The 90s until today.

Architectural history snapshot.

International buildings .

International architects.

Design in the Built Environment. 2022 M McGarrigle

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Selected international architecture. 1990's until present. Experience Museum Project

Frank Gehry. Seattle. 1995-2000

When Frank O. Gehry began designing EMP, he was inspired to create a structure that evoked the rock 'n' roll experience without being too literal. He purchased several electric guitars, sliced them into pieces, and used them as building blocks for an early model design.

A fusion of textures and myriad colors, EMP's exterior conveys all the energy and fluidity of music. Three-thousand panels, made up of 21 thousand individually cut and shaped stainless steel and painted aluminum shingles, encase the outside of the building. Their individual finishes respond to different light conditions and appear to change when viewed from different angles, reminding audiences that music and culture is constantly evolving.

Selected international architecture. 1990's until present. Jewish Museum Berlin 1999

Daniel Libeskind

In his research for the project, Libeskind read the *Gedenkbuch*, or *Memorial Book*, which lists all the Jews murdered in the Holocaust. The report which he filed in the original design competition borrowed the form of the *Gedenkbuch*.

Libeskind, a musician himself, took inspiration from music and considered the museum the final act of Arnold Schoenberg's unfinished opera, *Moses und Aron*. Walter Benjamin's *One Way Street*'s 60 sections determined the number of sections that comprise the museum's zigzag section.

His buildings include the Jewish Museum in Berlin, Germany, the extension to the Denver Art Museum in the United States, the Grand Canal Theatre in Dublin, the Imperial War Museum North in Greater Manchester, England, the Michael Lee-Chin Crystal at the Royal Ontario Museum in Toronto, Canada, the Felix Nussbaum Haus in Osnabrück, Germany, the Danish Jewish Museum in Copenhagen, Denmark, and the Wohl Centre at the Bar-Ilan University in Ramat-Gan, Israel.[2]\

Libeskind is perhaps most famous for being selected by the Lower Manhattan Development Corporation to oversee the rebuilding of the World Trade Center,[17]

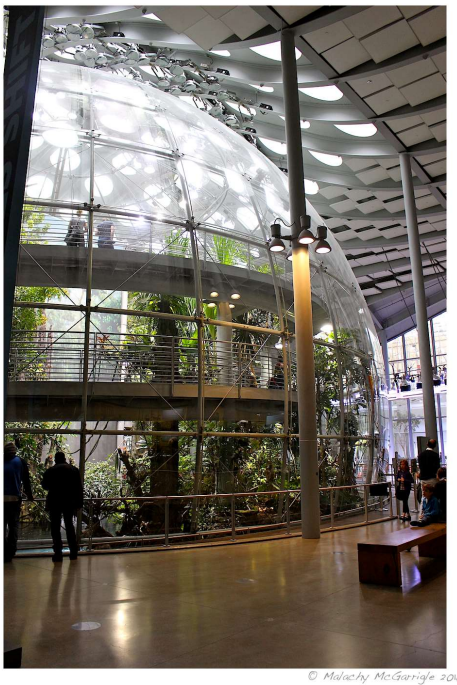
California Academy of Sciences. Renzo Piano. **New building's environmental design**

The design architect for the museum replacement project was Renzo Piano. His design was given the Urban Land Institute (ULI) Award for Excellence: The Americas in 2008, considered the land use industry's most prestigious recognition program,[7] and it won the Holcim Award Silver for sustainable construction projects for the of region North America in 2005.[8] One critic praised the building as a "blazingly uncynical embrace of the Enlightenment values of truth and reason" and a "comforting reminder of the civilizing function of great art in a barbaric age".[9]

California Academy of Sciences. Renzo Piano. **New building's environmental design**

The new building is at the forefront of environmentally friendly design, in keeping with the academy's focus on ecological concerns and environmental sustainability. It received Platinum certification under the LEED program.[10] As a result of its environmentally friendly design and other unique features, this project was featured on the Discovery Channel *Extreme Engineering series in 2006[11] and on the National Geographic Channel Man-Made* series in July 2008.[12]

Selected international architecture. 1990's until present.



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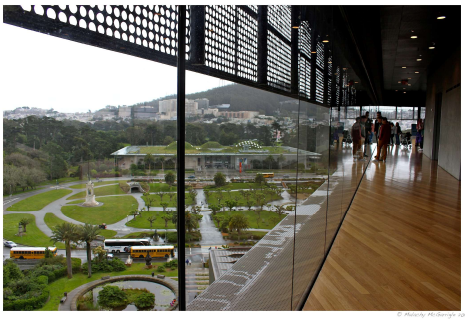

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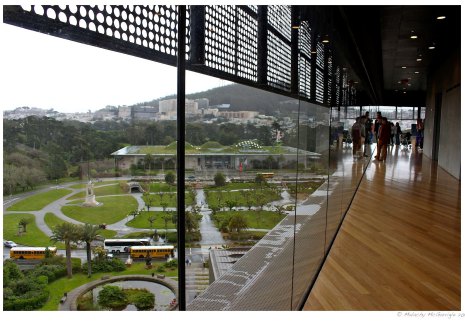
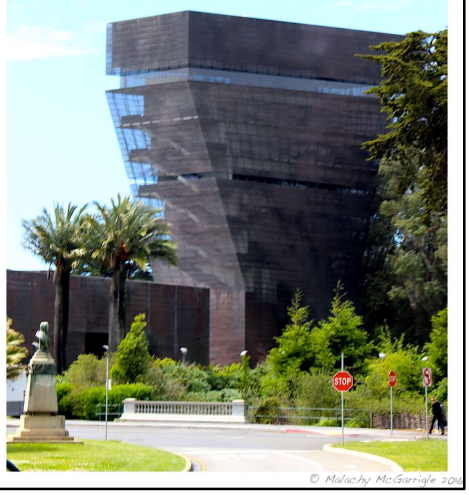


De Young Memorial museum.
Herzog and De Meuron. 2005
San Francisco



Herzog & de Meuron won the competition in January 1999 beating out other short-listed architects Tadao Ando and Antoine Predock. The terrain and seismic activity in San Francisco posed a challenge for the designers Herzog & de Meuron and principal architects Fong & Chan. To help withstand future earthquakes, "[the building] can move up to three feet (91 centimeters) due to a system of ball-bearing sliding plates and viscous fluid dampers that absorb kinetic energyand convert it to heat".[19]

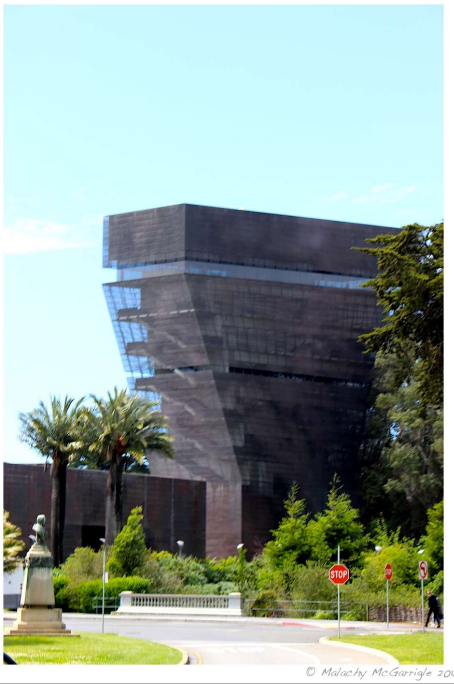
A new museum structure located in the middle of an urban park was initially controversial. San Francisco voters twice defeated bond measures that were to fund the new museum project.

