

Design and Ideology of Architecture from the 20th Century to the 21st Century 二十至二十一世紀建築的設計與意識形態

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<http://acp.arch.hku.hk>



Architectural designs (or “styles”) are like the martial arts – different forms founded by different masters upon different philosophies. There are those that adhere to formal purity (like Olympic Boxing), and those that have mixed, eclectic expressions (like Mixed Martial Arts).

Quotable quote by Lee Ho Yin

建築設計（「風格」）有如武藝，各門各派，有師有祖，有哲有學，有形有式，有少林正宗的純正表現，亦有混合各家各法的雜家演繹。

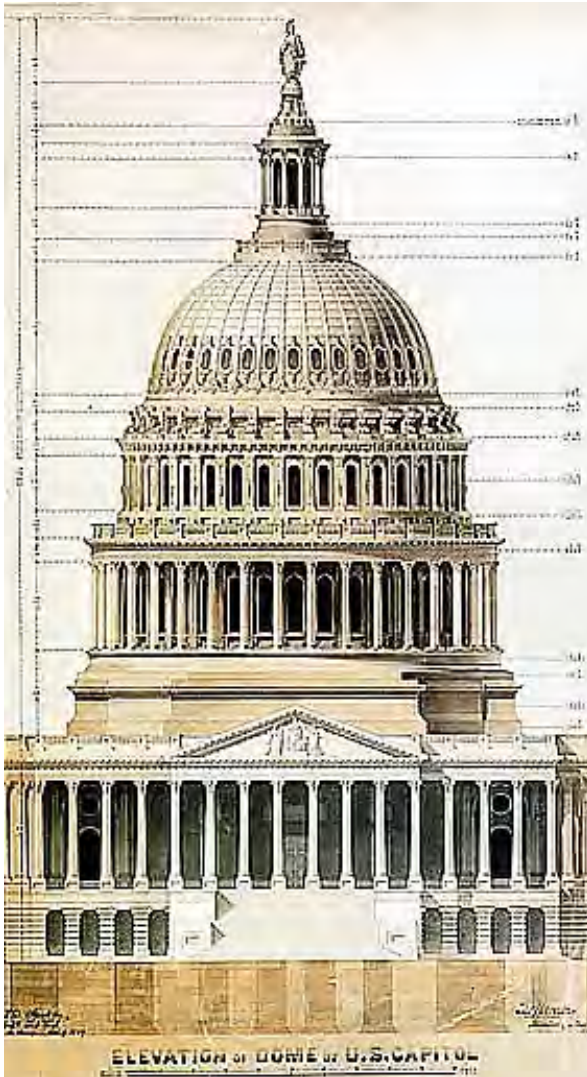
李浩然的「建築武林論」

Neo-classical Architecture 新古典主義建築
Golden period: 19th century to the 1930s

Neo-classical Architecture 新古典主義建築

Neo-classical Architecture, or Neo-classicism in architecture, plays up the grandeur appearance of Classical architecture. It is inspired by the monumental public buildings of ancient Rome. It is an effective expression of state power and has often been used for this purpose.

US Capitol Dome (1866)



USSR's Zaryadye Administrative Building (1934)



Nazi Germany's Reich Chancellery (1939)



Neo-classical Architecture: the Greek Temple as the stylistic reference

Greek temple



Neo-classical Architecture: British Museum, UK (1850)



Image source: Wikimedia Commons

Neo-classical Architecture: Philadelphia Museum of Art, USA (1928)



Neo-classical Architecture: Supreme Court Building, USA (1935)



Image source: Wikimedia Commons

Neo-classical Architecture in Hong Kong: St. Margaret's Church (1925) Christ the King Chapel (1928)



Neo-classical Architecture: the Greek Temple as the stylistic reference

Greek temple



Neo-classical Architecture: Altes Museum, Germany (1830)



Neo-classical Architecture: Lincoln Memorial, USA (1922)



Neo-classical Architecture: Old City Hall, Singapore (1929)



Image source: Lee Ho Yin

Neo-classical Architecture in Hong Kong: Old South Kowloon Magistracy (1936)

