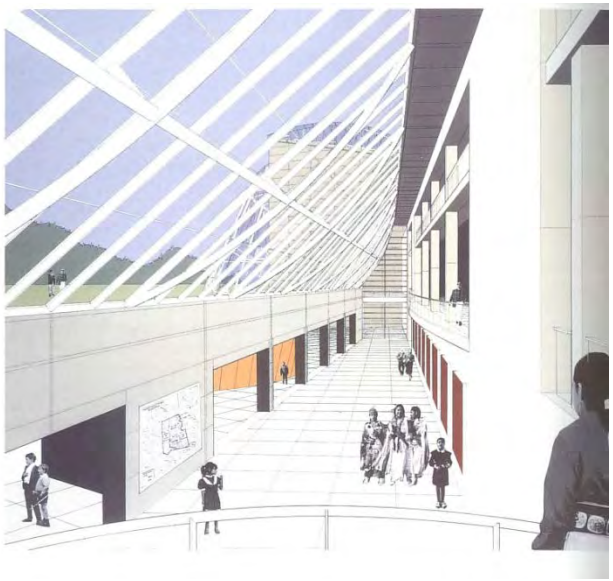


Mashantucket Pequot Museum 1993-97

Photo: Jock Pottle/Esto

James Stewart Polshek





Mashantucket Pequot Museum

1993-97

Photo: Jock Pottle/Esto

James Stewart Polshek

New York Times Plant 1995

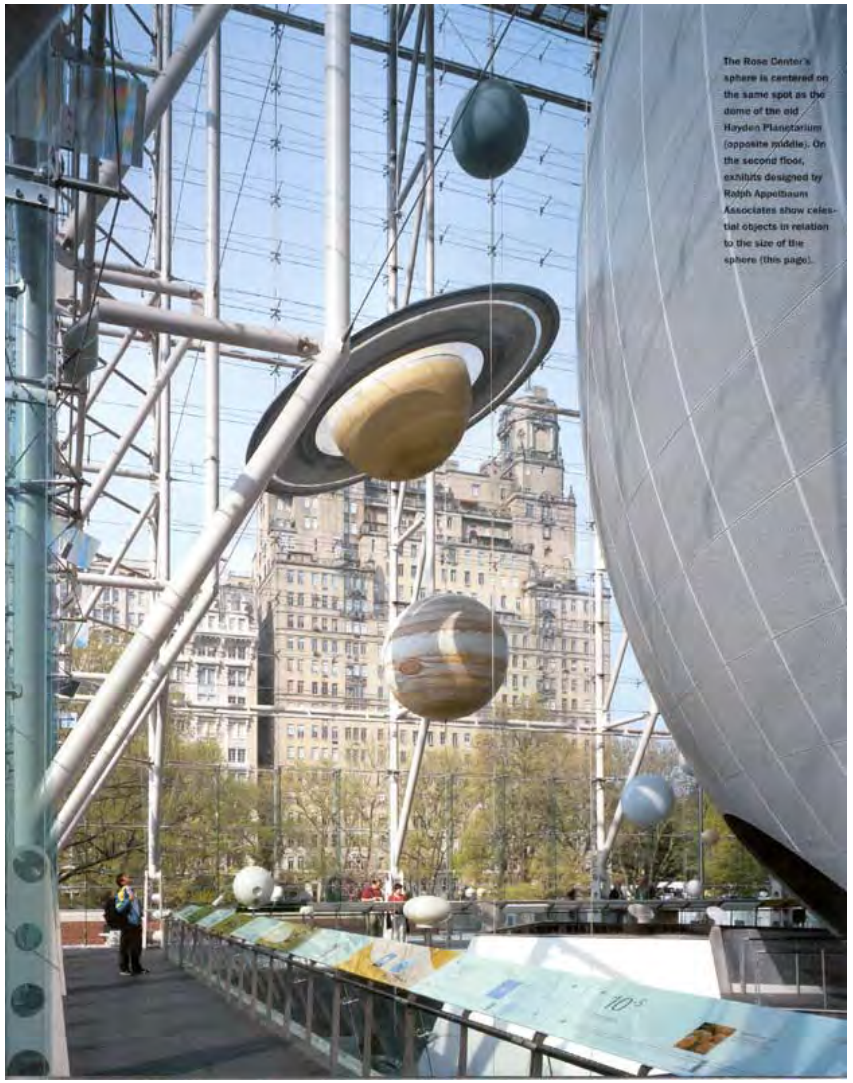
Photo: (Pearman)

James Stewart Polshek

Rose Center for the Museum of Natural History, NYC 2000

Photo: From the Internet

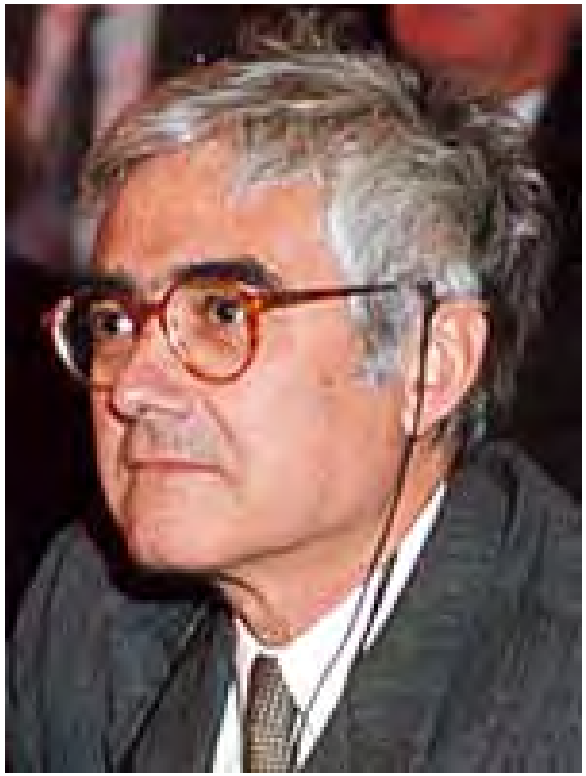
James Stewart Polshek



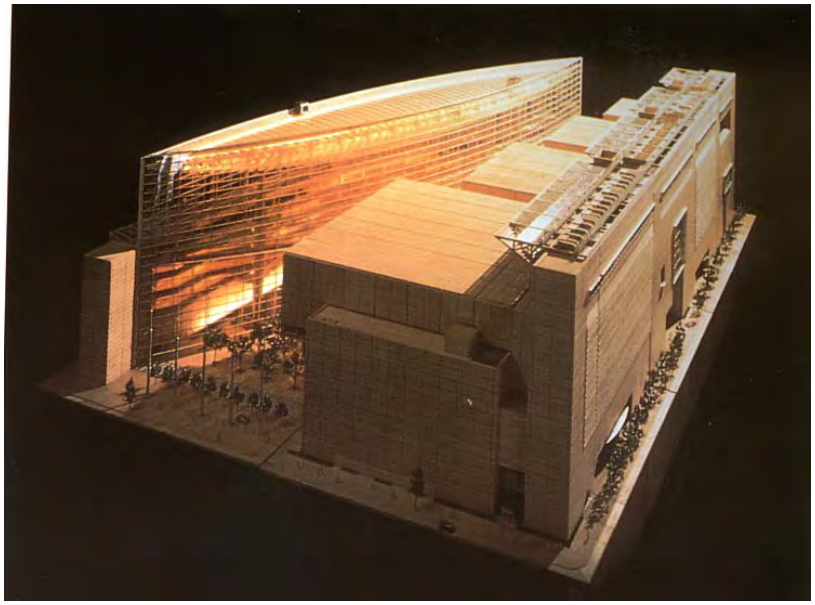
Rose Center for the Museum of Natural History, NYC 2000

Photo: From the Internet

Rafael Vinoly



Rafael Vinoly



Tokyo International Forum, Tokyo, Japan 1980-96

Photo: (Jodidio)

Rafael Vinoly

Tokyo International Forum, Tokyo, Japan 1980-96

Photo: (Jodidio)

Rafael Vinoly

Kimmel Center, Philadelphia, PA 2003

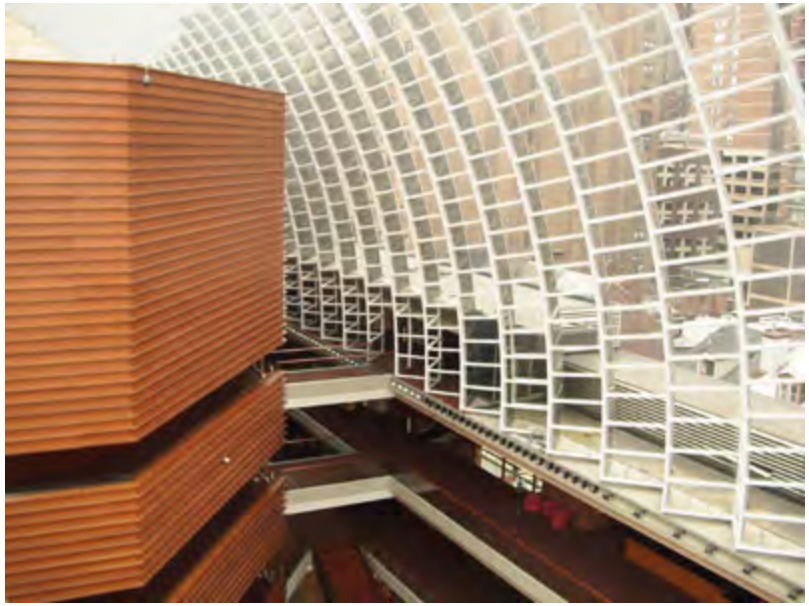
Photo: Internet

Rafael Vinoly

Kimmel Center, Philadelphia, PA 2003

Photo: Internet

Rafael Vinoly



Kimmel Center, Philadelphia, PA 2003

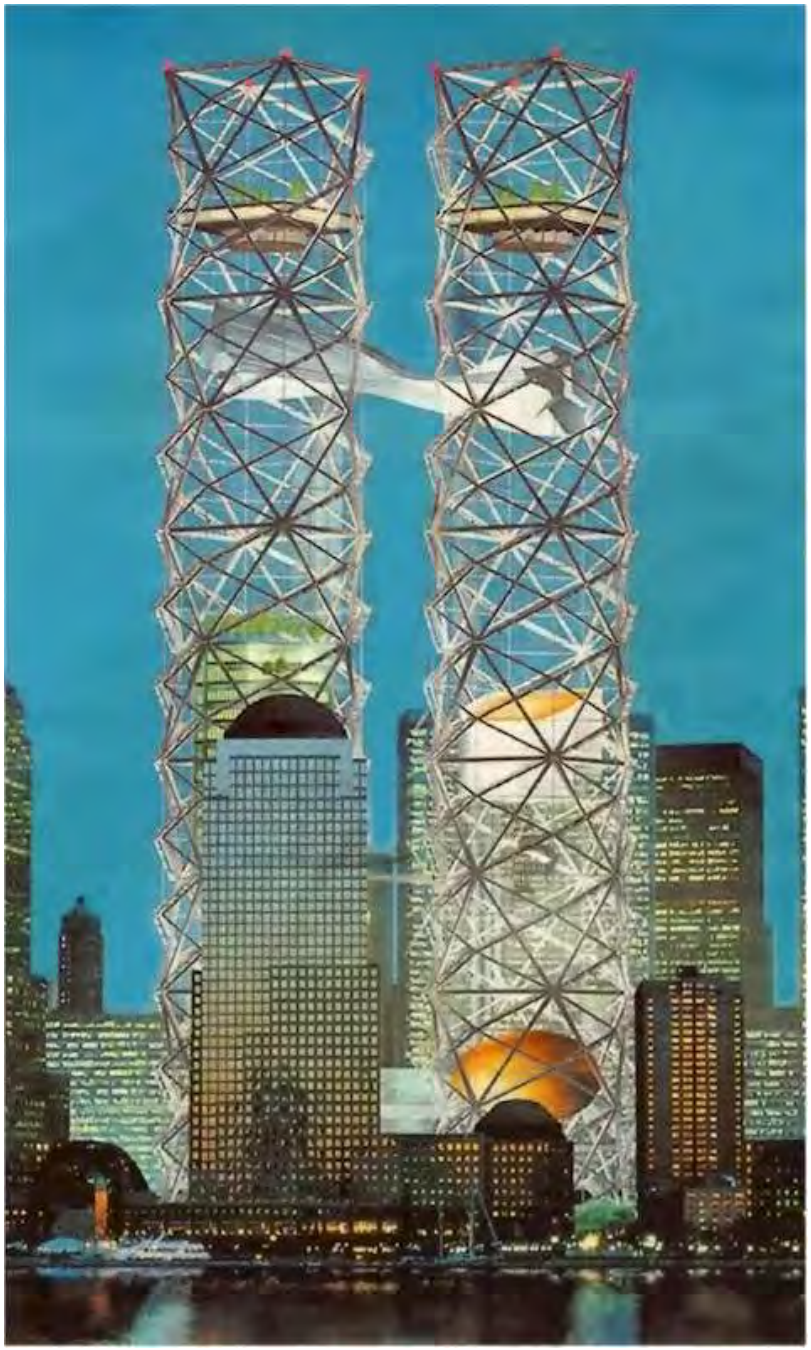
Photo: Internet

Rafael Vinoly

Cleveland Museum of Art, 2007-12

Photo: Internet

Rafael Vinoly,Frederic Schwartz, Rafael Vinoly, David Rockwell, Shigeru Ban and others