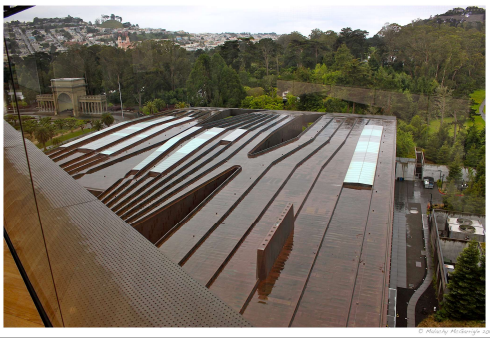
The designers were sensitive to the appearance of the building in its natural setting. Walter Hood, a landscape architect based in Oakland, designed the museum's new gardens. The entire exterior is clad in 163,118 sq ft (15,154.2 m^2) of copper, which is expected to eventually oxidize and take on a greenish tone and a distinct texture to echo the nearby eucalyptus trees. In order to further harmonize with the surroundings, shapes were cut into the top to reveal gardens and courtyards where 48 trees had been planted, the giant tree-ferns that form a backdrop for the museum entrance are particularly dramatic. 5.12 acres (20,700 square meters) of new landscaping were planted as well, with 344 transplanted trees and 69 historic boulders.

M H De Young Memorial Museum- The architecture of the new museum is not narrative; it is not a romantic interpretation of encounters between cultures; nor is it an abstract space for the storage of art objects; the architecture intends to visibly demonstrate and foster our awareness of the coexistence and equality of cultures. The tripartite structure of the buildings that rub against each other like continental shelves makes it possible for the Golden Gate Park to penetrate the museum. This is one architectural strategy: to make the architecture of the new building permeable, open, and inviting for the people of San Francisco.

Known for their experimentation with materials in their designs, Herzog and de Meuron contributed a modern structure that allows original artifacts to remain, works successfully as a museum, and is a monument in its area just like the original museum. Their choice of natural materials, such as copper, wood, stone, stone, and glass allows the design to become part of the land it occupies.

Selected international architecture. 1990's until present.





M H De Young Memorial Museum- A second architectural strategy involves the large roof, which expresses the collective gesture of people gathering together. A third architectural element, the Education Tower, is a clearly identifiable landmark that looks out on the nearby JFK drive and the city. Given the location and the placement of the museum building and the concourse, the figure of the tower takes a geometrical stand in relation to the strict rectangular grid of the city. The Education Tower is literally the hinge between museum and city. It affords a view, an overview, and insight into the various cultures of this world at this select location in Golden Gate Park of San Francisco.
Herzog & de Meuron, 2005

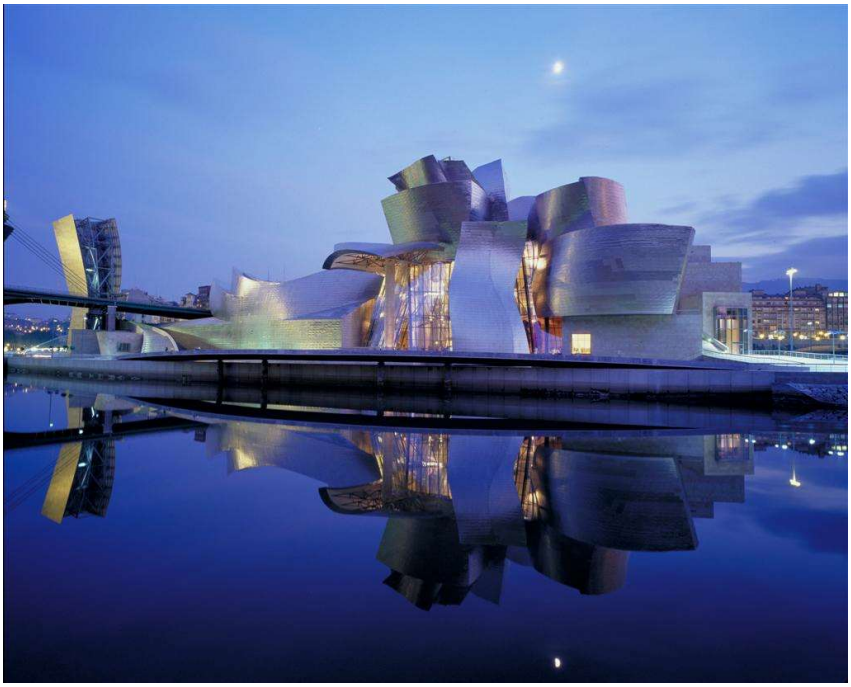
Selected international architecture. 1990's until present. Tate Modern . 2000

Tate Modern is an art gallery located in London. It houses the United Kingdom's national collection of international modern and contemporary art, and forms part of the Tate group together with Tate Britain, Tate Liverpool and Tate St Ives.[2] It is located in the former Bankside Power Station, in the Bankside area of the London Borough of Southwark.

In April 1994 the Tate Gallery announced that Bankside would be the home for the new Tate Modern. In July of the same year, an international competition was launched to select an architect for the new gallery. Jacques Herzog and Pierre de Meuron of Herzog & de Meuron were announced as the winning architects in January 1995. The £134 million conversion to the Tate Modern started in June 1995 and completed in January 2000.[5]

The most obvious external change was the two-story glass extension on one half of the roof. Much of the original internal structure remained, including the cavernous main turbine hall, which retained the overhead travelling crane. An electrical substation, taking up the Switch House in the southern third of the building, remained on-site and owned by the French power company EDF Energy while Tate took over the northern Boiler House for Tate Modern's main exhibition spaces.[5]

Selected international architecture. 1990's until present. Bilbao Guggenheim



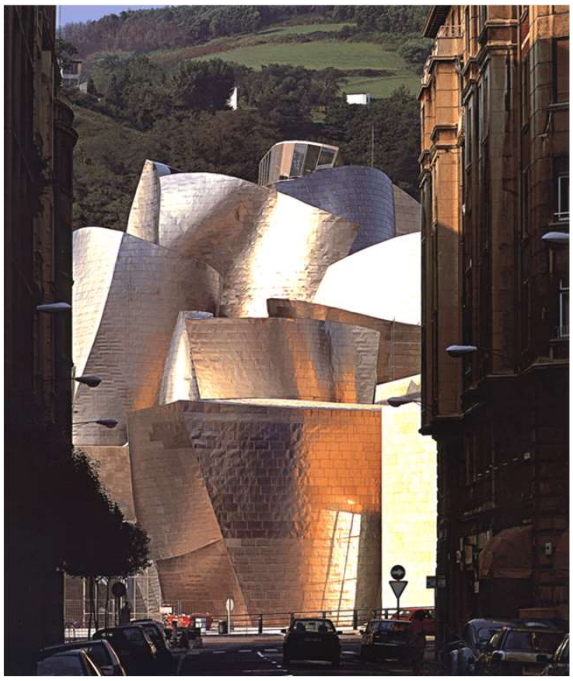
Concept

The design of the building follows the style of Frank Gehry. Inspired by the shapes and textures of a fish, it can be considered a sculpture, a work of art in itself.