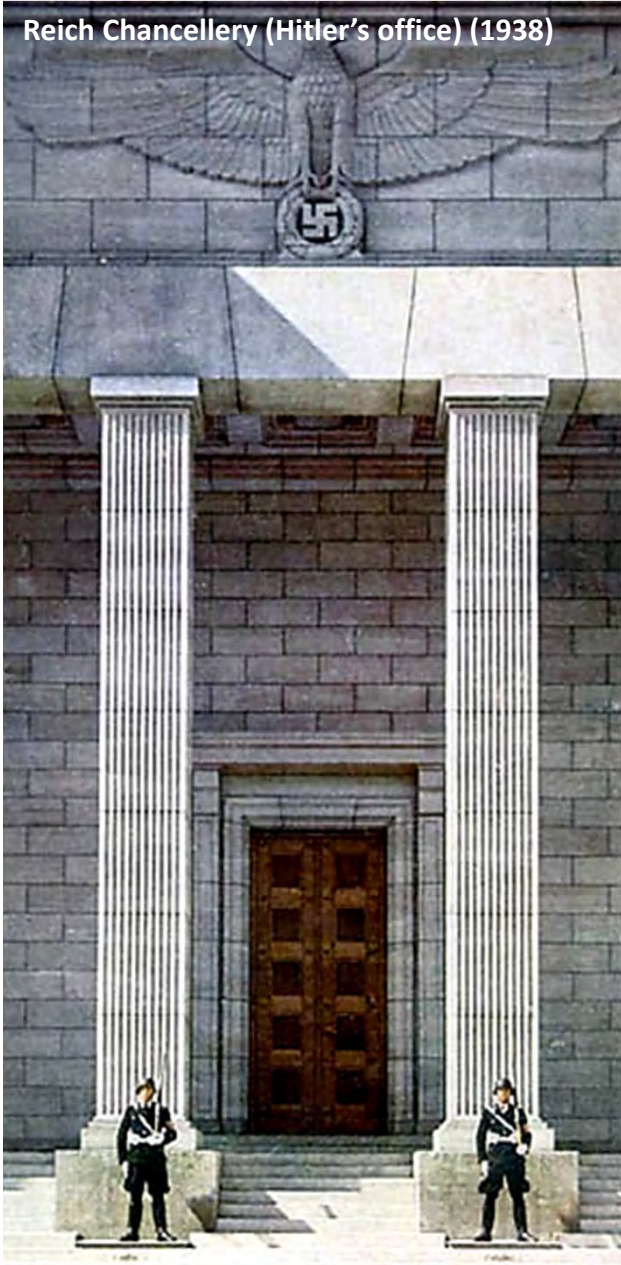


Image source: Chong Fat at Wikimedia Commons

Variation of Neo-classicism: Stripped Classical Architecture of the 1930s

Examples in Nazi Germany, designed by architect **Albert Speer** (1905-1981)

Reich Chancellery (Hitler's office) (1938)



Zeppelinfeld Stadium (1937)



Image source: www.theapricity.com; montaigne.altevista.org; www.thirdreichruins.com

Variation of Neo-classicism: Stripped Classical Architecture of the 1930s

Examples in the United States

San Francisco Mint (1937)



Stewart Lee Udall Department of the Interior Building (1936)