Submission for WTC competition 2002

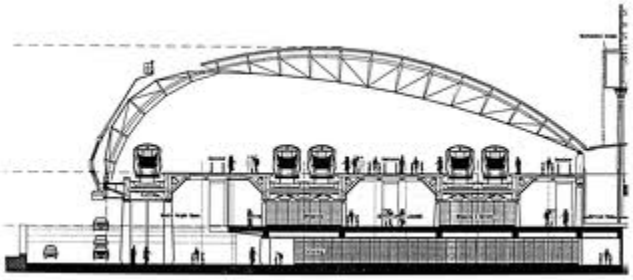
Photo: Internet

Nicholas Grimshaw

EMPAC MultiMedia Building, Renneslaer Polytechnic Institute, Troy, NY 2009

Photo: Internet

Nicholas Grimshaw



Waterloo Station, London, UK 2000

Photo: Internet

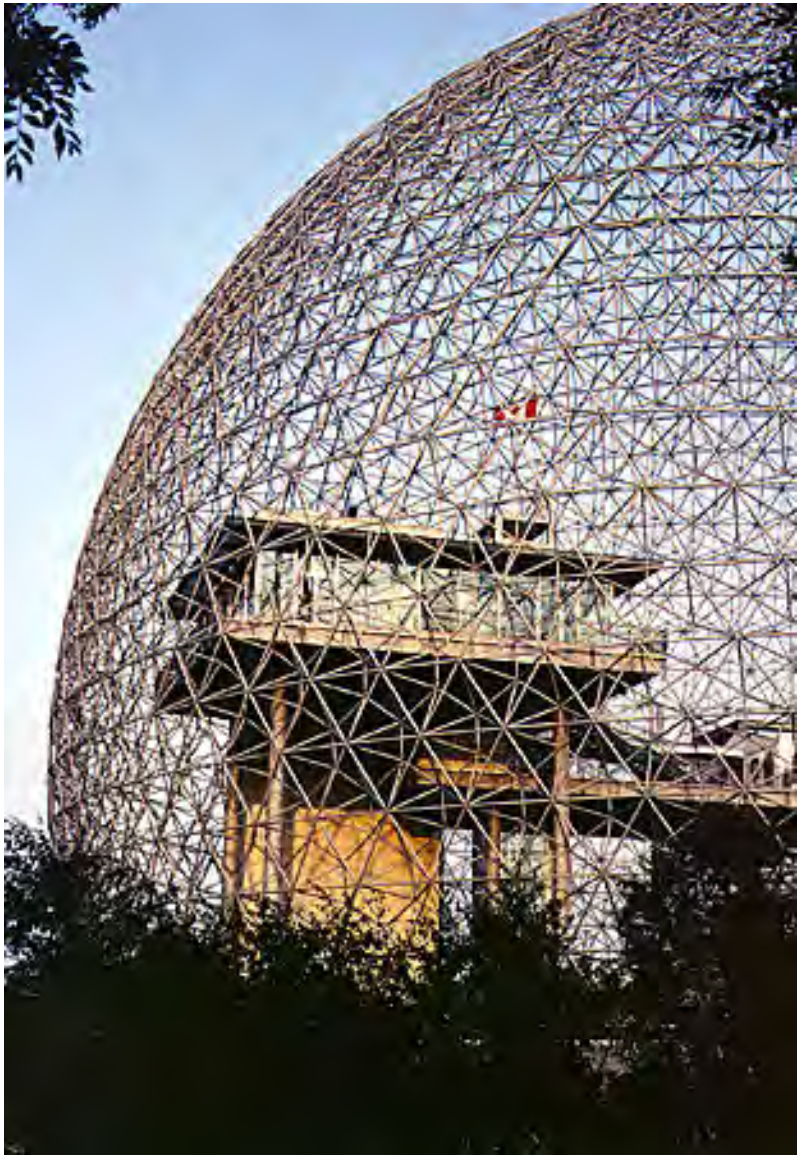
Nicholas Grimshaw

Sainsbury’s, Camden Town, UK 1998

Photo: Internet

Creating buildings that feature the structural or mechanical systems of a building as its primary design feature

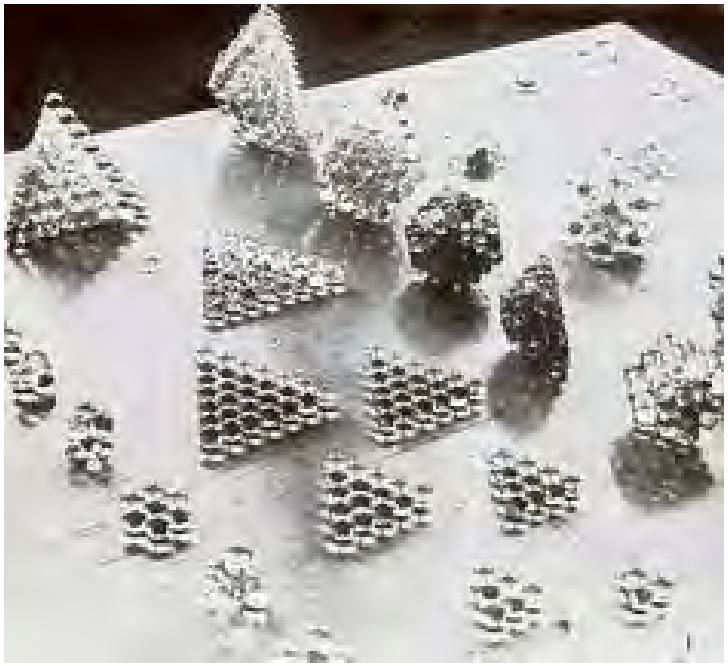
Buckminster Fuller



Geodesic dome, Montreal Fair, Montreal 1967

Photo: internet

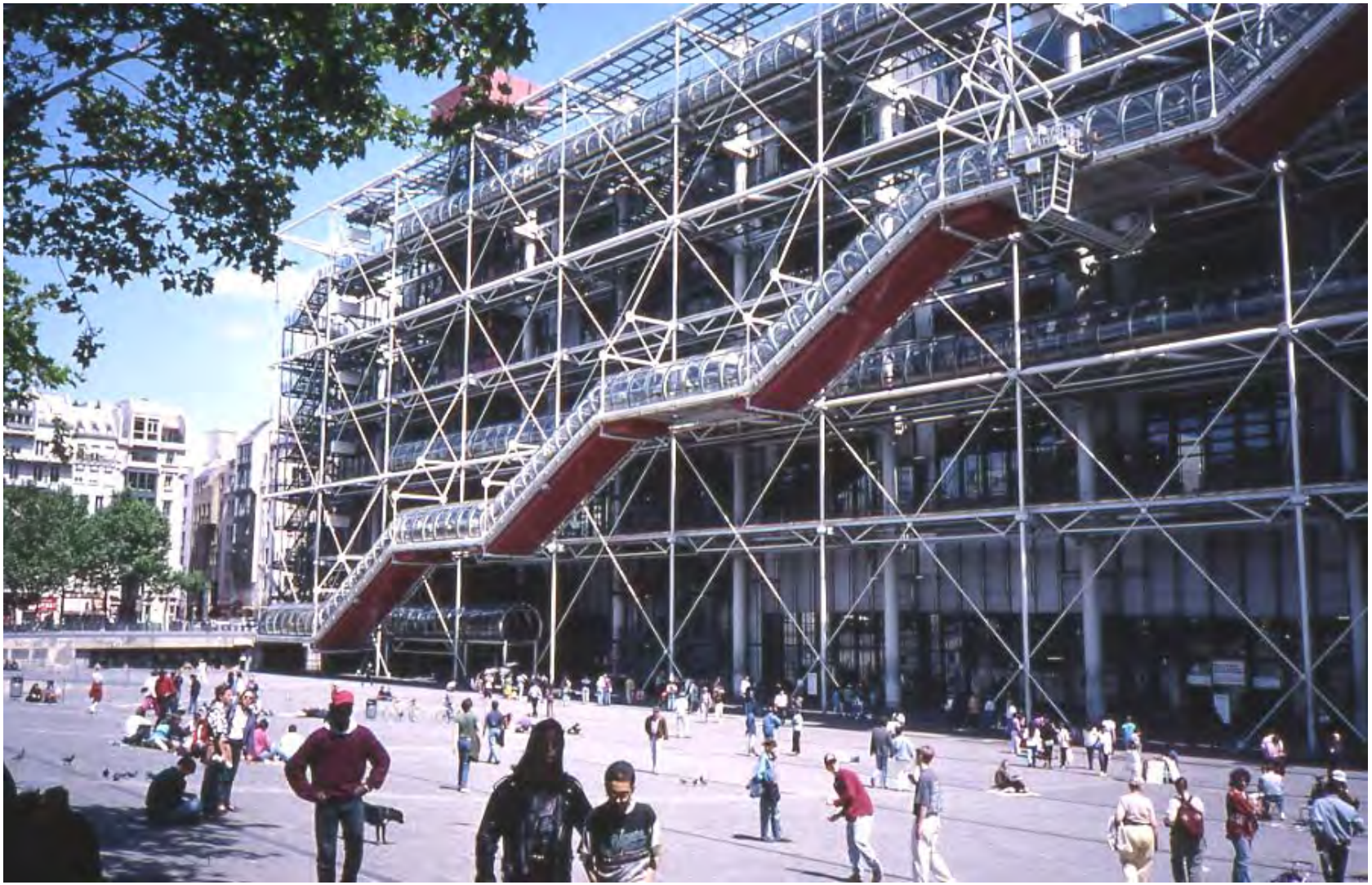
Buckminster Fuller



Geodesic & Tensegrity Studies, Aerodynamic Car,1967-9

Photo: internet

Richard Rogers and Renzo Piano



Pompidou Center, Paris, France 1974-76

Photo credit:

Richard Rogers and Renzo Piano

Pompidou Center, Paris, France 1974-76

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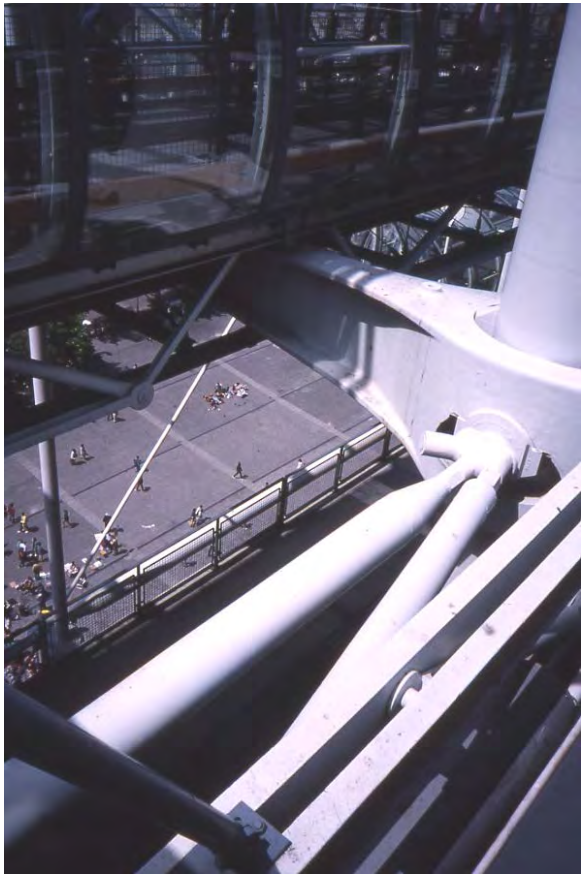


Pompidou Center, Paris, France 1974-76

Photo credit:

Nicholas Grimshaw & Partners

The Eden Project, Cornwall, UK 2001

Photo: Internet

Santiago Calatrava

Photo: Jim Prozek

“Less than a generation ago, the split between construction technology and cultural expression in architecture appeared to be irreversible. With the exception of a few ‘high-tech’ buildings the humanistic unity of art and science in design looked as if it was irrevocably lost…. Calatrava’s buildings, engineering projects…manifest that a genuine unity of rational intelligence with poetry is still possible… His built projects succeed in overcoming the barriers between pragmatism, infrastructure, service, and intellectural expression. They restored a general enthusiasm for the art of construction… Perhaps where Calatrava exerted the most influence and where his impact will be more decisive is with the generation of architects to come and their attitude toward technology.”