Frank seems to like Fish as he did a Fish sculpture which was in the Minneapolis sculpture garden.

The forms do not have any reason nor are governed by any geometric law. The museum is essentially a shell that evokes the past industrial life and port of Bilbao. It consists of a series of interconnected volumes, some formed of orthogonal coated stone and others from a titanium skeleton covered by an organic skin. The connection between volumes is created by the glass skin. The museum is integrated into the city both by it height and the materials used. Being below the benchmark of the city, it does not surpass the rest of the buildings. The limestone, of a sandy tone, was selected specially for this aim. Seen from the river, the form resembles a boat, but seen from above it resembles a flower.

Selected international architecture. 1990's until present.



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Selected international architecture. 1990's until present.

Frederick R. Weisman Art Museum. 1993.
Frank Gehry
Minneapolis USA

The current museum building was designed by world-renowned architect Frank Gehry with MSR Design as architect of record and completed in November 1993.[2] It is one of the major landmarks on the University of Minnesota campus, situated on a bluff overlooking the Mississippi River at the east end of the Washington Avenue Bridge. The abstract structure is considered highly significant because it was built prior to the widespread use of computer aided design in architecture.

The building presents two faces, depending on which side it is viewed from. To the south and east, it presents a brick facade that blends with the historic buildings along Northrop Mall. To the north and west, it is an abstraction of a fish and waterfall in curving and angular brushed steel sheets.[2] The stainless steel skin was fabricated and installed by the A. Zahner Company, a frequent collaborator with Gehry's office.[3]

Selected international architecture. 1990's until present.

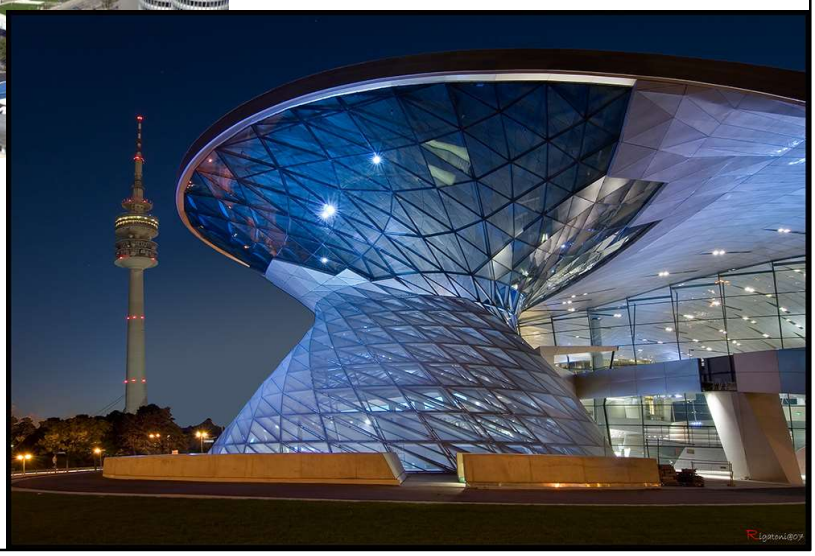
Disney Concert Hall
Frank Gehry
Los Angeles. 2003

Selected international architecture. 1990's until present.

Dr Chau Chak Wing
Building 2015
Sydney UTS

Gehry and Vlado Munic.
Dancing house Prague.

Selected international architecture. 1990's until present.



Designed by architects Coop Himmelb(l)au for BMW Group, the facility was constructed from August 2003 through summer 2007 at a cost of US$200 million.[1] Originally conceived to be open and ready for World Cup 2006, it eventually opened on October 17, 2007, and deliveries commenced on October 23, 2007. The first customer to take delivery of a new BMW at the Welt was Jonathan Spira.[2][3] There were 2,200,000 visitors during the first 12 months of operation.[1]

Designed with an 800 kW solar plant on its roof, "the building does not have the boredom of a hall, it is not only a temple, but also a market place and a communication center and meeting place for knowledge transfer", said architect Prix at the opening ceremony.[4]

Design

The Reichstag dome is a large glass dome with a 360 degree view of the surrounding Berlin cityscape. The debating chamber of the Bundestag, the German parliament, can be seen down below. A mirrored cone in the center of the dome directs sunlight into the building, and so that visitors can see the working of the chamber.[1] The dome is open to the public and can be reached by climbing two steel, spiraling ramps that are reminiscent of a double-helix.[2] The Dome symbolizes that the people are above the government, as was not the case during National Socialism.

The glass dome was also designed by Foster to be environmentally friendly. Energy efficient features involving the use of the daylight shining through the mirrored cone were applied, effectively decreasing the carbon emissions of the building.[3]

The futuristic and transparent design of the Reichstag dome makes it a unique landmark, and symbolizes Berlin's attempt to move away from a past of Nazism and instead towards a future with a heavier emphasis on a united, democratic Germany.[4]

1992-1999

Selected international architecture. 1990's until present.

Generated by a circular plan, with a radial geometry, the building widens in profile as it rises and tapers towards its apex. This distinctive form responds to the constraints of the site: the building appears more slender than a rectangular block of equivalent size and the slimming of its profile towards the base maximises the public realm at street level.

Environmentally, its profile reduces wind deflections compared with a rectilinear tower of similar size, helping to maintain a comfortable environment at ground level, and creates external pressure differentials that are exploited to drive a unique system of natural ventilation.

Conceptually the tower develops ideas explored in the Commerzbank and before that in the Climatroffice, a theoretical project with Buckminster Fuller that suggested a new rapport between nature and the workplace, its energy-conscious enclosure resolving walls and roof into a continuous triangulated skin. Here, the tower's diagonally braced structure allows column-free floor space and a fully glazed facade, which opens up the building to light and views.

Selected international architecture. 1990's until present. Nimes Carre d Art

Foster and Partners 1993

Constructed of glass, concrete and steel, it faces the Maison carrée, a perfectly preserved Roman temple that dates from the very beginning of the 1st century AD. In 1984, twelve architects, including Frank Gehry, Jean Nouvel and César Pelli, were invited to submit proposals for the museum. A design by the British architect Norman Foster was selected, and the building was opened in May 1993.[1]

The building was constructed as part of a project to refurbish the square in which the Maison carrée stands, and provides a new setting for the ancient temple.[2] The building is a nine-storey structure, half of which is sunk deep into the ground, keeping the building's profile low in sympathy with the scale of the surrounding buildings. The lower levels house archive storage and a cinema.

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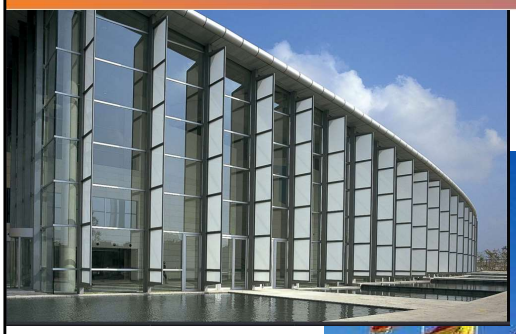
The urban context of Nîmes was also a powerful influence. The site faces the Maison Carrée, a perfectly preserved Roman temple. The challenge was to relate new to the old, but at the same time to create a building that represented its own age with integrity.