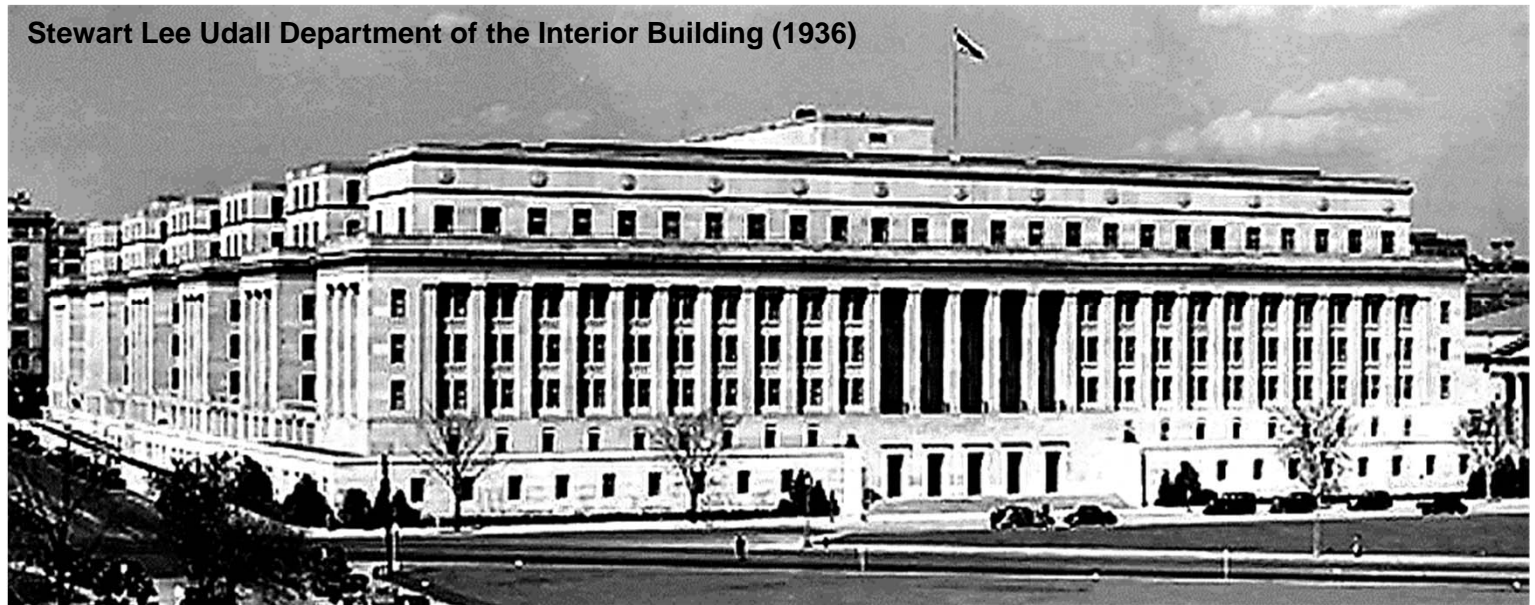
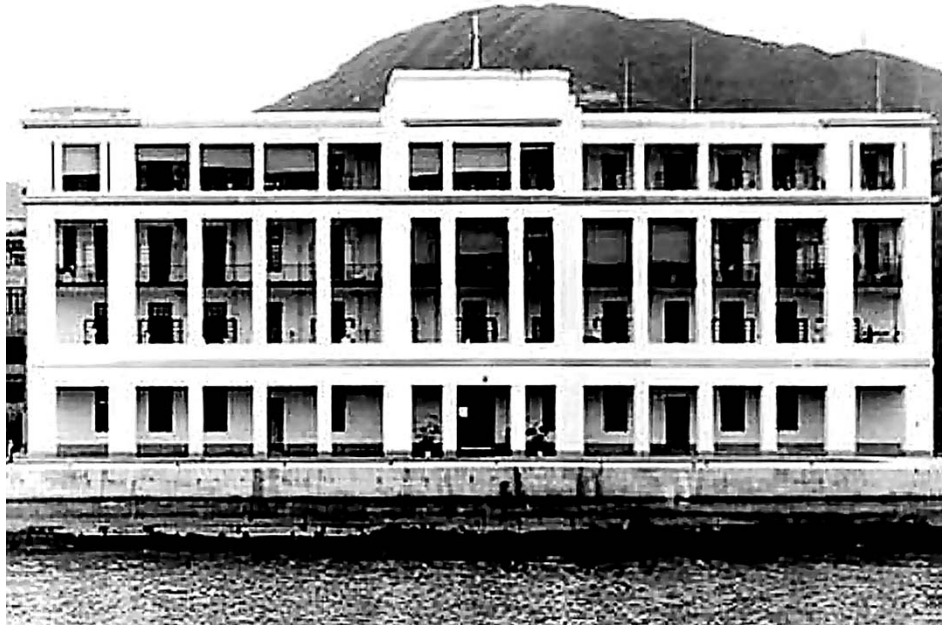


Image source: Wikipedia Commons; www.doi.gov

Variation of Neo-classicism: Stripped Classical Architecture of the 1930s

Examples in Hong Kong



Old Wan Chai Police Station (1932)



Variation of Neo-classicism: Stripped Classical Architecture of the 1930s

Examples in Hong Kong



Upper Levels Police Station (Police Station No. 8) (1935)



Queen Mary Hospital Nurses Quarters, Hong Kong (1937)

Fake-classical Architecture! 假古典主義建築

Neo-classicism in architecture is often admired by people eager to project power and status. As such, it becomes a favourite of the *nouveau riche*, unsophisticated governments and commercial developers. 無品味暴發戶至愛 – Fake-classicism!