Alexander Tzonis: Architectural Record Magazine 5 2005

Santiago Calatrava

Orient Station, Lisbon, Portugal 1987

Photo:

Santiago Calatrava

Orient Station, Lisbon, Portugal 1987

Photo:

Santiago Calatrava

Toronto Galleria, Toronto, Canada 1987

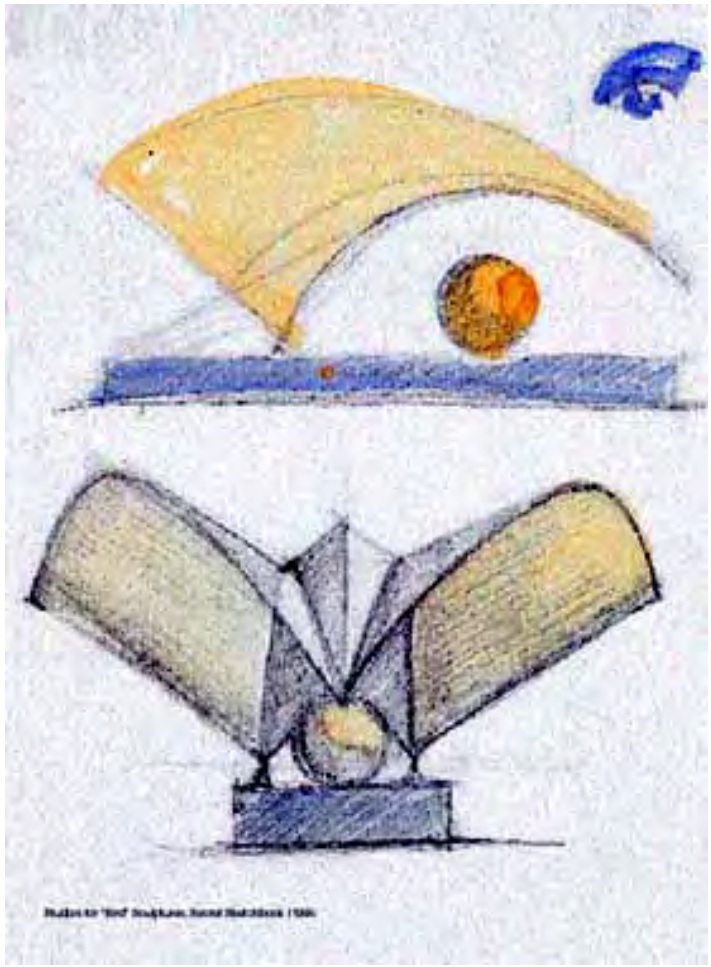
Photo: (Phaidon)

Santiago Calatrava

Almillo Bridge, Seville 1992

Photo: (James Steele)

Santiago Calatrava



TGV Station, Lyon, France 1989-92

Photo: ()

Santiago Calatrava

TGV Station, Lyon, France 1989-92

Photo: (Jodidio)

Santiago Calatrava

TGV Station, Lyon, France 1989-92

Photo: (Jodidio)

Santiago Calatrava

Bilbao Footbridge, Bilbao, France

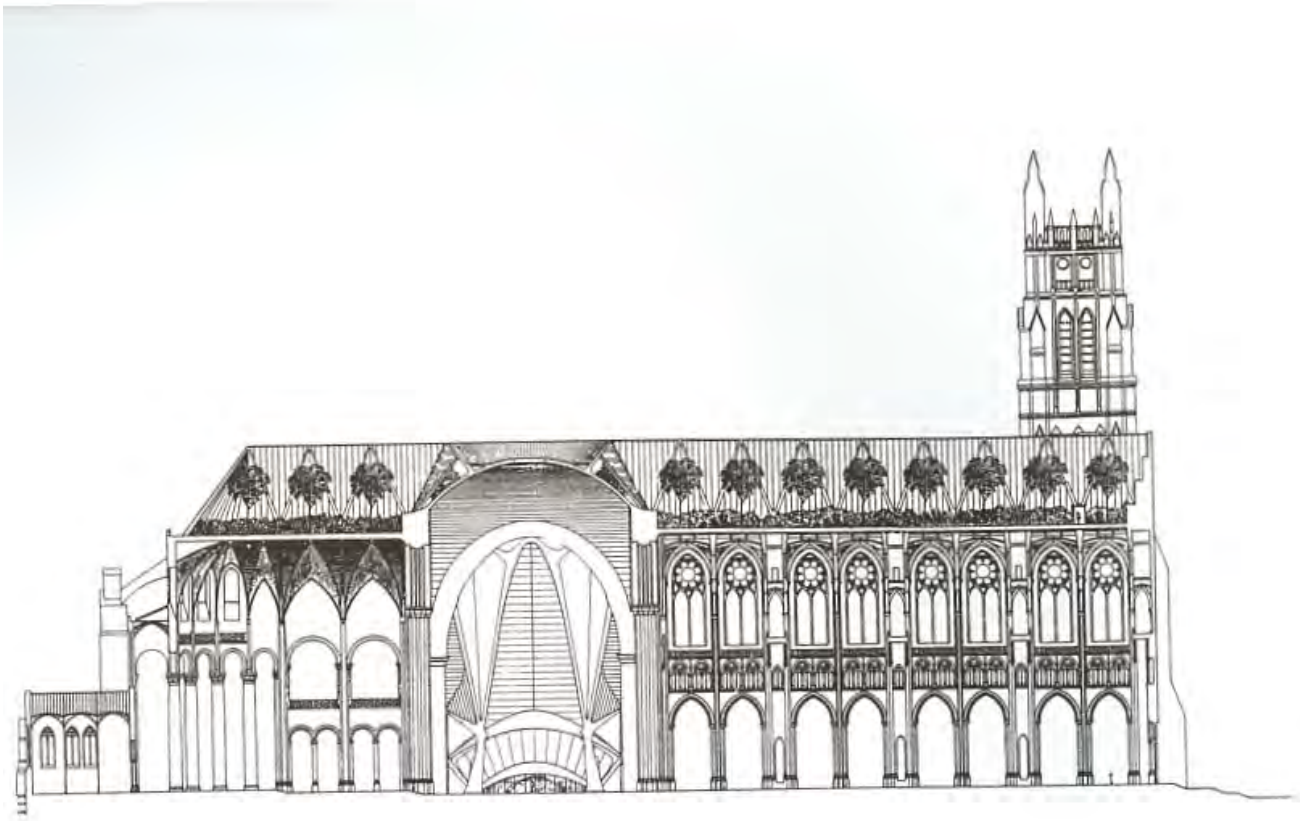
Photo: P Sperling

Santiago Calatrava

Bilbao Footbridge, Bilbao, France

Photo: P Sperling

Santiago Calatrava



Saint John the Divine, New York City 1992

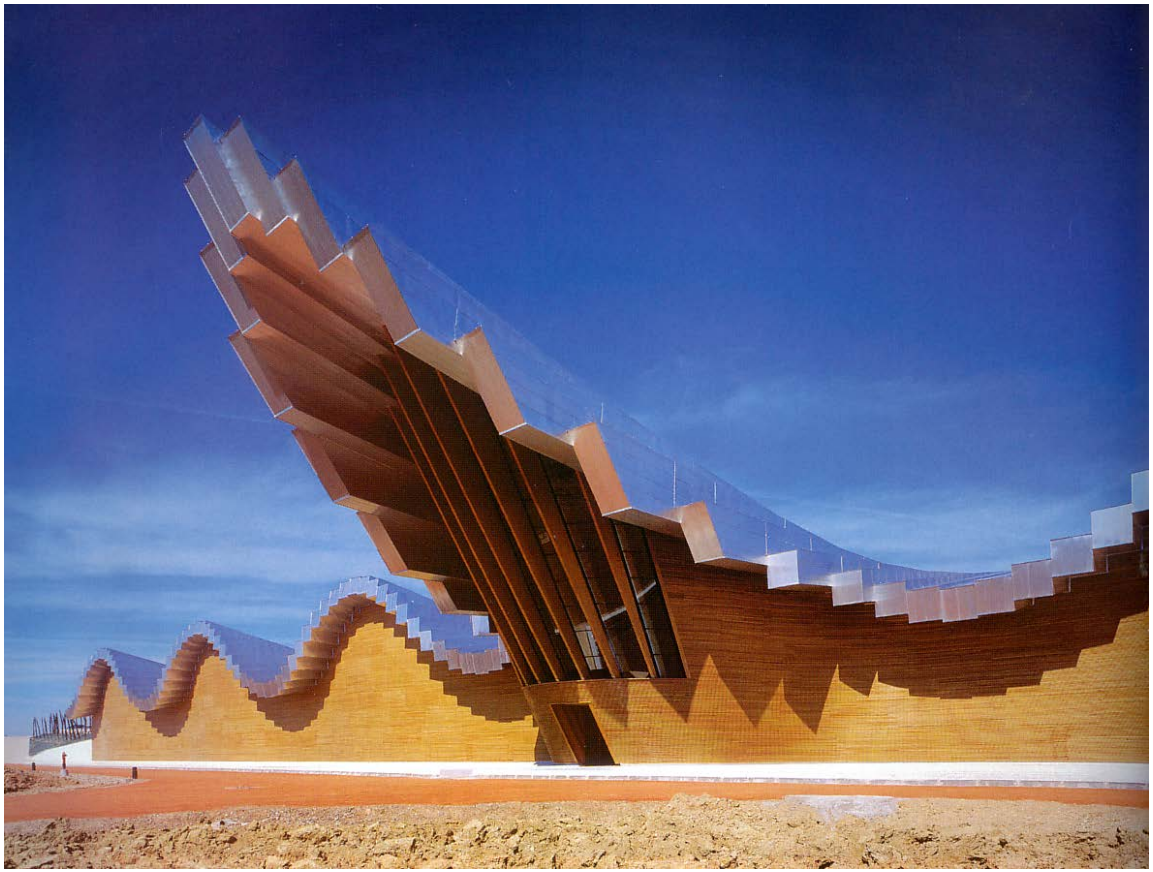
Photo: (Phaidon)