The Carré d'Art is articulated as a nine-storey structure, half of which is cut into the ground, keeping the building's profile low in sympathy with the scale of the surrounding buildings. At the heart of the plan is a glass-roofed atrium, with a cascading staircase, which references the courtyard vernacular of the region. This space exploits the transparency and lightness of modern materials to allow daylight to permeate all floors. The lower levels house archive storage and a cinema. Above are two library floors, with art galleries on the upper two levels. A reception space on the uppermost floor opens out to a shaded café terrace overlooking a new public square.

The creation of this urban space was an integral part of the project. Railings, hoardings and parked cars were banished and the space in front of the building was extended to create a pedestrianised *place* – a new social focus and an appropriate setting for the Maison Carrée. Lined with café tables and thronged with people, the square has reinvigorated the social and cultural life of Nîmes. Together with these urban interventions, the Carré d'Art shows how a building project, backed by an enlightened political initiative, can provide a powerful catalyst for reinvigorating the social and physical fabric of a city.

Selected international architecture. 1990's until present. Valencia Congress Centre

Foster and Partners 1998



G59-167577 [RM] © www.visualphotos.com

The Centre is oriented to respond to the climate and quality of light and shade, water and green spaces found in the city. The foyer looks out onto shady trees and gently curving asymmetrical pools. Fresh air is cooled as it passes over these pools and is drawn into the foyer, minimising the need for mechanical air conditioning. Similarly, reflected sunlight is balanced by shading from brise-soleil so that natural illumination in the foyer is even and finely veiled.

Following principles rooted in the vernacular local architecture, the roof consists of two layers: an outer metal shield floats above a heavy concrete shell, encouraging a cooling flow of air in between, thus optimising the building's passive thermal performance. The roof sweeps through 180 metres in a single line, surging forward at its peak to create a canopy above the entrance, which provides shelter from the sun.

Selected international architecture. 1990's until present.

2000. 135 m high. 32 capsules

The London Eye has captured the public's imagination. In the eight years since opening, over twenty million visitors have enjoyed unparalleled views over the capital, and it has also made a significant contribution to the regeneration of the area. David Marks and Julia Barfield took the entrepreneurial approach in establishing the London Eye company.

An important aspect of the project was the creation of a high quality public realm space at the base of the wheel, setting the standard for other public space in the area.

A lot of technological challenges here . Platforms in the actual pods move . 1993 competition did not produce a winner so architects decided to set up and get funding themselves.

RRP employed the idea of openness and transparency as the driving factor in the design. The building was not to be an insular, closed edifice. Rather it would be a transparent envelope, looking outwards to Cardiff Bay and beyond, making visible the inner workings of the Assembly and encouraging public participation in the democratic process.

The idea of openness is exemplified by the organisation of the building, with public spaces elevated on a slate-clad plinth stepping up from the water and cut away to allow daylight to penetrate the administrative spaces below, thereby enabling a visual connection between the electorate and the elected.

Selected international architecture. 1990's until present.

The **Millennium Dome**, colloquially referred to simply as **The Dome**, is the original name of a large dome-shaped building, originally used to house the ***Millennium Experience***, a major exhibition celebrating the beginning of the third millennium. Located on the Greenwich Peninsula in South East London, England, the exhibition was open to the public from 1 January to 31 December 2000. The project and exhibition was the subject of considerable political controversy as it failed to attract the number of visitors anticipated, with recurring financial problems. All of the original exhibition and associated complex has since been demolished. The dome still exists, and it is now a key exterior feature of The O2.

Commissioned to mark the beginning of the new Millennium, the Millennium Dome was intended as a celebratory, iconic, non-hierarchical structure offering a vast, flexible space. Although a high-profile project in its own right, the building also formed a key element of the masterplan by RRP for the future development of the entire Greenwich Peninsula.

For Davies, an enthusiastic astronomer, the idea of time was uppermost in his mind - the 12 hours, the 12 months, and the 12 constellations of the sky which measure time are all integral to the original concept. Indeed the 12 towers are intended to be perceived as great arms, out-stretched in celebration.

Selected international architecture. 1990's until present.

2004

The new terminal features a clear progression of spaces for departing and arriving travellers. The building's legible, modular design creates a repeating sequence of waves formed by vast wings of prefabricated steel. Supported on central 'trees', the great roof is punctuated by roof lights providing carefully controlled natural light throughout the upper level of the terminal.

Light-filled 'canyons' divide the parallel floors that accommodate the various stages of passenger processing - from point of arrival, through check-in and passport and security controls to departure lounges and, finally, to the aircraft.

Selected international architecture. 1990's until present.

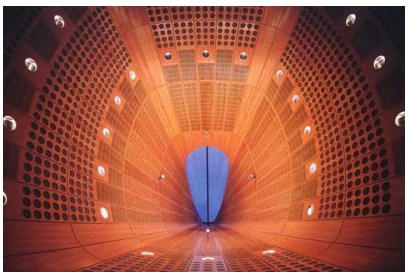
Bordeaux Law Courts. Richard Rogers. 1998

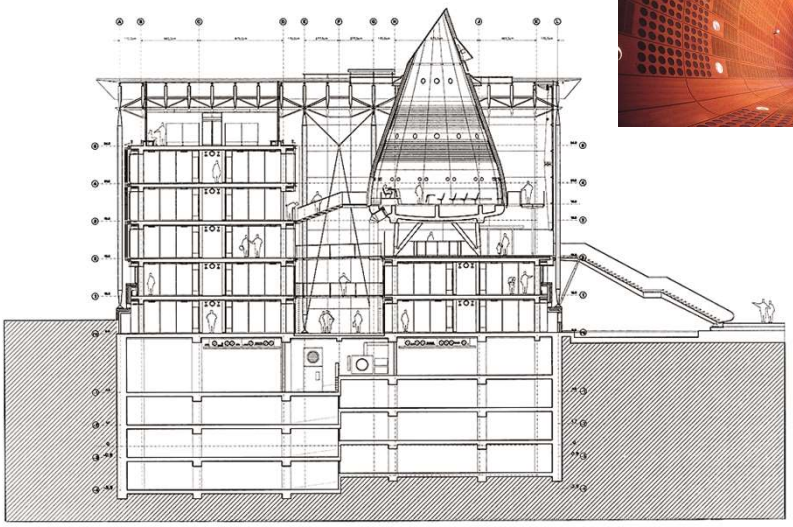
Richard Rogers Partnership (RRP, now Rogers Stirk Harbour + Partners, RSH+P) won the international competition to design new law courts for the historic city of Bordeaux in 1992. The design was for a building that would, through a feeling of transparency and openness, create a positive perception of the accessibility of the French judicial system.
The brief was complex, requiring complete separation of public and judicial circulation. By pulling the building into its constituent parts, the resulting transparency encourages a sense of orientation, rendering an historically imposing institution more accessible.

Key elements of the design include the creation of public space and integration with the existing urban landscape. Public entry to the building is via a flight of stairs placed to the side, leading to the 'Salle des Pas Perdus' at the core of the building, where lawyers, their clients and the public meet.

Selected international architecture. 1990's until present.