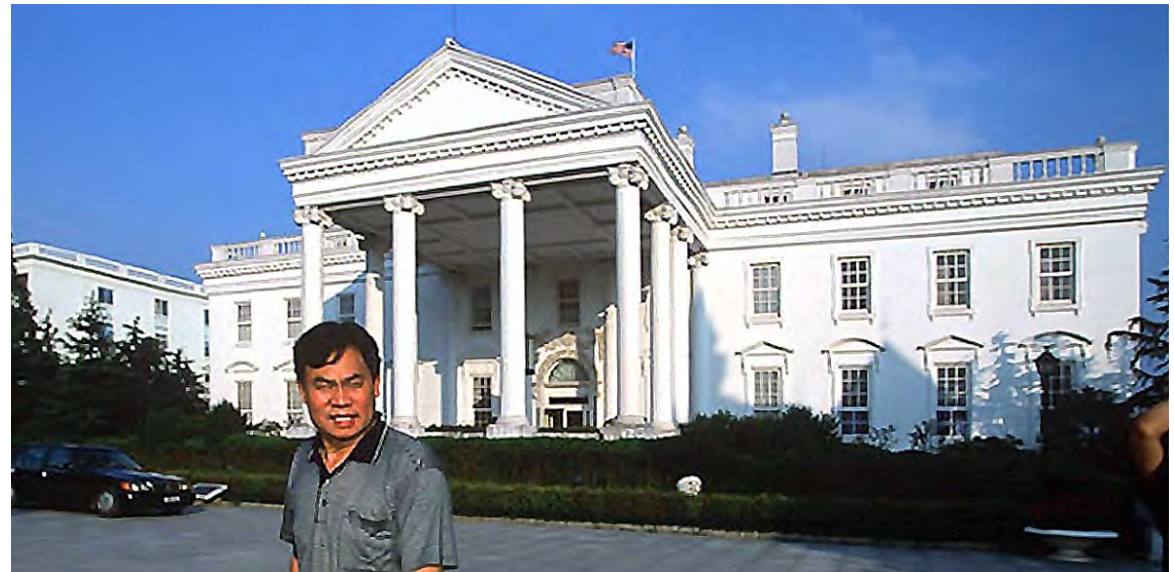


Image source; mashable.com; www.nextnature.net;

Fake-classical Architecture! 假古典主義建築

Neo-classicism in architecture is often admired by people eager to project power and status. As such, it becomes a favourite of the *nouveau riche*, unsophisticated governments and commercial developers. 無品政權至愛 – Fake-classicism!



Image source: www.ra-re.org; prafulla.ne; www.twylah.com

Fake-classical Architecture in Hong Kong! 香港假古典主義建築

Neo-classicism in architecture is often admired by people eager to project power and status. As such, it becomes a favourite of the *nouveau riche*, unsophisticated governments and commercial developers. 無良地產商至愛 – Fake-classicism!



Image source: Lee Ho Yin

Modern Architecture 現代主義建築
Golden period: the 1950s to the 1970s

Modern architecture 現代主義建築

Modern architecture, or Modernism in architecture, is based on the principle of Functionalism, in which the aesthetics is derived from function and not decoration. This principle is summarized by the Modern architect's maxim, **“form follows function.”** The resultant architecture often has an utilitarian appearance that is not easily appreciated or understood – the buildings look like boxes!



Image source: www.nysid.net; Wikimedia Commons; www.magic-cities.com; www.ananasamiami.com

Modernism in Architecture (developed in the 1920s and 1930s)