Santiago Calatrava

Milwaukee Art Museum expansion 2001

Photo credit: AR 5 2005

Santiago Calatrava

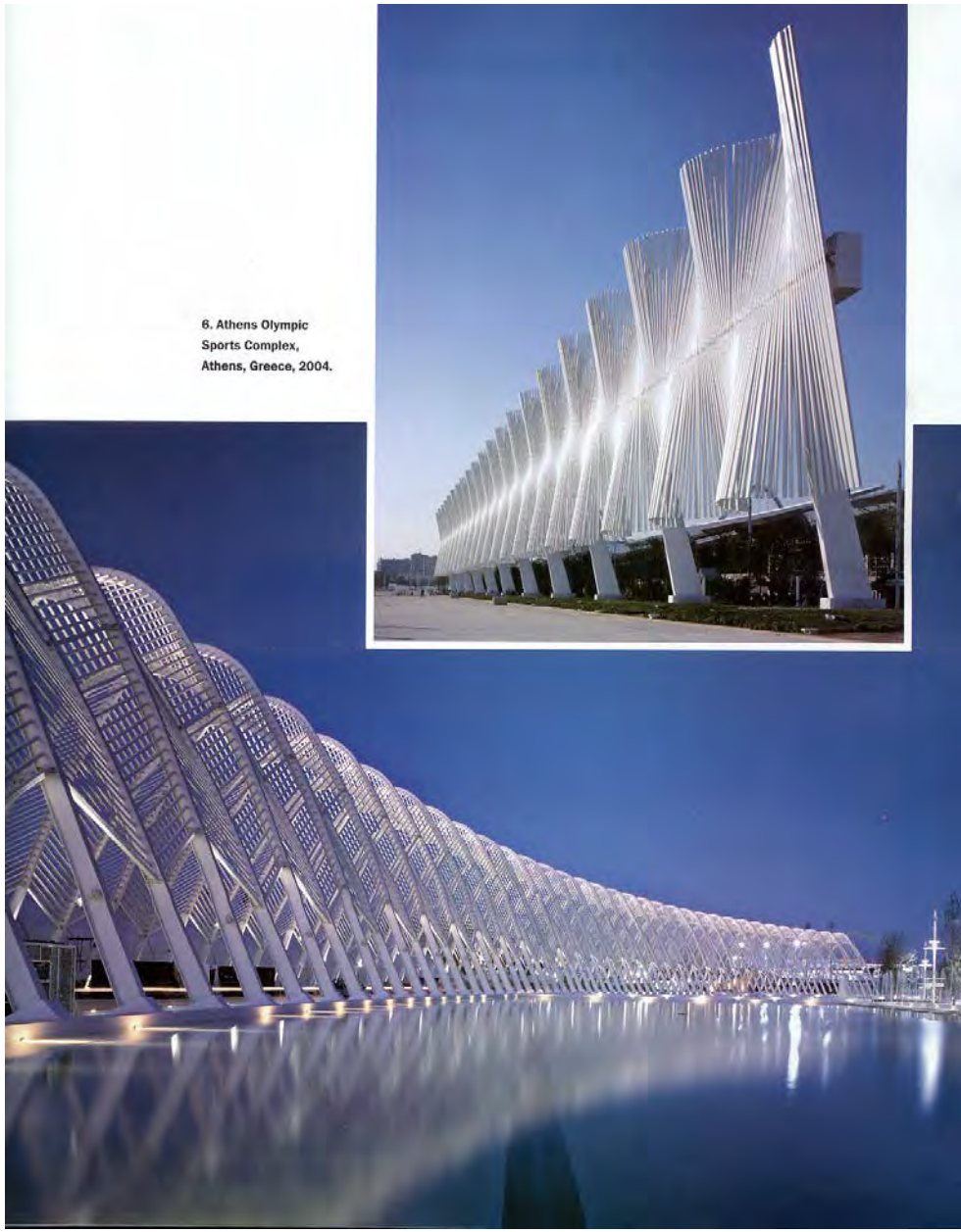


Tenerife Opera House,
Canary Islands 2003

Bodegas Ysios Winery,
Laguardia Spain, 2001

Photo credit: AR 5 2005

Santiago Calatrava



Athens Olympic Sports Complex 2004

Photo credit: AR 5 2005

Santiago Calatrava

WTC PATH Station

2004 - projected

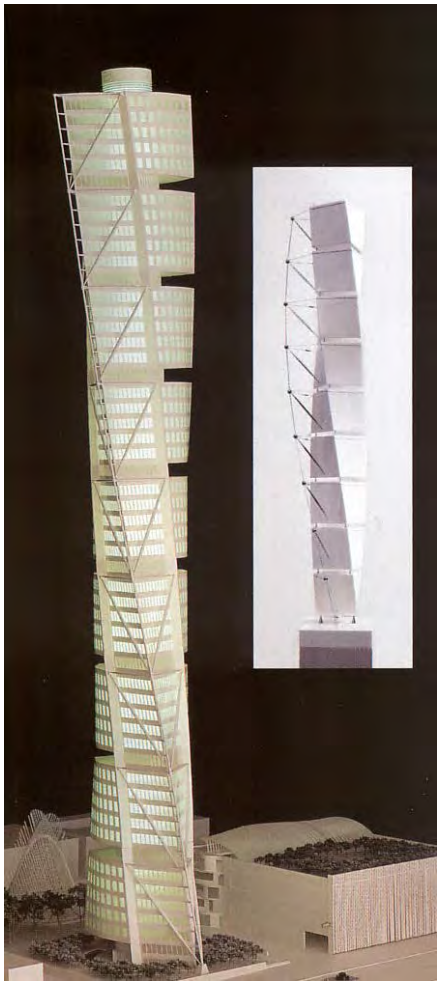
Photo credit: Port Authority of New York press release

Santiago Calatrava

Cittern Bridge, Haalemmermeer, Netherlands 2004

Photo credit: AR 5 2005

Santiago Calatrava



Turning Torso, Malmo, Sweden 2005

Valencia Towers, Spain 2007

Photo credit: AR 5 2005

Santiago Calatrava

Art and Science City, Valencia, Spain, 1998-2005

Photo credit: Internet

Christian Portsamparc

- LVMH Building, NYC 2003

Christian Portsamparc

- LVMH Building, NYC 2003

SHoP Architects

- Porter House Apartments, New York City, 2000

SHoP Architects

Barclays Stadium, Atlantic Yards, Brooklyn, NY 2012 Projected

Diller, Scofidio, Renfro

Contemporary Arts Center, Boston, MA 2009, NY, NY 2012 Projected

Diller, Scofidio, Renfro

Lincoln Center Redesign, 2009,
NY, NY 2012 Projected

Diller, Scofidio, Renfro

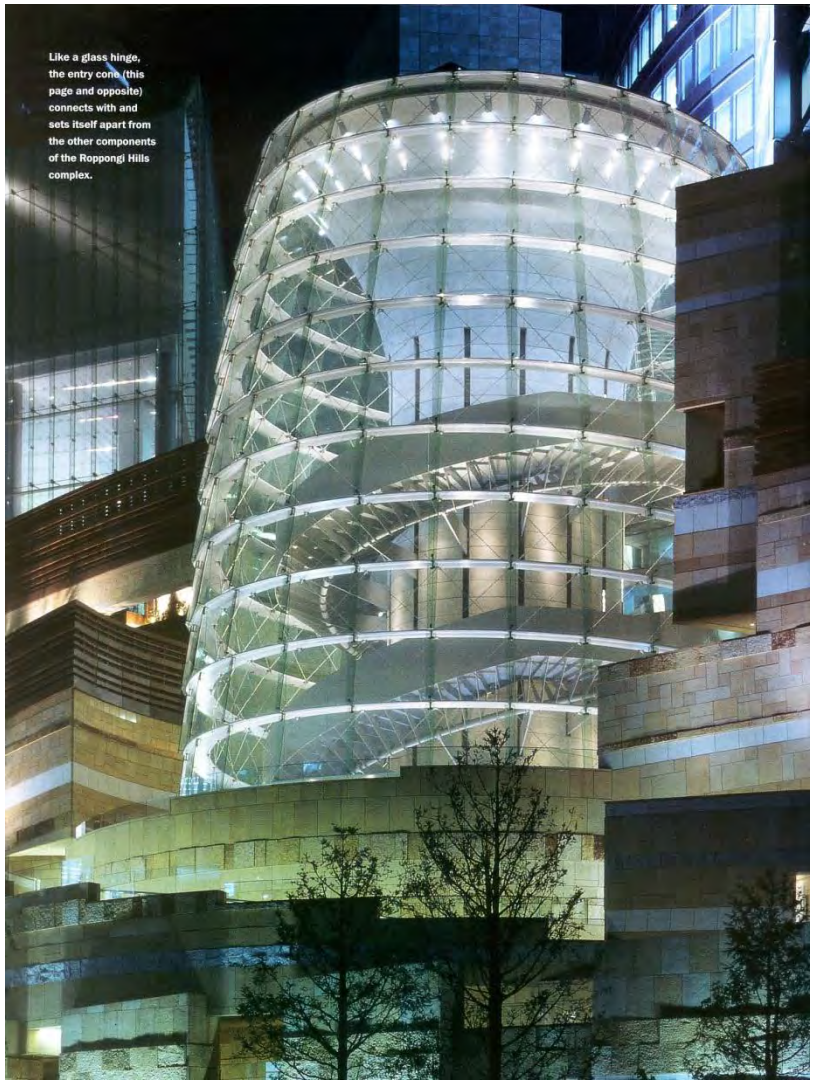
Lincoln Center Re-design, 2009,
NY, NY 2012 Projected

Diller, Scofidio, Renfro

Lincoln Center Re-design, 2009,
NY, NY 2012 Projected

Attempting to mimic the digital world: creating a virtual reality

Gluckman Mayner



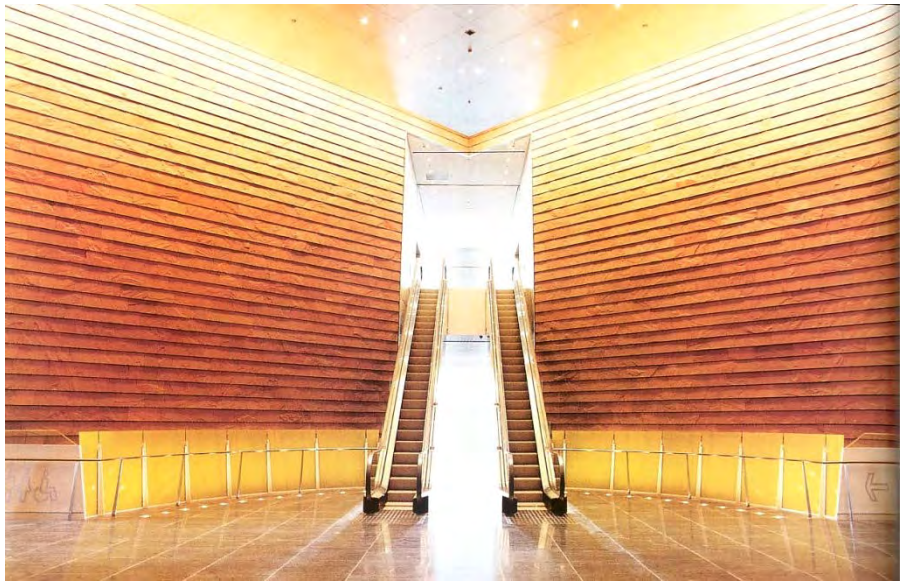
Like a glass hinge, the entry cone (this page and opposite) connects with and sets itself apart from the other components of the Roppongi Hills complex.

Gluckman worked with KPF to redesign the office tower's curtain wall on the top floors, reducing the size of the mullions while expanding the glass panes (this page)

Mori Art Center, Tokyo, Japan 2003

Photo credit: AR 1/04

Gluckman Mayner



Mori Art Center, Tokyo, Japan 2003

Photo credit: AR 1/04

Green Architecture

William McDonough

Ken Yeang

Stefan Benisch

Shigeru Ban

Herzog

LOG ID

Jean Nouvel

Emilio Ambasz

Rex Stout

Renzo Piano

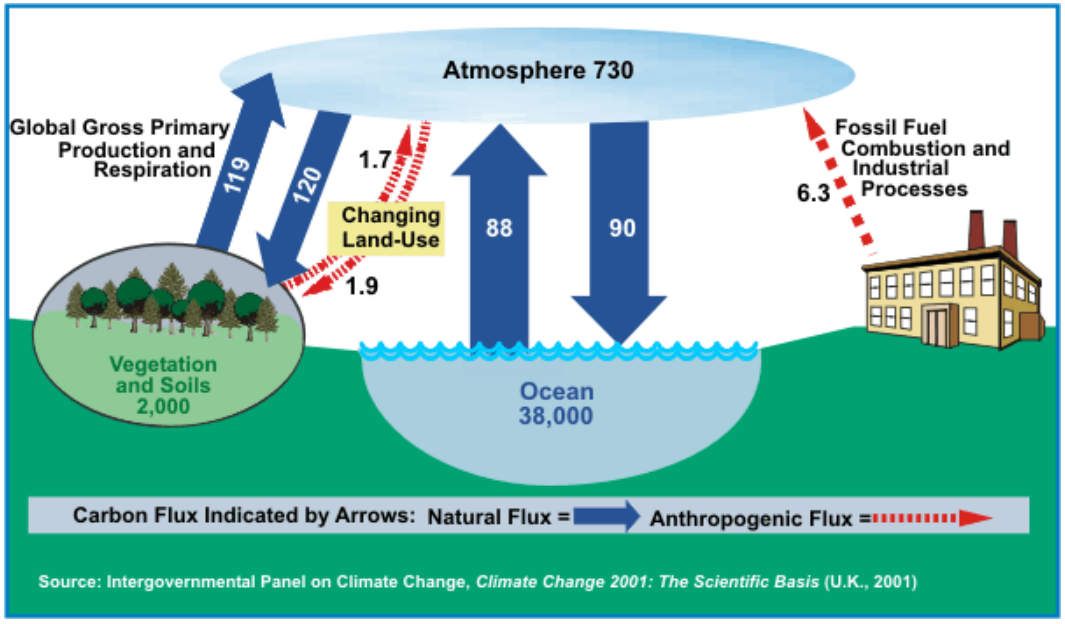
Cook+Fox

What is the purpose of “Green” architecture?