Bordeaux Law Courts





The seven courtroom pods are clad in cedar, raised on pilotis above the limestone plinth within a great glass curtain wall under an undulating copper roof. The administrative offices are reached by bridges spanning the atrium – the clarity of the plan ensuring that different secure routes across the atrium are maintained both for the public and for magistrates. With its use of irregular forms and natural materials, the building successfully complements its sensitive environs, including a section of the city's medieval wall. A strong emphasis is placed on effective passive control systems. The pods are shaded beneath the great roof and manually-operated brise-soleil windows along the western façade reduce solar gain. The flask-like volumes allow daylight deep into the court rooms and, through their height, ensure temperature control through stratification. The glazed box wrapping around the chambers, with its sun-screening and ventilation systems incorporated within the roof, functions as a breathing container. In addition, the podium and offices are built in concrete – a very effective passive heat control system.

In contrast to the open, glazed Salle des Pas Perdus and the light-weight steel-framed roof, the courts themselves are contained spaces, lit naturally from the top. Tapered in section and rounded in plan, the forms of the courtrooms echo the mass of the adjoining medieval towers as well as recalling Kentish oast-houses and traditional boat-building. Supported on pilotis, they stand behind a near invisible glass curtain wall, their conical profile penetrating the roof above to facilitate natural ventilation.

Selected international architecture. 1990's until present. Rem Koolhaas

Seattle Central Library 2004

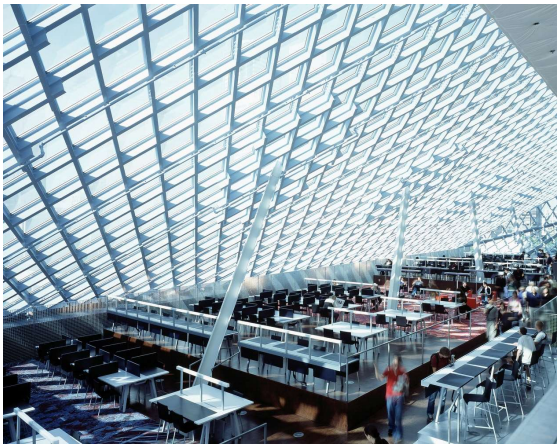
Conceived after a detailed analysis of the fundamental needs of a library building, architect came up with a new and fairly radical from to accommodate them.

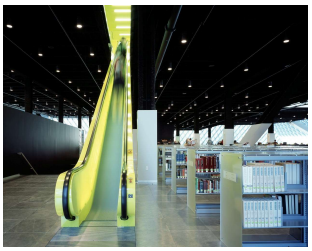
Glazed multi faceted walls to exterior make quite a statement in their urban city context but the spaces work well and apparently function well in practical terms.

Striking and seemingly random design is actually the result practical analysis of simple shapes generated to accommodate various uses and spaces.

Shapes were stacked above and on top of each other then adjusted to reduce glare or to enhance a view from a certain major space such as the reading room.

Selected international architecture. 1990's until present. Rem Koolhaas





Reading and study areas are located at top of building.

A living room is provided at street level which contains bookshelves desks to read and areas to gather and socialize.

The library's collection is contained in an element called the Book spiral. This a ramp containing the bookcases so that books do not need to be moved between floors as collection expands.

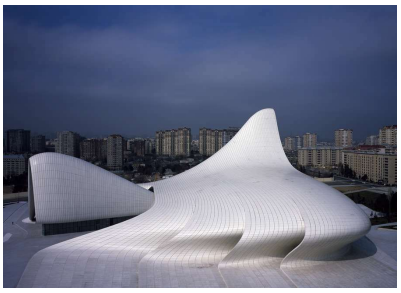
Selected international architecture. 1990's until present.

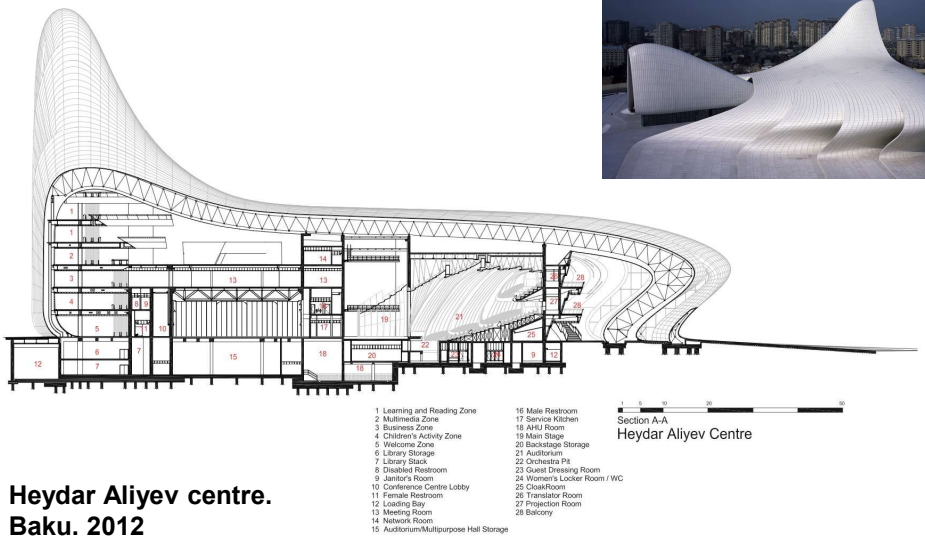
Heydar Aliyev centre.
Baku. 2013

Zaha Hadid Architects was appointed as design architects of the Heydar Aliyev Center following a competition in 2007. The Center, designed to become the primary building for the nation's cultural programs, breaks from the rigid and often monumental Soviet architecture that is so prevalent in Baku, aspiring instead to express the sensibilities of Azeri culture and the optimism of a nation that looks to the future.

The design of the Heydar Aliyev Center establishes a continuous, fluid relationship between its surrounding plaza and the building's interior. The plaza, as the ground surface; accessible to all as part of Baku's urban fabric, rises to envelop an equally public interior space and define a sequence of event spaces dedicated to the collective celebration of contemporary and traditional Azeri culture. Elaborate formations such as undulations, bifurcations, folds, and inflections modify this plaza surface into an architectural landscape that performs a multitude of functions: welcoming, embracing, and directing visitors through different levels of the interior. With this gesture, the building blurs the conventional differentiation between architectural object and urban landscape, building envelope and urban plaza, figure and ground, interior and exterior.

Selected international architecture. 1990's until present.



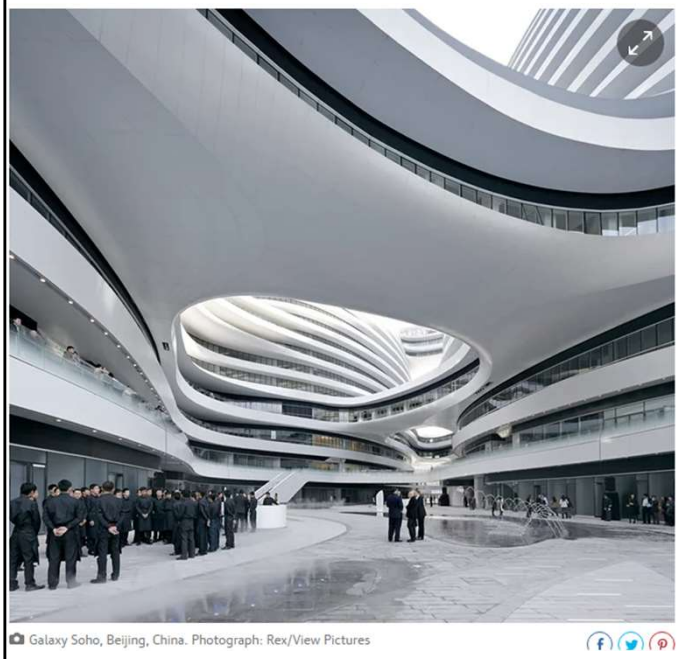


Heydar Aliyev centre.
Baku. 2012

Fluidity in architecture is not new to this region. In historical Islamic architecture, rows, grids, or sequences of columns flow to infinity like trees in a forest, establishing non-hierarchical space. Continuous calligraphic and ornamental patterns flow from carpets to walls, walls to ceilings, ceilings to domes, establishing seamless relationships and blurring distinctions between architectural elements and the ground they inhabit.