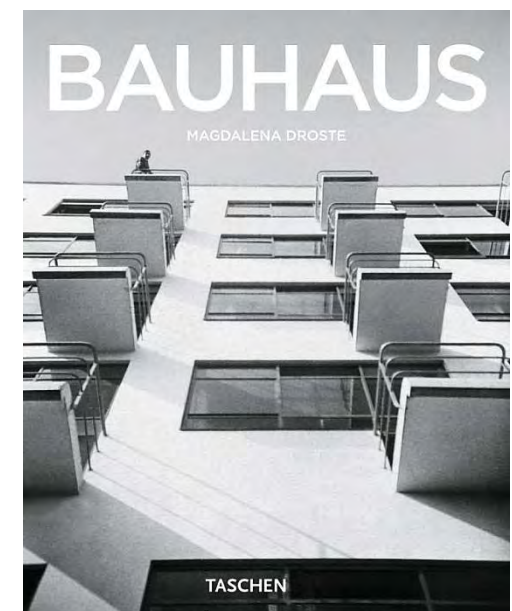
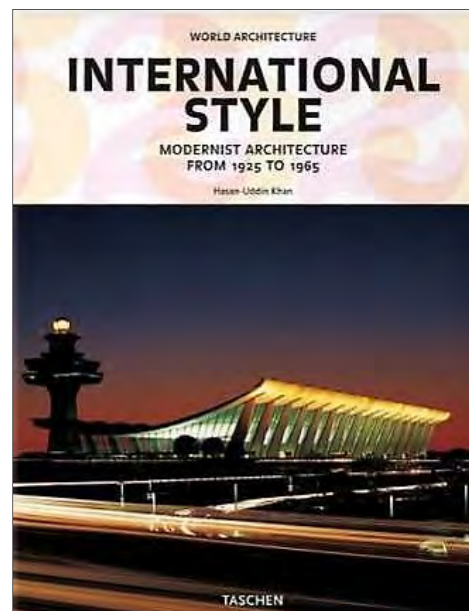
What's in a Name?

Modern Architecture = the “proper” name used by architects

Modernist Architecture = an alternative name sometimes used by non-architects; you won't find it on any architectural book cover!

International Style = a name used mostly in the US; created for the 1932 MOMA exhibition *The International Style: Architecture since 1922*

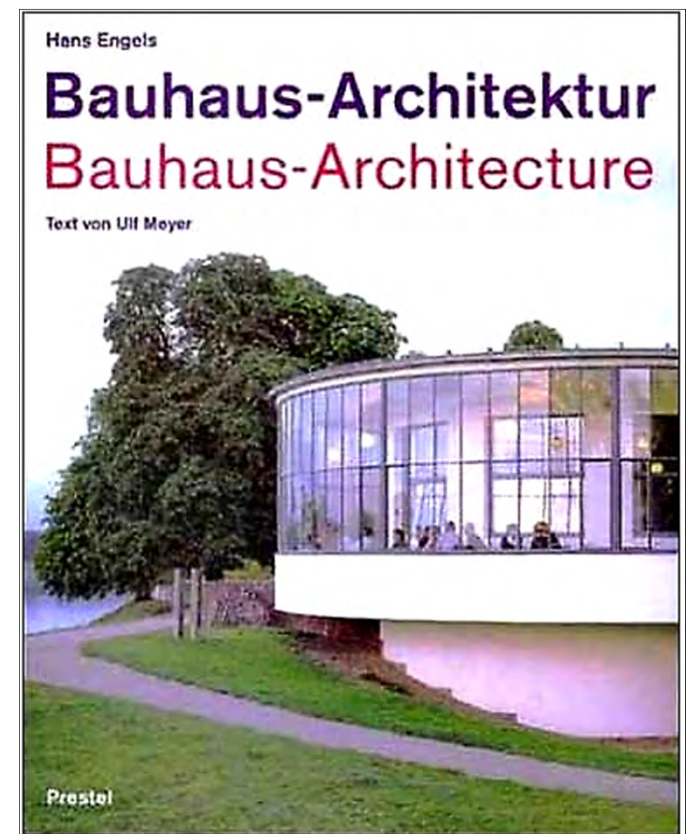
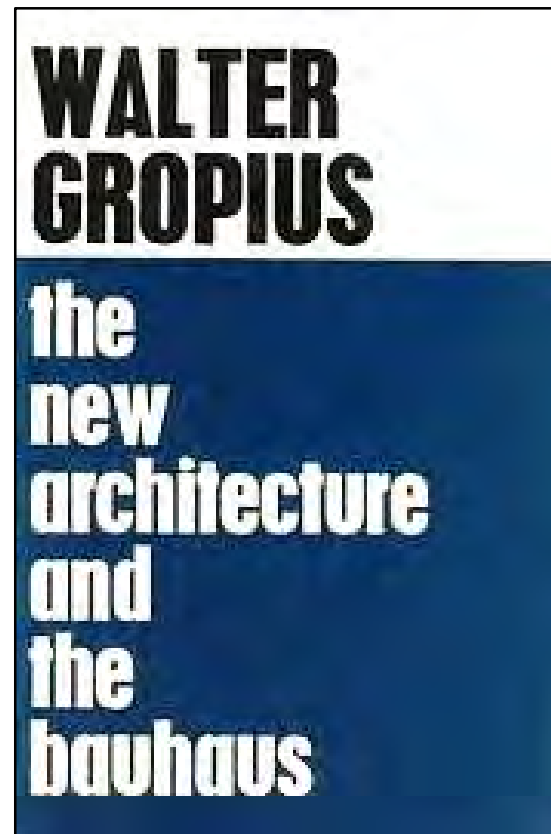
Bauhaus Style = a popular name used in Hong Kong to refer to **early Modern Architecture from the 1930s to the 1960s**.