- *Reduce the negative impact on the environment*
- *Preserve the health of the people in and around the building*
- *Reduce operating costs*

Why bother?

1. *To reduce our carbon footprint*: The earth is getting hotter, causing extreme weather patterns, a higher sea level, and the destruction of arable land. The earth's natural cycle of heating and cooling is being disturbed by an excess of greenhouse gases (mostly carbon dioxide.) These gasses are produced when fossil fuels (oil, natural gas and coal) are burned in cars, homes, office buildings and power plants (to make electricity).*



* A Carbon Footprint is a measure of the impact human activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide.

Why bother?

2. *To reduce our waste products: We have no place to dump garbage. We have already polluted our lakes and oceans. We are running out of land-fill sites. The new garbage that we create is not bio-degradable.*
3. *To conserve water: We are using too much water for drinking, washing and watering the lawn. World-wide, fresh water supplies are shrinking. Also, sewage treatment plants are expensive to build and operate.*
4. *To restrict our use of slow-growing resources. We are destroying forests faster than we can replace them.*
5. *To eliminate "sick building syndrome". People are getting sick in buildings.*
6. *To reduce our dependence on fossil fuels (and the foreign governments that produce it.) Oil and gasoline prices are skyrocketing.*

Do buildings effect the environment?

Buildings have a profound effect on the environment.

In the United States alone, occupied buildings account for:

39% of total energy use

12% of total water consumption

38% of total carbon dioxide emission

68% of total electricity consumption

What are the most effective ways of protecting our environment?

The three R’s of sustainability

- Reduce
- Reuse
- Recycle

What is “Green” architecture?

A Green building …..

Uses less energy overall

- *In the demolition of the existing building*
- *in the construction of the new building*
- *in the year to year use of the building over its lifetime*

Conserves water

- *Using less water*
- *Re-using waste water*

Reduces pollutants (The carbon footprint)

- *during demolition (of the existing building on the site, and later this new building)*
- *during construction*
- *year-to-year over the life of the building*

Uses “sustainable” building materials and furnishings that

- *are recycled*
- *are recyclable (or bio-degradable) when no longer needed*
- *will last a long time*
- *can be easily grown*

Impacts the landscape minimally.

Saving Energy

- *Plan the building to make the best of the climate.*
  - *Orient the building to take advantage of the sun (or hide from it.)*
  - *Take advantage of the winds (or protect the building from them.)*
- *Use the sun's radiant energy to heat the building in winter*
  - *Active solar systems*
  - *Passive solar systems*
  - *Generate your own electricity using solar (or wind) energy*
- *Reduce the energy required to heat (and cool) a buildings by reducing the transmission of heat through the walls and windows of a building*
  - *Use more insulation in walls*
  - *Use double-paned windows with e-coating*
- *Shade the windows from the sun's rays in summer*
- *Provide better ventilation*
- *reduce the electricity used in lighting, by*
  - *Taking advantage of day light*
  - *Using energy efficient bulbs*

Plan the building to take advantage of the climate

William McDonough

Recognized by Time Magazine in 1999 as a “Hero for the Planet, Co-wrote Cradle to Cradle: Rethinking the Way We Make Things, a key text for the sustainability movement

William McDonough

McDonough employed a range of sustainable strategies in this design, including passive solar and geothermal heating

Lewis Center for Environmental Studies, Oberlin College, OH 2009

Photo credit: www.arch.mcgill.ca/

Ken Yeang, 1948-present

Dome, Stuttgart, Germany 2009

Photo credit: Internet

Ken Yeang

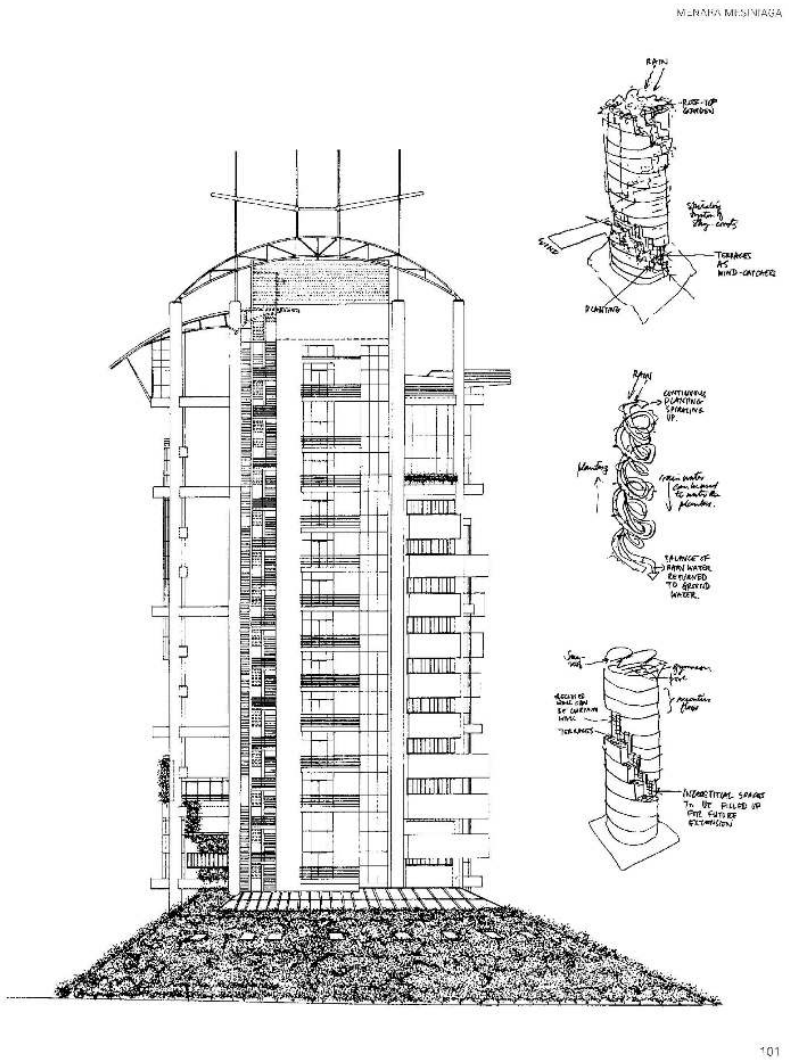
Yeang provided this 15 story building with natural energy saving controls, including a naturally ventilated core, vertical landscaping, and sky courts.

This building was awarded the prestigious Aga Khan Award for Architecture in 1993.

IBM SE Asia Headquarters, Kuala Lumpur, Malaysia 1992

Photo credit: Internet

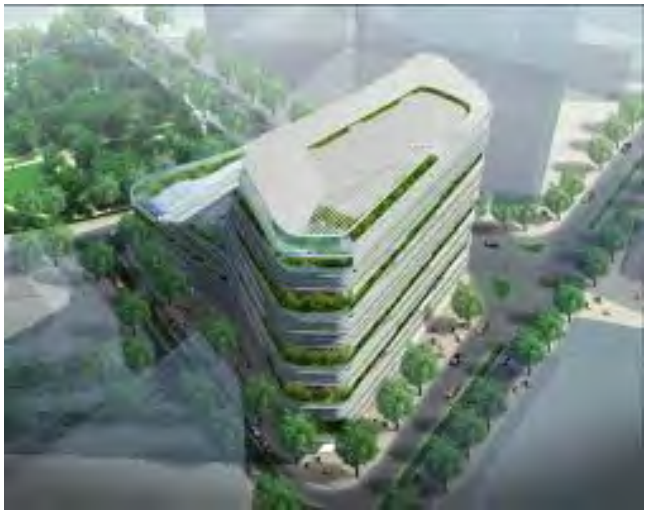
Ken Yeang



IBM SE Asia Headquarters, Kuala Lumpur, Malaysia 1992

Photo credit: Internet

Ken Yeang



Solaris Project, Singapore, 2010

Photo credit: Internet

Thomas Herzog

Herzog used the "thermal Onion" plan, which is to place ther rooms requiring the highest indoor temperature – bathrooms, for example – in the center of the house, surrounded by rooms where the temperatures decrease as they get nearer the exterior.

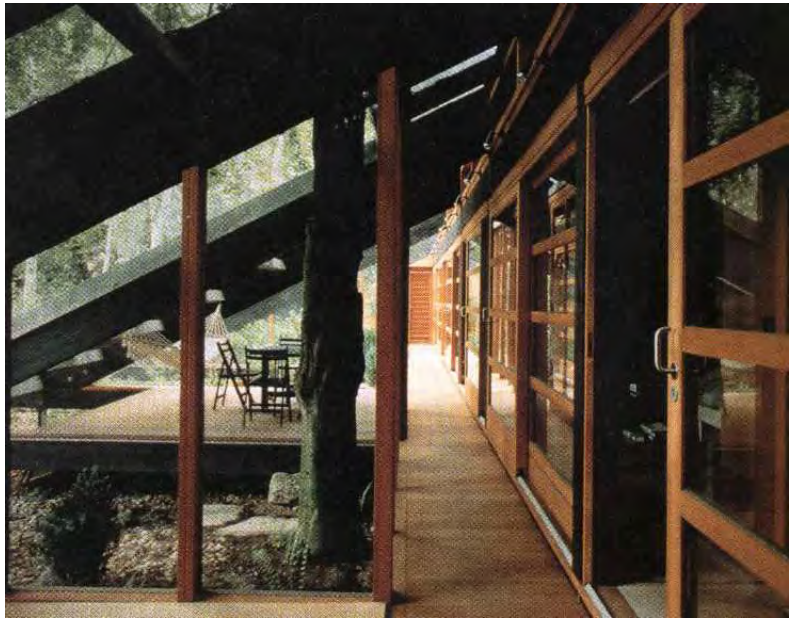
(adapted from James Wines "Green Architecture")

House in Regensburg, Germany 1979

Photo credit: www.arch.mcgill.ca/

Thomas Herzog

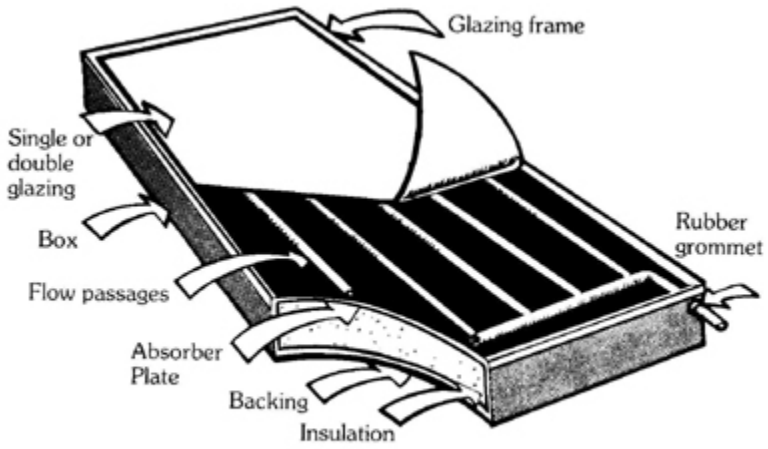
The house is a simple diamond-shaped structure with a sloping glass roof that allows extra light to penetrate the interior.