One of the most critical yet challenging elements of the project was the architectural development of the building's skin. Our ambition to achieve a surface so continuous that it appears homogenous, required a broad range of different functions, construction logics and technical systems had to be brought together and integrated into the building's envelope. Advanced computing allowed for the continuous control and communication of these complexities among the numerous project participants.

Selected international architecture. 1990’s until present.



Galaxy Soho, Beijing, China. Photograph: Rex/View Pictures

Galaxy Soho
Beijing China.
2009 - 2012

The Galaxy Soho building comprises four main domed structures, fused together by bridges and platforms between curving floor plates to create a fluid environment that surrounds a series of public courtyards and a larger central "canyon."[2] Zaha Hadid described the structure as "a reinventing of the classical Chinese courtyard which generates an immersive, enveloping experience at the Heart of Beijing."[3] According to Zaha Hadid, the design is meant to "respond to the varied contextual relationships and dynamic conditions of Beijing."[4] The exterior of the building is clad in aluminium and stone while the interior features glass, terrazzo, stainless steel and glass reinforced gypsum. The complex incorporates a cooled roofing system that minimizes the effects of microclimates caused by sustainable architectural strategies.

There are 18 floors in total. The lower three levels of Galaxy SOHO house public facilities for retail and entertainment. The levels immediately above, from the fourth floor to the fifteenth, provide office spaces for businesses. The top three levels are dedicated to bars, restaurants and cafes that offer views along Beijing.[5]

The building is connected to the city's subway system.[6]

Selected international architecture. 1990's until present.

Bridge Pavilion Zaragoza by Zaha Hadid. 2008

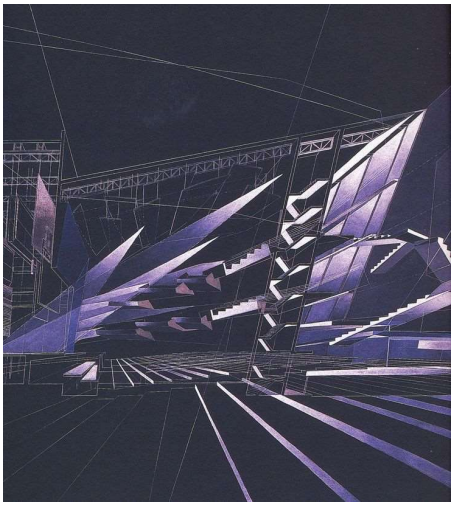
The **Bridge Pavilion** (Spanish: *Pabellón Puente*) is a building designed by British-Iraqi architect Zaha Hadid that was constructed for the Expo 2008 in Zaragoza (Spain) as one of its main landmarks. It is an innovative 280-metre-long (919 ft) covered bridge that imitates a gladiola over the river Ebro, connecting the neighbourhood of La Almozara [es] with the exposition site, and thus becoming its main entrance. The new bridge is, at the same time, a multi-level exhibition area; 10,000 visitors per hour were expected to frequent the Pavilion during world exhibition.

Hadid chose fibre glass reinforced concrete from Austrian company Rieder to envelope the bridge: she covered the outer skin of the building with 29,000 triangles of fibreC in different shades of grey.

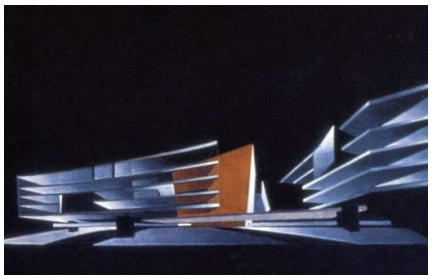
During the Expo 2008, the Bridge Pavilion hosted an exposition called *Water – a unique resource,* designed by Ralph Appelbaum Associates. When the Expo was over, the building was purchased by the local savings bank Ibercaja to use it as a site for expositions.

Selected international architecture. 1990's until present.

Cardiff Bay Opera house.



Cardiff Bay Study painting



Zaha Hadid.

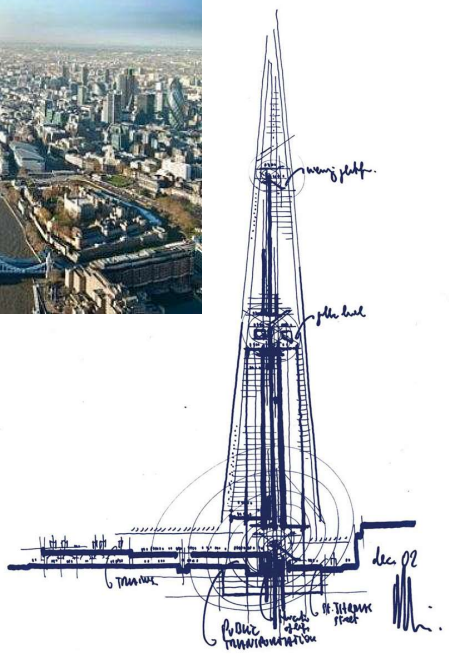
Her first successfully realized project was the **Vitra Fire Station** in Weil am Rhein, Germany (1989-92).8/07/2019

Although Zaha Hadid began her remarkable architectural career in the late 1970s, it would not be until the 1990s that her work would lift out her drawings and paintings to be realized in physical form. The Vitra Fire Station, designed for the factory complex of the same name in Weil-am-Rhein, Germany, was the among the first of Hadid's design projects to be built. The building's obliquely intersecting concrete planes, which serve to shape and define the street running through the complex, represent the earliest attempt to translate Hadid's fantastical, powerful conceptual drawings into a functional architectural space.

Although the Vitra Fire Station would ultimately come to serve a different function than it was originally designed, it nonetheless represents a significant milestone in the career of Zaha Hadid. In realizing her proposal, the Iraqi-born British architect proved that she was capable of moving past her reputation as a "paper architect" to create architectural space that was as functional as it was radical.[14] Though Hadid would spend the next twenty three years producing revolutionary architecture, her Vitra Fire Station remains one of her most notable projects – one that stands out even in Vitra's assemblage of exceptional architectural projects.

Selected international architecture. 1990's until present.