Modernism in Architecture (developed in the 1920s and 1930s)

What's in a Name?

“Bauhaus” is not a style. Properly, Bauhaus architecture refer to buildings designed by architects with direct association with or influenced by the pre-W.W.II Bauhaus School of Design (1919-1933).



Bauhaus School of Design



Bauhaus was founded by the German architect **Walter Gropius** in 1919, it was first established in Weimar (1919-25), then moved to Dessau (1925-32) and finally Berlin (1932-33). Despite its influence, Bauhaus waned in the 1930s when the Nazi regime closed the school and exiled the directors.

Text adapted from Cyril M. Harris (ed.), *Illustrated Dictionary of Historic Architecture* (New York: Dover Publications, 1977), p.55, and “Buffalo as an Architectural Museum”: <http://www4.bfn.org/bah/a/DCTNRY/i/intrntl.html>

Bauhaus School of Design



Bauhaus' way of design was revived and widely adopted after W.W.II as its emphasis on functional aesthetics and mass production is inherently suited to the massive rebuilding of war-damaged cities. Today, Bauhaus Weimar and Bauhaus Dessau are **World Heritage Sites**.

Text by Hoyin Lee

Modern architecture 現代主義建築

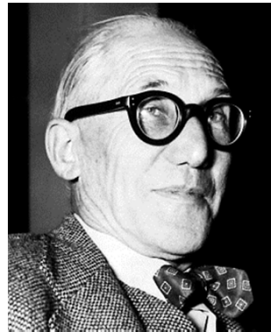
Four architects whose works defined Modern architecture:

Walter Gropius (1883-1969), German-American architect and the founding director of the Bauhaus School of Design

Ludwig Mies van der Rohe (1886-1969), German-American architect and the last director of the Bauhaus School of Design

Le Corbusier (1887-1965), Swiss-French architect

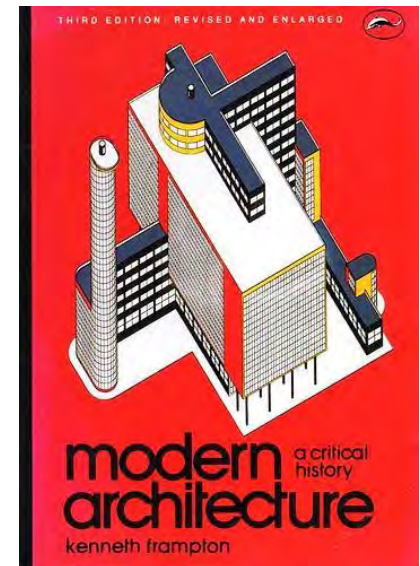
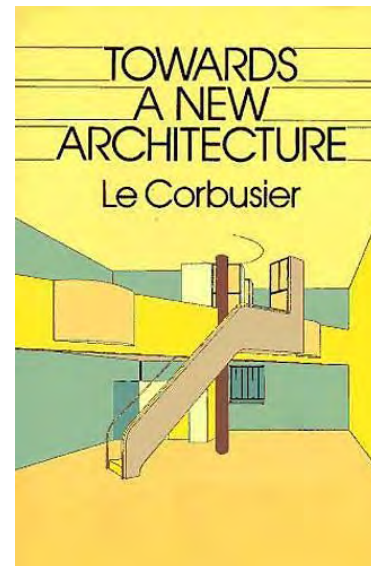
Louis Kahn (1901-1974), Estonian-American architect and Professor at the University of Pennsylvania



Two required textbooks on for architecture students:

Towards a New Architecture (Vers Une Architecture) by Le Corbusier, first published in French in 1923 and in English in 1927.

Modern Architecture: A Critical History, by Columbia University Professor of Architecture, Kenneth Frampton, first edition published in 1980 (now in fourth edition)





Louis Kahn
and the mystification of Modern Architecture

"Head-scratching" quotes of Louis Kahn 路易簡的「掙頭」寓言

A great building must begin with the unmeasurable, must go through measurable means when it is being designed and in the end must be unmeasurable.