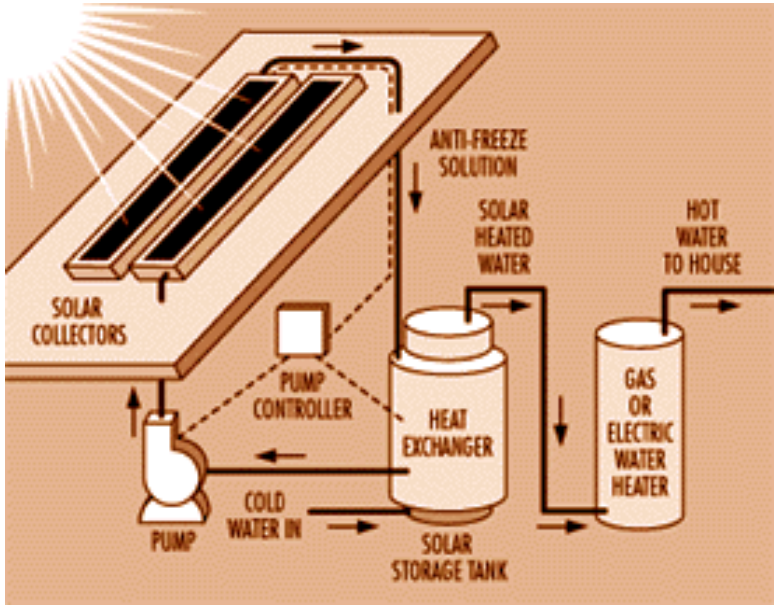


House in Regensburg, Germany 1979

Photo credit: www.arch.mcgill.ca/

Use the Sun's radiant energy to heat buildings: Active and Passive solar systems

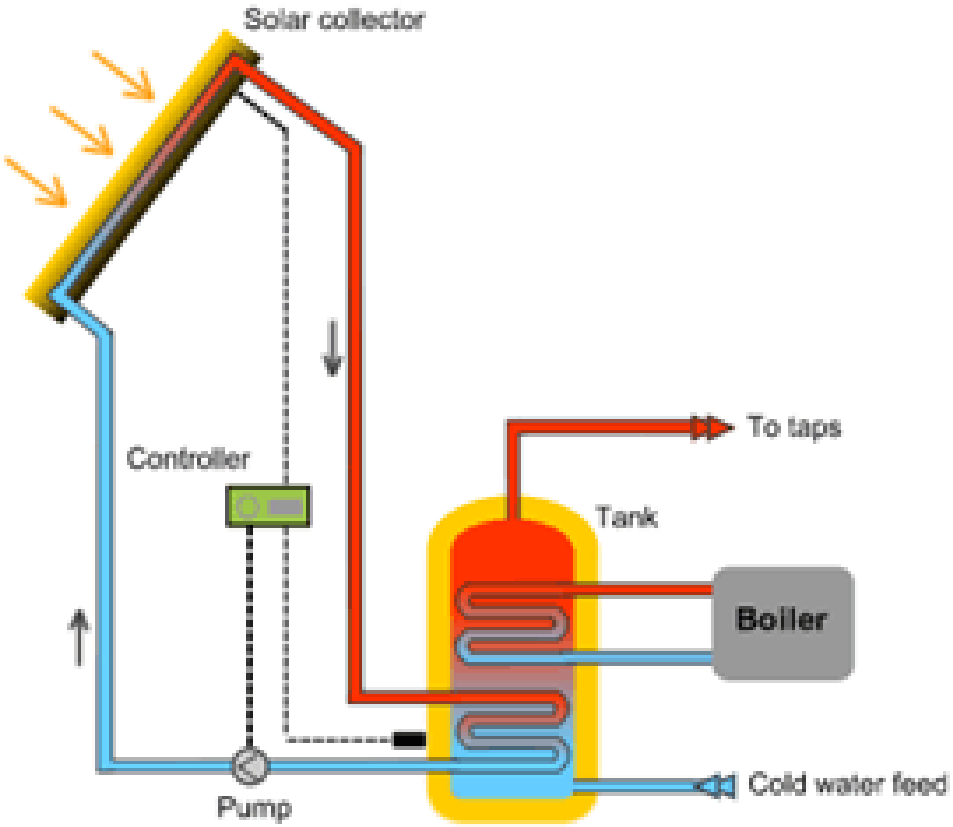




Active solar *systems use solar collectors and additional electricity to power pumps or fans to distribute the sun's energy. The heart of a solar collector is a black absorber which converts the sun's energy into heat. The heat is then transferred to another location for immediate heating or for storage for use later. The heat is transferred by circulating water, antifreeze or sometimes air.*

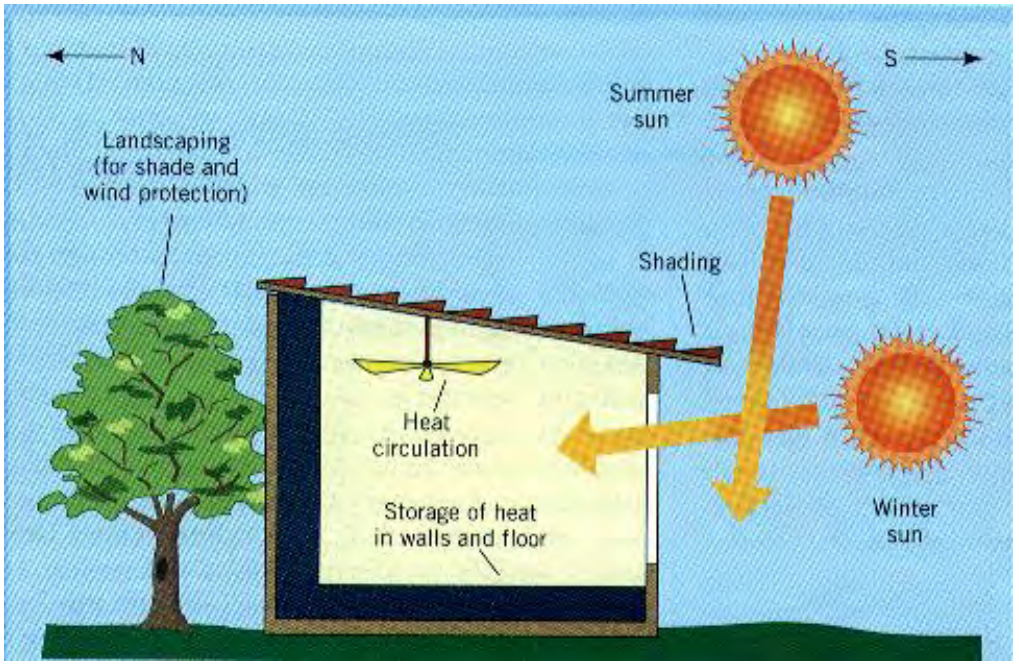
Use the Sun’s radiant energy to heat buildings: Active and Passive solar systems

Heating water with solar energy



Solar Panels are fitted to a roof collecting heat from the sun. This is piped into the house's hot water system where it is stored until needed.

Use the Sun's radiant energy to heat buildings: Active and Passive solar systems



*In a **passive solar** home, the whole house operates as a solar collector. A passive house does not use any special mechanical equipment such as pipes, ducts, fans, or pumps to transfer the heat that the house collects on sunny days. Instead, a passive solar home relies on properly oriented windows. Since the sun shines from the south in North America, passive solar homes are built so that most of the windows face south. They have very few or no windows on the north side. Radiant heat is absorbed by thick stone (or concrete) floors during the day. This "stored" heat radiates out into the room at night providing heat when the sun no longer shines.*

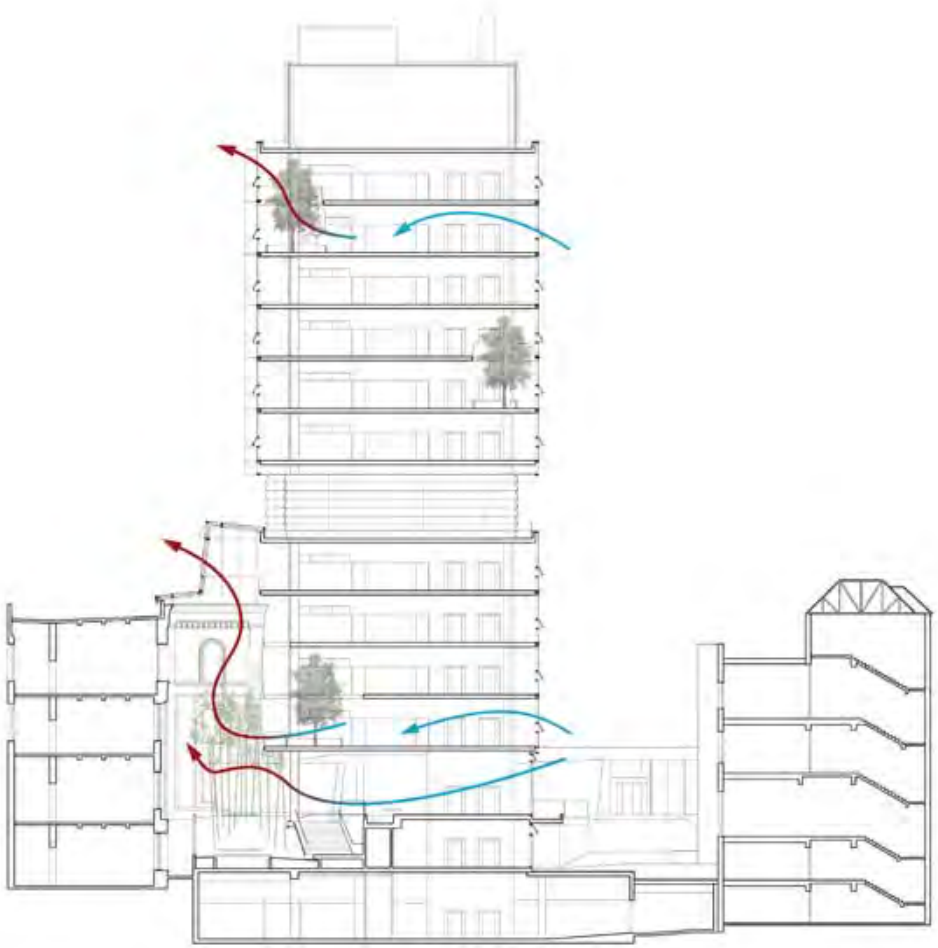
Passive solar energy

LOG ID and other firms are working with "building-within-a building" construction using layers of walls that collect the sun's rays efficiently, allow for a flow of controlled air temperature throughout the interior. The exterior glass enclosure covers a well insulated core structure capable of storing the sun's heat in winter. The winter sun's rays are collected in the atrium and this warm air is guided into the offices. To enhance this process, special doors are opened and fans are engaged to accelerate the flow of air currents. In summer, the trees and plants between the thermal and opaque walls offer welcome shade and vegetal transpiration, while ventilators reverse their winter role to provide cool air circulation.

Research Laboratory, Ulm, Germany 1989

Photo credit: internet

Walter Bettio



Terrence Donnelly Centre, U of Toronto 2006

Photo: Archi-Tech Magazine, 2/2007

Stefan Behnisch

Unilever Germany Headquarters 2009

Photo: Internet

Stefan Behnisch

To prevent solar and thermal gains, the architects chose low-E-coated high Performance glass. It is coated, fritted, tempered and laminated.*

The south-facing façade is double skinned. The outer wall is a single layer of clear tempered glass. Spaced 2.5 feet away from the outer layer is a second, inner thermal skin of argon-filled glazing. Space between the two skins provides a thermal buffer from temperature extremes outside and lessens traffic noise.

Glass floors within the double skin of the south façade allow for maximum penetration of daylight into the offices.

*Fritted glass is tempered glass with a ceramic based paint permanently bonded onto the glass duringthe tempering process.

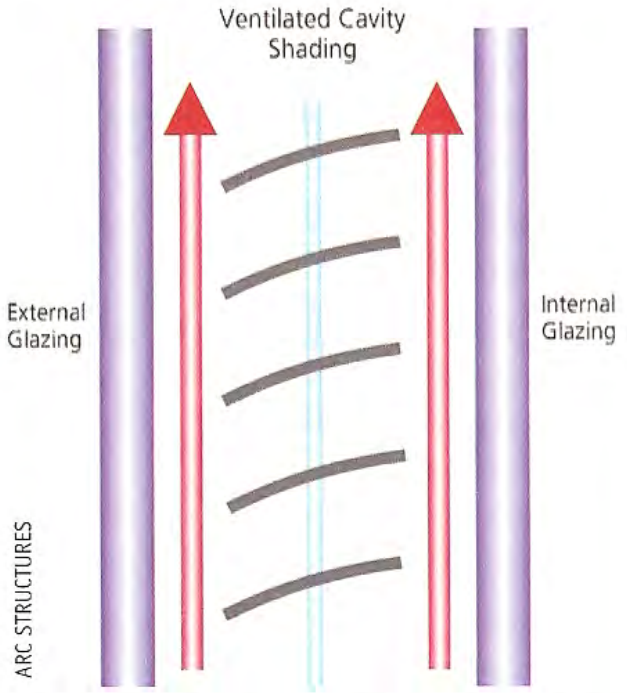
Unilever Germany Headquarters 2009

Photo: Internet

Stefan Behnisch

Motorized dampers and vents on the outer skin connect to the building management system and work (along with the natural stack effect) to ventilate the cavity which is compartmentalized from floor to floor.