Renzo Piano
The Shard
London.
2013



The Shard,[a] also referred to as the **Shard of Glass**,[10][11] **Shard London Bridge**[12] and formerly **London Bridge Tower**,[13][14][15] is a 72-storey skyscraper, designed by the Italian architect Renzo Piano, in Southwark, London, that forms part of the Shard Quarter development. Standing 309.6 metres (1,016 feet) high, the Shard is the tallest building in the United Kingdom, and the seventh-tallest building in Europe

Renzo Piano, the project's architect, designed The Shard as a spire-like sculpture emerging from the River Thames.[23] He was inspired by the railway lines next to the site, the London spires depicted by the 18th-century Venetian painter Canaletto, and the masts of sailing ships.[15] Piano's design met criticism from English Heritage, who claimed the building would be "a shard of glass through the heart of historic London", giving the building its name, The Shard.[35] Piano considered the slender, spire-like form of the tower a positive addition to the London skyline, recalling the church steeples featured in historic engravings of the city, and believed that its presence would be far more delicate than opponents of the project alleged. He proposed a sophisticated use of glazing, with expressive façades of angled glass panes intended to reflect sunlight and the sky above, so that the appearance of the building will change according to the weather and seasons.[36] The building features 11,000 panes of glass, with a total surface area of 602,779 square feet (56,000.0 m^2) equivalent to the area of almost eight Wembley football pitches.

The Shard was designed with energy efficiency in mind. It is fitted with a combined heat and power (CHP) plant, operating on natural gas from the National Grid. Fuel is efficiently converted to electricity, and heat is recovered from the engine to provide hot water for the building.[37]

Following the destruction of New York's World Trade Center (WTC) in the terror attacks of 11 September 2001, architects and structural engineers worldwide began re-evaluating the design of tall structures. The Shard's early conceptual designs were among the first in the UK to be amended following the publication of the US National Institute of Standards and Technology (NIST) report into the collapse of the WTC. The building is designed to maintain its stability under very onerous conditions,[38] with its post-tensioned concrete and composite floors, load-bearing pillars and tapering shape giving it a sway tolerance of 400 millimetres (16 in).[39]

Selected international architecture. 1990's until present.

Renzo Piano Jean-Marie Tjibaou Cultural Centre

The **Jean-Marie Tjibaou Cultural Centre** (French: ***Centre culturel Tjibaou***), on the narrow Tinu Peninsula, approximately 8 kilometres (5.0 mi) northeast of the historic centre of Nouméa, the capital of New Caledonia, celebrates the vernacular Kanak culture, the indigenous culture of New Caledonia, amidst much political controversy over the independent status sought by some Kanaks from French rule. It opened in June 1998 and was designed by Italian architect Renzo Piano and named after Jean-Marie Tjibaou, the leader of the independence movement who was assassinated in 1989 and had a vision of establishing a cultural centre which blended the linguistic and artistic heritage of the Kanak people.[1][2]

The Kanak building traditions and the resources of modern international architecture were blended by Piano. The formal curved axial layout, 250 metres (820 ft) long on the top of the ridge, contains ten large conical cases or pavilions (all of different dimensions) patterned on the traditional Kanak Grand Hut design. The building is surrounded by landscaping, which is also inspired by traditional Kanak design elements.[2][3][4] Marie-Claude Tjibaou, widow of Jean Marie Tjibaou and current leader of the Agency for the Development of Kanak Culture (ADCK), observed: "We, the Kanaks, see it as a culmination of a long struggle for the recognition of our identity; on the French Government's part it is a powerful gesture of restitution."[2]

The latter of these locations—the capital of the Pacific island cluster of New Caledonia—may seem a misfit on this list to those who have still not heard of it, now sixteen years after the completion of Renzo Piano's Tjibaou Cultural Center, but it most certainly is not: the transformative economic effect of this project on the city of Nouméa has been no less dramatic than that of any opera house or museum of greater renown. Since the Center's completion, New Caledonia has found itself in the international architectural spotlight, as the graceful, ephemeral design of the building's iconic shells has brought fame and business in equal parts to its island and to Piano's firm.

Selected international architecture. 1990's until present.

Renzo Piano Jean-Marie Tjibaou Cultural Centre

Sensitively using traditional Kanak chiefs' houses as a starting point, the architects manipulated and deconstructed their form to create a monumental sequence of rounded, airy shells. Ten of them stretch along the hillside, varying in height from 20 to 28 meters and casting a commanding presence over the Pacific shoreline. Within and between them, a carefully choreographed procession of museum spaces takes visitors on a journey that weaves back and forth between intimate indoor enclosures and the surrounding island landscape.

Like the Kanak architects before them, Piano's concept emphasizes the influence of site and environment as determinants of design and performance. The form of the shells negotiates a blend of traditional construction methods and a tapered, dematerializing profile that beautifully plays off the texture of the surrounding trees. Exterior voids worked into the plan and fenestrations in the building envelopes physically open the project to the site and deepen the inhabitants' sense of place. An intelligent passive ventilation system removes the need for air conditioning, making the building's clean, natural air supply an experiential part of the Center's design. Even the interrelationship of building clusters, arranged in a layout similar to the *grand allée* plan of traditional Kanak villages, is dependent on a continuous stream of movement between enclosed and exterior spaces. [2]

Selected international architecture. 1990's until present.

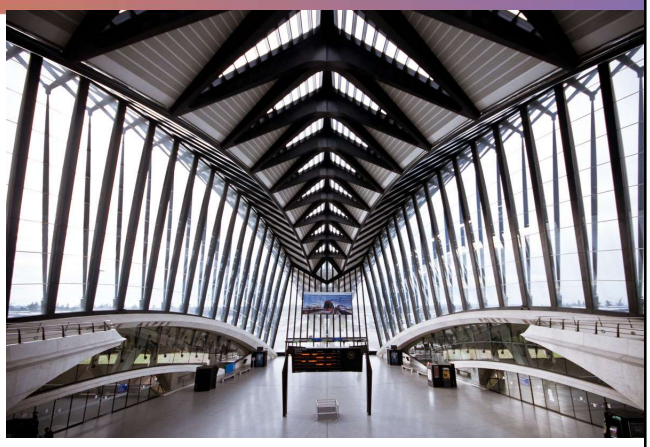
Renzo Piano Jean-Marie Tjibaou Cultural Centre

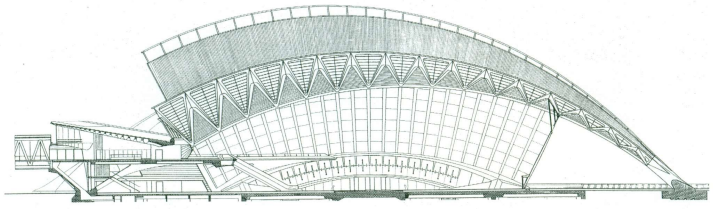
For that reason, Piano designed the complex including many references to Kanak's traditional architecture. For example, the center consists of **ten circular pavilions**, of three different sizes, inspired by the traditional cone-shaped wooden hut, called *Grand Case*, which forms the main venue for the activities of New Caledonia's villages as well as the residence of their chiefs.
Yet, unlike the traditional huts, which are semi-temporary structures made of locally-harvested vegetable fibers, the center's pavilions are built with durable materials, including iroko wood, laminated timber, aluminum, steel, and glass

Selected international architecture. 1990's until present. Santiago Calatrava

Like a giant bird. Satolas takes passengers from Lyon airport. 40 m high concrete arches for station serving 300kph high speed trains. Wings either side are sun screens and architect thinks of building as an eye rather than a bird.

Selected international architecture. 1990's until present. Santiago Calatrava



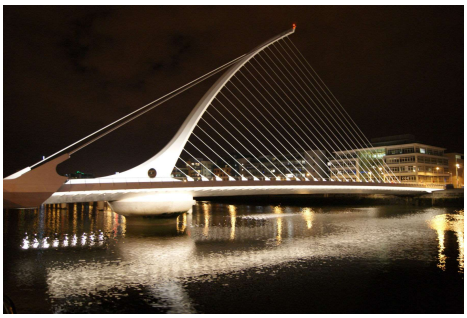


Like a giant bird. Satolas takes passengers from Lyon airport. 40 m high concrete arches for station serving 300kph high speed trains. Wings either side are sun screens and architect thinks of building as an eye rather than a bird.