Architecture is the reaching out for the truth.

Consider the momentous event in architecture when the wall parted and the column became.

Every time a student walks past a really urgent, expressive piece of architecture that belongs to his college, it can help reassure him that he does have that mind, does have that soul.

You say to a brick, 'What do you want, brick?' And brick says to you, 'I like an arch.' And you say to brick, 'Look, I want one, too, but arches are expensive and I can use a concrete lintel.' And then you say: 'What do you think of that, brick?' Brick says: 'I like an arch.'

All material in nature, the mountains and the streams and the air and we, are made of Light which has been spent, and this crumpled mass called material casts a shadow, and the shadow belongs to Light.

Architecture appears for the first time when the sunlight hits a wall. The sunlight did not know what it was before it hit a wall.

The sun is. Thus the Universe. Did we need Bach? Bach is. Thus music is. Did we need Boullée? Did we need Ledoux? Boullée is. Ledoux is. Thus Architecture is.

ARRRRRRGH!!! 

Louis Kahn, the international star

★★★★★
"BRILLIANT AND TOUCHING."
 -David Serritz, THE CHRISTIAN SCIENCE MONITOR

"SPELLBINDING..."
 A Citizen Kane-Like Meditation.
 -Robert Koller, NEW YORK MAGAZINE

"GRIPPING DRAMA AND SUSPENSE,"
 There are Few Fictional Movies that can Hold a Candle to Mr. Kahn's Odyssey Through Time and Space!
 -Andrew Sarris, NEW YORK OBSERVER

"BRILLIANT!"
 A Wonder of a Movie.
 -Herbert Muschamp, THE NEW YORK TIMES

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- Original Theatrical Trailer
- Scene Selections

THE LOUIS KAHN PROJECT, IN ASSOCIATION WITH METRO-GOLDWYN-MAYER, PRESENTS A NATIONAL KAHN FILM MY ARCHITECT. A FILM BY NATHANIEL KAHN. CASTING BY JUDY NADON. COSTUME DESIGNER VERA NATHANIEL. PRODUCTION DESIGNER LARRY HONIGSMAN. MUSIC BY ROBERT EGGERMAN. EXECUTIVE PRODUCERS SUSAN RICE, DEBBY NATHANIEL, CAROLAN DANIEL, ERIK LUTERAN. PRODUCED BY SETH LUTERAN. EDITED BY STEPHEN LUTERAN. SUPERVISOR TRACY BARNHART. BASED ON JACQUES KAHN'S BOOK THE ARCHITECTURE OF LOUIS KAHN. WRITTEN BY NATHANIEL KAHN. DIRECTED BY NATHANIEL KAHN. DVD SPECIAL FEATURES: QUESTION AND ANSWER WITH DIRECTOR NATHANIEL KAHN, ORIGINAL THEATRICAL TRAILER, SCENE SELECTIONS. A NEW YORKER FILMS RELEASE. www.MyArchitectFilm.com

N-E-W YORKER VIDEO

USA. Running Time: 115 minutes. Color. In English.

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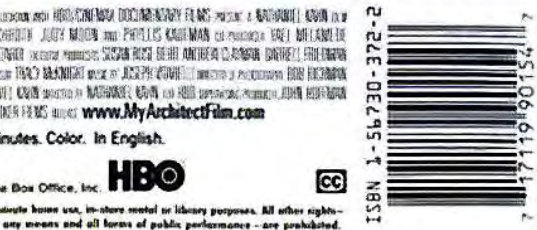
WINNER
 DIRECTORS GUILD OF AMERICA
 Outstanding Cinematography Achievement
 in Documentary • 2002
NOMINEE
 INDEPENDENT SPIRIT AWARDS
 Best Documentary • 2004

A riveting tale of love, art, betrayal and forgiveness — in which the illegitimate son of a legendary architect undertakes a worldwide exploration to discover his father's work and to understand the personal choices he made.

Louis I. Kahn is widely considered to have been the most important architect of the second half of the twentieth century. While Kahn's artistic legacy was a search for truth and clarity, his personal life was secretive and chaotic. His mysterious death in a train station men's room left behind three families — one with his wife and two with women with whom he had long-term affairs. The child of one of these relationships, Kahn's only son Nathaniel, sets out on a journey to reconcile the life and work of this mysterious, brilliant man.