Within each floor's cavity, and placed closer to the external glazing, are perforated retractable aluminum louvers with 4 inch concave slats, programmed to tilt to prevent direct sun from hitting the inner glazing.



The key idea of a ventilated façade is to have air movement between the inner and outer glazed skins of buildings. Automatically controlled blinds between the two layers raise, lower, and tilt depending on conditions.

Unilever Germany Headquarters 2009

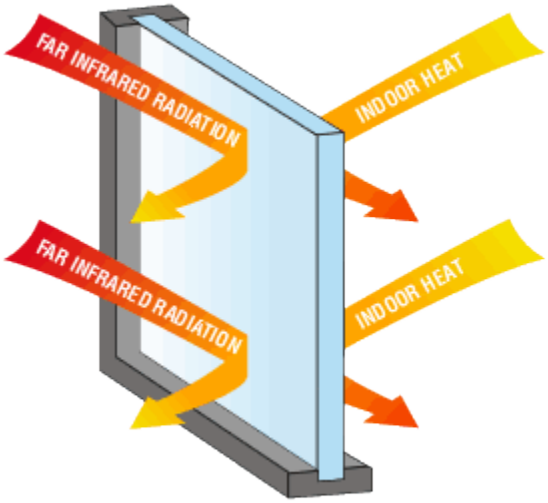
Photo: Internet

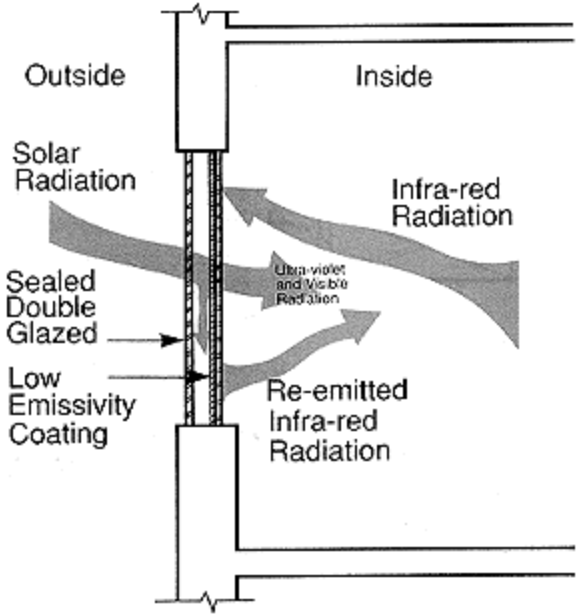
Reduce the energy required to heat (and cool) a buildings by reducing the transmission of heat through the walls and windows of a building

Low e-glass

is glass that has a coating applied to it in order to control heat transfer through windows. Windows manufactured with low-E coatings typically reduce energy loss by as much as 30–50%.

A low-E coating is a microscopically thin, virtually invisible, metal or metallic oxide layer deposited directly on the surface of one or more of the panes of glass. The low-E coating reduces the infrared radiation from a warm pane of glass to a cooler pane, thereby lowering the U-factor of the window. To keep the sun's heat out of the house (for hot climates, east and west-facing windows, and un-shaded south-facing windows), the low-E coating should be applied to the outside pane of glass. If the windows are designed to provide heat energy in the winter and keep heat inside the house (typical of cold climates), the Low-E coating should be applied to the inside pane of glass.

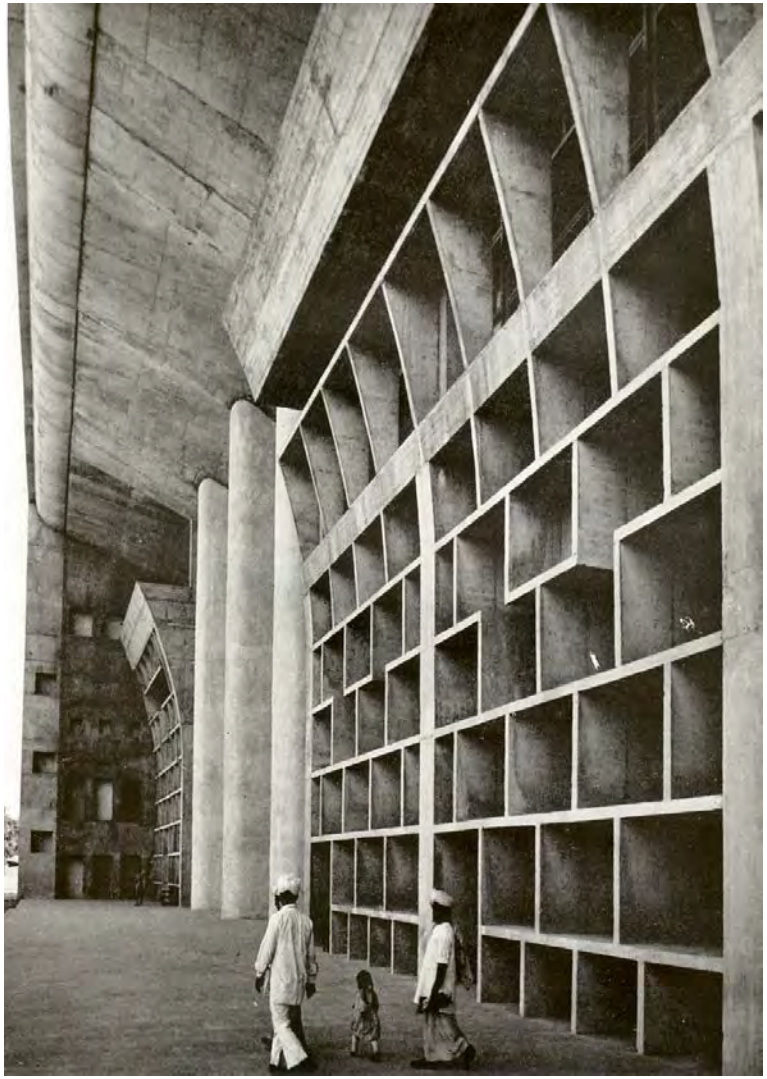




Shade the windows from the sun’s rays

Le Courbusier

Brise-soleils: sun shade



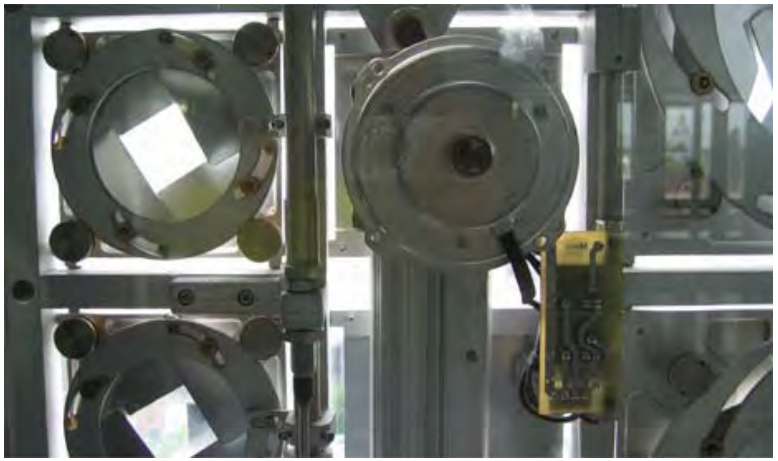
Chandigahr, Punjab, India

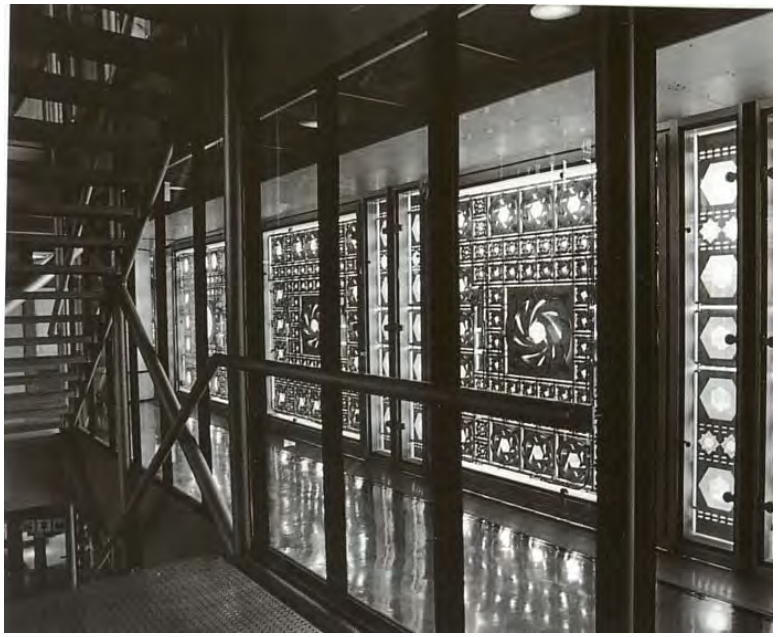
1953-1962

Jean Nouvel

Jean Nouvel's Arab Institute uses technology to promote energy conservation. The metal and glass exterior panels work like camera lenses in that they respond automatically to light meters built into each panel. As the sun moves along the façade of the building the "eyes" open and close, letting in light when it is needed, keeping out glare and heat during the summer.

(Unfortunately, many of the "lenses" no longer work, perhaps demonstrating that very hi-tech solutions to energy conservation is not the answer.)

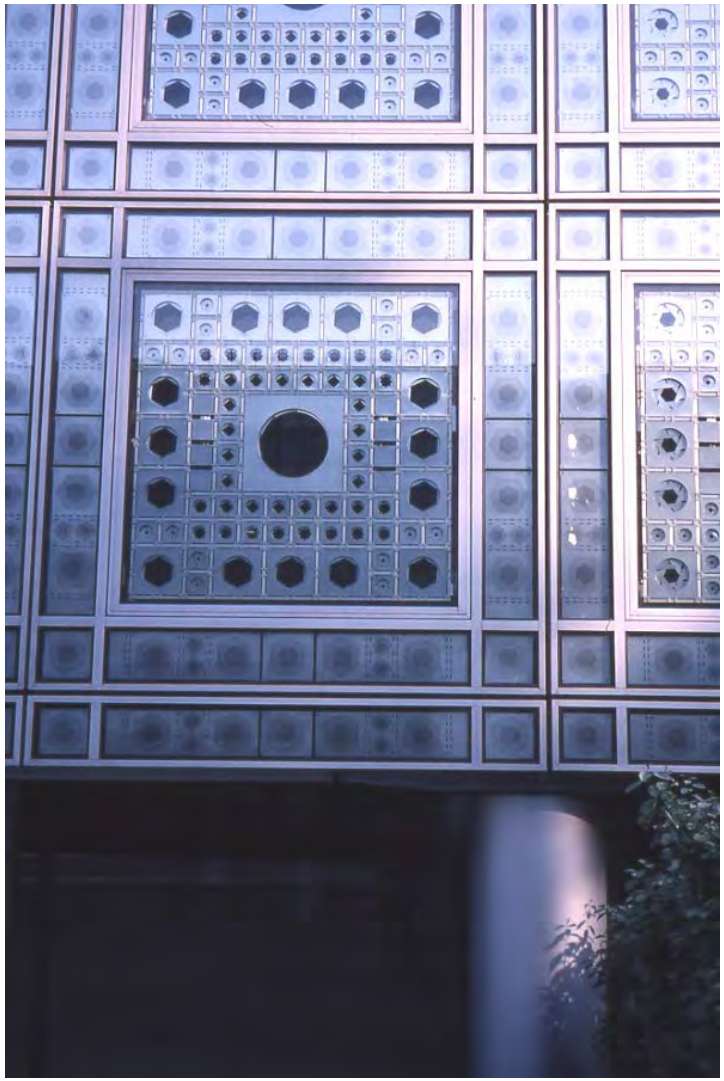




Arab World Institute, Paris, France 1991-87

Photo: Paul Warchol

Jean Nouvel



Arab World Institute, Paris, France 1991-87

Photo: Paul Warchol

Renzo Piano

Thin horizontal ceramic tubes placed on a steel framework one and a half feet in front of the glass will screen the double glazed, spectrally selective, low-emissivity, full-height glass wall around the building

Reference link:
http://www.nyc-architecture.com/MID/MID125C.htm

New York Times Building, NYC 2006

Photo credit: Internet Creative Commons

Renzo Piano

Reference link:
http://www.nyc-architecture.com/MID/MID125C.htm

New York Times Building, NYC 2007

Photo credit: Internet Creative Commons

Conserving water

Some ways to conserve water:

- *Use less: In climates with little rainfall, eliminate grassy lawns from the landscape.*
- *Use "gray" water (greywater) to irrigate gardens, flush the toilets and wash the floors. Gray water is collected from roof drains and sometimes from lavatories and showers. Gray water is often run through a filtration system before being reused.*

Rex Stout

"The Steinhude Sea Recreation Facility on an island in the northern German coast is a visually powerful and compelling expression of sustainability. With photovoltaic, solar hot water, daylighting, renewable source power generation, and a *gray water system* utilizing rain water collected from the roof and landscaped terraces, this prefabricated building uses no fossil fuels,eliminating all greenhouse gas emissions."

http://www.greensage.com
/NEWSSTORIES/newsAIACOTEtop10.htm

Steinhude Recreation Center, Germany 2000

Photo: Peter Hubbe (AR 10 2001)

Rex Stout

Steinhude Recreation Center, Germany 2000

Photo: Peter Hubbe (AR 10 2001)

Reducing Pollutants

- *Reduce air pollution by burning less fuel (conserving energy.)*

Using Sustainable Building Materials and Furnishings

- *Use materials that are easily replaceable.*
  - *Such as rammed earth: Earth can be found close to the site, and can be made into building blocks.*
  - *Such as bamboo, instead of softwoods. Bamboo grows much quicker than pines. A forest of bamboo can be replaced in just a few years.*
- *Give new life to old things*
  - *Old tires can be used as soles for sandals*
  - *Shiguru Ban uses old cargo containers to build walls.*
- *Recycle materials*
  - *Recycled paper can be used to create structural tubes.*

Compressed Earth Block (CEB), Adobe, Straw Bale and Light Clay are the Green Building materials

Photo: www.oneearthdesign.com/green_building_concept...