Selected international architecture. 1990's until present. Santiago Calatrava

Florida Polytechnic by Calatrava

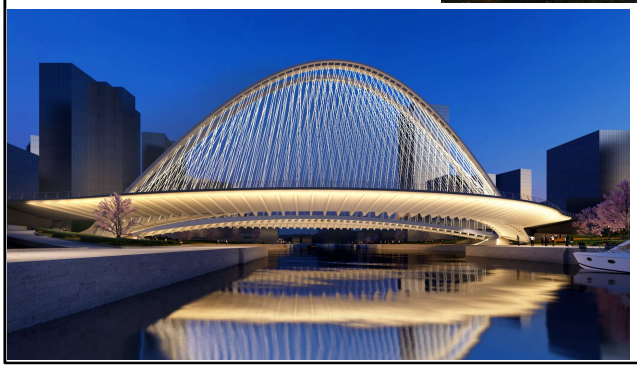
Samuel Beckett Bridge , Dublin. 2007



Florida polytechnic by Calatrava

Selected international architecture. 1990's until present. Santiago Calatrava

Xianbi Bridge. Calatrava , one of three designed for Chinese city of Huashan



Xianbi Bridge. Calatrava , one of three designed for Chinese city of Huashan

Selected international architecture. 1990's until present. Santiago Calatrava

Auditorio of Tenerife

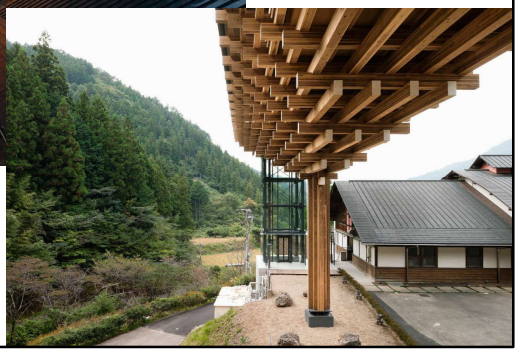
Museum of tomorrow in Rio.

Cuidad of Sciences Valencia.

Studied architecture then engineering

Designed and built lots of bridges.

Selected international architecture. 1990's until present. Kengo Kuma

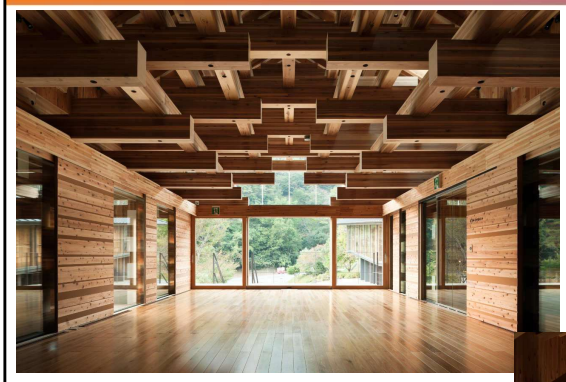


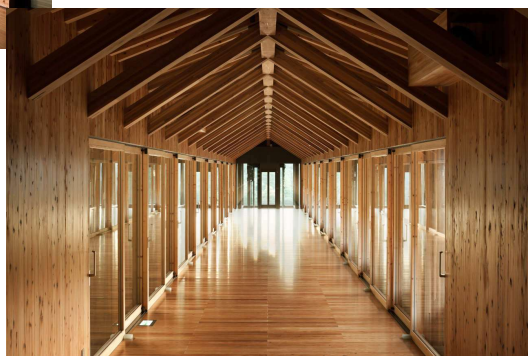
Yusuhara wooden bridge museum.

Museum of 2010 in Kochi Japan. Uses traditional materials to create distinctive structure yet in harmony with its context and environment. Intricate wooden beam structure based on cantilevers of traditional Japanese temple roofs. Museum apparently held up on a slender wooden pillar from which beams fan out to support bride like building.

Pillar alone cannot support the loads so glass and steel towers at each end provide additional support but dark metal frames and clear glass minimize their visual impact.

Selected international architecture. 1990's until present.





Japanese cedar wood used extensively.

Smooth polished wooden floors .

Glass doors lead off to rooms either side providing interior with light and adding transparency to the walls.

Selected international architecture. 1990's until present.

Rozak House. 2002
N Territories , Australia
Adrian Welke , Troppo architects

Evolution of " Green architecture" which attempts to roll back climate change and global warming has become one of the foremost issues of the 21st century as the world tries to mitigate what is already perhaps irreversible damage.

D Cruickshank thinks Rozak a very effiecnt riposte to the environmental challenges but is aesthetically pleasing , with a particular character and visual balance.

Green means non polluting if possible including how components are made and transported to a site. Includes also the construction process and building in operation.

Sustainabale materials from renewable resources. Building generating its own energy and dispose of waste in a sustainable and non polluting way

ZERO RATED - when the total energy consumed by a building is equal to the amount of renewable energy generated on site , this prized target and goal is achieved.

Orientated to the sun for solar power and uses prevailing winds for ventilation.

Materials which insulate well and available locally

Green building can too often appear mechanical though so there ae aesthetic and visual challenges to counteract this.

Selected international architecture. 1990's until present.

Rozak House. 2002
N Territories , Australia
Adrian Welke , Troppo architects

Architects claimed to have learnt form local aboriginal traditions. Connecting indoors with out. 3 pavilions connected via boardwalks.

Alight elegant steel structure which resists termites and fire

Various cladding systems are used to insulate on one elevation whilst another is designed to allow ventilation and exhaust tropical moisture. Cypris pine slatsin the floor allow air to circulate and humid moisture to seep out.

Solar panels are on roof and rainwater is harvested.

Extreme climate does not provide enough solar power to run mech ventilation and various domestic appliances so the building is very energy conscious and attuned to the cycles of the day and seasons. There are actually sunrise and sunset rooms.

Achieves zero energy and very low carbon emission figures.

2002 Australian sustainable architecture award

Topic recap and societal context discussion.

From all the preceding slides and photographs , use the notes that you took during the class lecture and discussion to make a list of the following -:

The major factors that architects take into account in designing a modern building for the 21st Century .

What you think is the societal context in which these works were produced ?

What technological trends or advances have been made in these periods and influenced the building designers in coming up with their various distinctive proposals?

It is suggested you do this exercise as a group and come up with answers that everyone has contributed too and agrees with.

Sustainability, Cost , Energy conservation, Recycling , Embodied energy, Green Star , Home star , NABERS Australia and NZ. CAD and BIM.

Security – especially at airports. Future proofing(ability to move and be compatible with changing technologies and ways of working)

Regional and National identity. – Cultural Diversity and Identity Open Government visible eg Recihstag and Welsh Parliament

New Technologies and materials. Designs which can be visualized and modelled in BIM

Collaboration

Health and Safety- OSH , CDM regulations in the UK and similar in NZ.

Procurement methods- new contracts, PPP approach to funding. Joint ventures. Fast track, Lean Building Pre fabrication.

Buildings as Icons and marketing of cities.