Shigeru Ban

Cardboard tube designs

Photo: internet

Shigeru Ban used cardboard pillars in fashion designer Issey Miyake's gallery —and chairs — in Tokyo

Shigeru Ban

Both of these designs, as well as the Hanover Pavilion, relied on cardboard construction as a principal structural element

Paper House, 1995, Yamanashi, Japan & Golf House, 2010, Yeoju, Korea

Photo: internet

Shigeru Ban

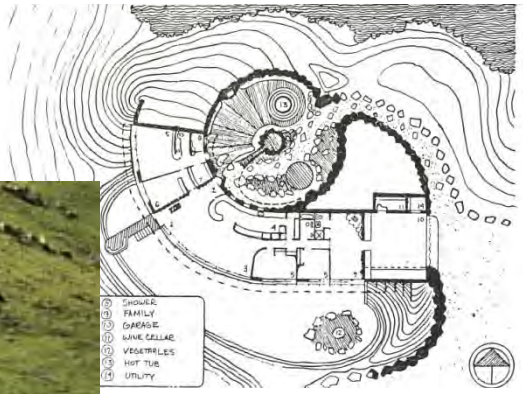
This structure used Bamboo, a fast growing (and hence renewable) wood, as a principal structural element

Pompidou Center, Metz, France, 2010

Photo: internet

Impacts the Landscape Minimally

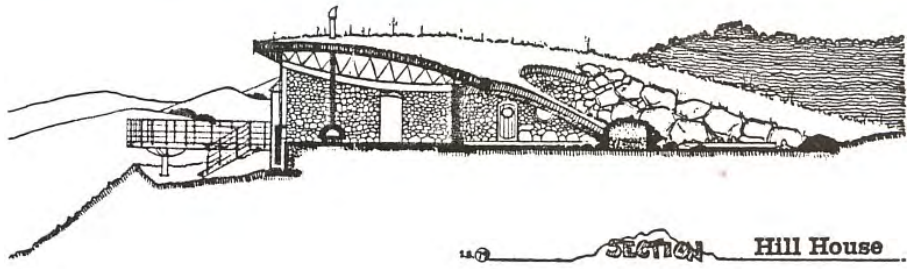
Jersey Devil



Hill House, La Honda, California 1977

Photo credit: (Bullfinch)

Jersey Devil



Hill House, La Honda, California 1977

Photo credit: (Bullfinch)

Integrating architecture and landscape

The concept of 'Green' architecture has been expanded to include the integration of architecture and landscape. Many architects combine shelter and garden creating environments in harmony with nature.

Emilio Ambasz

…architecture as garden
"There is a philosophical question here: we have to redefine what is nature and what is man made nature." Architecture can be seen as man-made nature. *(Ambasz)*

ACROS building, Fuuoka, Japan 1989-1995

Photo credit: **www.urbandesign.it/**

Emilio Ambasz

The buildings, integrated into the ground by earth berms, are distributed throughout the site as if expressing the flow of information thru a computer. These Earth covered shelters maintain comfortable Interior temperatures in all seasons. (James Wine)

Schlumberger Research Labs, Austin, Texas 1983

Photo credit: www.arq.ufsc.br/.../arq_enterrada/ambasz.htm

Jean Nouvel

"Nouvel's gallery for the Foundation Cartier is an exercise in transparency and the perennial quest to remove the barrier between inside and outside. A building 'box' with glass walls would not do the trick: you could see through the walls, but you would be clearly either inside or outside the box. In the Fondation Cartier Nouvel has extended the glass walls beyond the box, creating extra tall glass planes in the wild-flower garden, and extending the glass facade several meters above the roof terrace. At the edge of the plot he has created a whole extra glass plane as the street facade, wholly separate from the main box of the building.

Galisnsky: for the rest of the text go to:
www.galinsky.com/ buildings/cartier

Foundation Cartier, Paris, France 1994

Photo: http://www.vanessa-mueller.de/fondation_cartier_a.jpg from the internet

Jean Nouvel

Foundation Cartier, Paris, France 1994

Photo: Galinsky from the internet

Jean Nouvel's Fondation Cartier (Paris 1994)

"We have all but written nature out of urban design; we have turned it into an afterthought. And it isn't even an afterthought in most urban architecture. It just isn't there. We save nature for the country, where we indulge it to excess, and then we forget all about it in the city. The most glorious exception to this in recent years is Jean Nouvel's Fondation Cartier, in Paris, with its freestanding wall of glass on the Boulevard Raspail, behind which is a lush and slightly unkempt landscape. The architect has created an extraordinary sequence of experiences-- outer wall, landscape, then building--that loosely recalls the way in which many great urban houses were entered by passing through a masonry wall set out to the street, then through a garden. Nouvel has reinterpreted this idea with modern materials, but transparency makes it altogether different. The natural landscape plays off against the sleek, highly refined building of glass and metal. Nouvel has taken the notion of the machine in the garden and inverted it: he has put the garden in the machine.

Nouvel is emphatic in stating that "vegetation," as he calls it, "is not simple decoration but an intrinsic element of the architect's vocabulary." He speaks of nature as a "fleeting phenomenon," like light and weather, and he has said he considers it an element of "an architecture that continuously refuses to be unchanging."

Paul Goldberger: for the rest of the text go to: http://www.metropolismag.com/html/content_0802/gol/

Jean Nouvel

the world's largest "wall of vegetation", with 15,000 plants and ferns grown on a vertical support devoid of soil;

Museum du Quai Branly, Paris, France 2006

Photo: http://www.musee-afriqueoceanie.fr/pages/page_id18926_u1l2.htm

Renzo Piano

2000-03

Photo credit: Architecture 12/03

Renzo Piano's Noumia Cultural Center

Renzo Piano's Noumia Tjibaou Cultural Center is a good example of an architect's sensitivity to both environmental and cultural issues. Here Piano grappled with many concerns at once. First there was the river bank site, which he did not want to disturb. Next there was the symbolic importance of the native culture and their unique vernacular architecture. Also, there were environmental and climatic concerns.

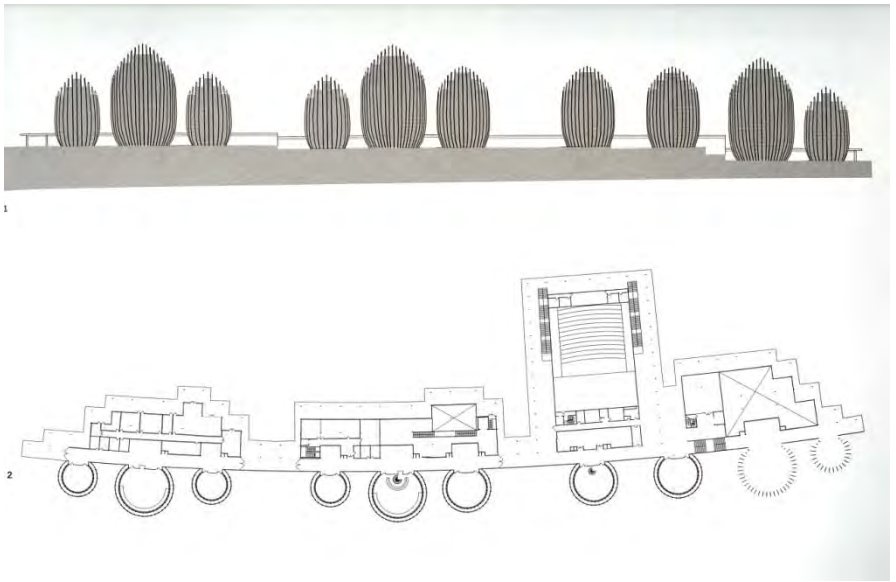
Piano solved all these problems with a unique design specific to its geographical location. The project consists of a number of buildings (some functional, some mostly symbolic) strung along a path at the edge of a lagoon. He placed his pavilions along an existing path so as to minimally disturb the environment. A covered walkway passes through three groupings of symbolic tribal structures on one side and functional buildings on the other. This spinal path makes an association with the ceremonial walks of the culture. The unusual 'huts' along the path are reminiscent but not identical to Kanak tribal architecture and also function to direct the tradewinds.

Renzo Piano

Noumia Cultural Center, New Caledonia 2000

Photo credit: Internet

Renzo Piano



From the first, Piano was concerned to learn from local culture, buildings and nature, but he was determined not to end up with a kitsch replication of Kanak huts. He took from them the ideas of the village cluster and the ribbed hut structure in which tall thin curved timber members cluster together at the top and carry the cladding. In the original vernacular, the ribs are of palm saplings; in Piano's (much larger) reinterpretation of the forms, thay are made of laminated iroko, structurally linked by horizontal tubes and diagonal rod ties of stainless steel.

Noumia Cultural Center, New Caledonia 2000

Photo credit: Internet

Renzo Piano

Noumia Cultural Center, New Caledonia 2000

Photo credit: Internet

Renzo Piano

Academy of Science, San Francisco, CA 2010

Photo credit: Internet Creative Commons

MVRDV

Dutch Pavilion, Hanover, Germany Expo 2000

Photo: MRVDV

LEED Certification

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria.

LEED is a rating system that takes into account all of the ways that a building can be "green". Many of these methods are still experimental.

LEED Guidelines can be downloaded from the following site:

http://www.usgbc.org/Docs/LEEDdocs/LEED_RS_v2-1.pdf

Cook+Fox

Awarded "platinum" LEED certification

"Green" Considerations
With an emphasis on sustainability, water efficiency, indoor environmental quality, and energy and atmosphere, the Bank of America Tower will be constructed largely of recycled and recyclable building materials. It will feature a wide range of sophisticated environmental technologies, from filtered under-floor displacement air ventilation to advanced double-wall technology and translucent insulating glass in floor-to-ceiling windows that permit maximum daylight and optimum views. It also will include a state-of-the-art onsite 4.6-megawatt cogeneration plant, providing a clean, efficient power source for the building's energy requirements.

One Bryant Park, NYC projected 2007

Photo: http://www.aiany.org/eOCULUS/2006/2006-03-21.html

Cook+Fox

Awarded "platinum" LEED certification

The Bank of America Tower will save millions of gallons of water annually through such innovative devices such as a gray-water system to capture and reuse all rain and wastewater, while planted roofs will reduce the urban heat island effect. Taking advantage of heat energy from the cogeneration plant, a thermal storage system will produce ice in the evenings, which will reduce the building's peak demand loads on the city's electrical grid. Daylight dimming and LED lights will reduce electric usage while carbon dioxide monitors automatically introduce more fresh air when necessary. By fundamentally changing the way buildings are conceived, Bank of America Tower will lead the change in the way high-rise buildings are built.

One Bryant Park, NYC 2007

Photo: http://www.aiany.org/eOCULUS/2006/2006-03-21.html