Revealing the haunting beauty of his father's monumental creations and taking us to the rarified heights of the world's most celebrated architects and deep within his own divided family, Nathaniel's personal journey becomes a universal investigation of identity, a celebration of art and ultimately, of life itself.

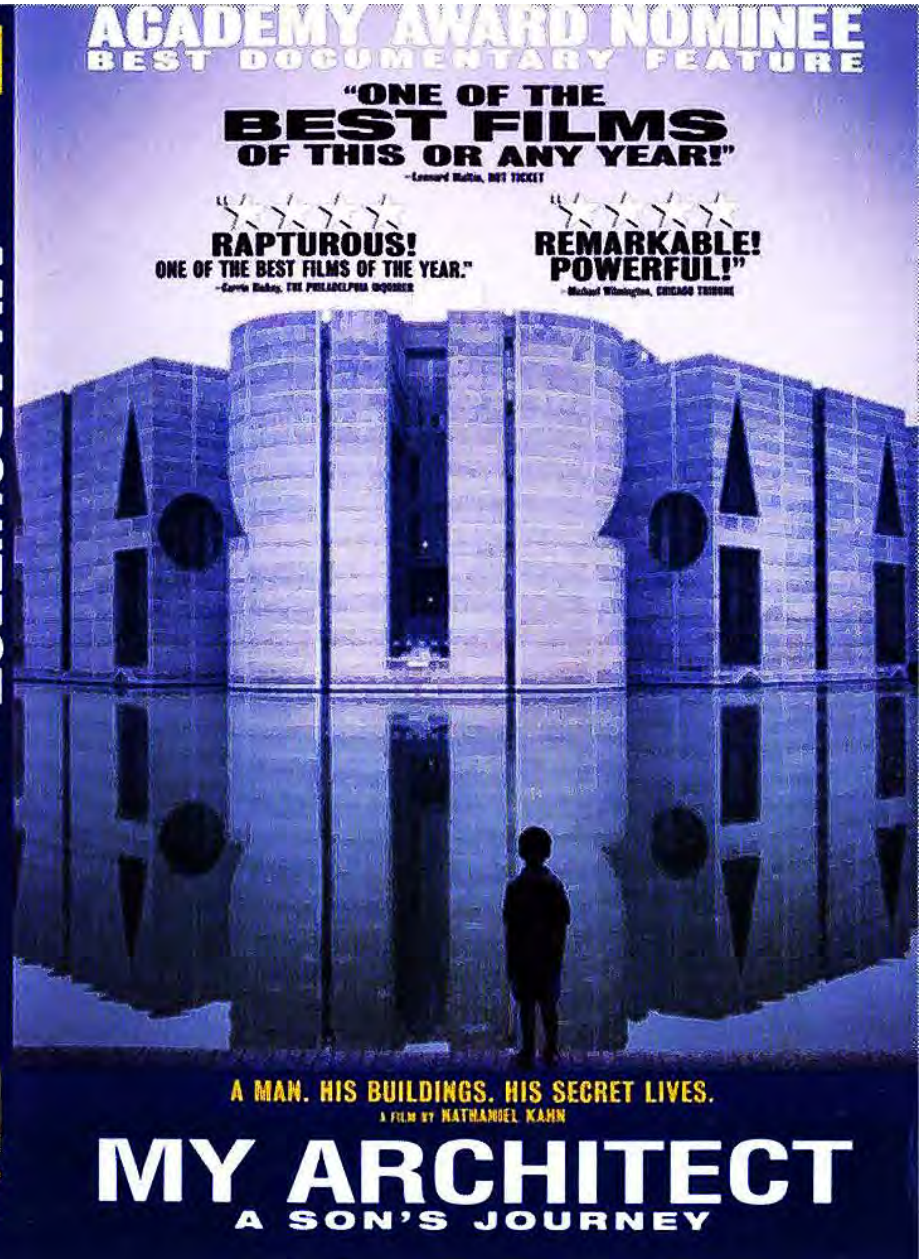
MY ARCHITECT A SON'S JOURNEY



N-E-W YORKER VIDEO

MY ARCHITECT
 A SON'S JOURNEY
 A FILM BY NATHANIEL KAHN

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ACADEMY AWARD NOMINEE
 BEST DOCUMENTARY FEATURE

"ONE OF THE BEST FILMS OF THIS OR ANY YEAR!"
 -Leonard Maltin, NYT TICKET

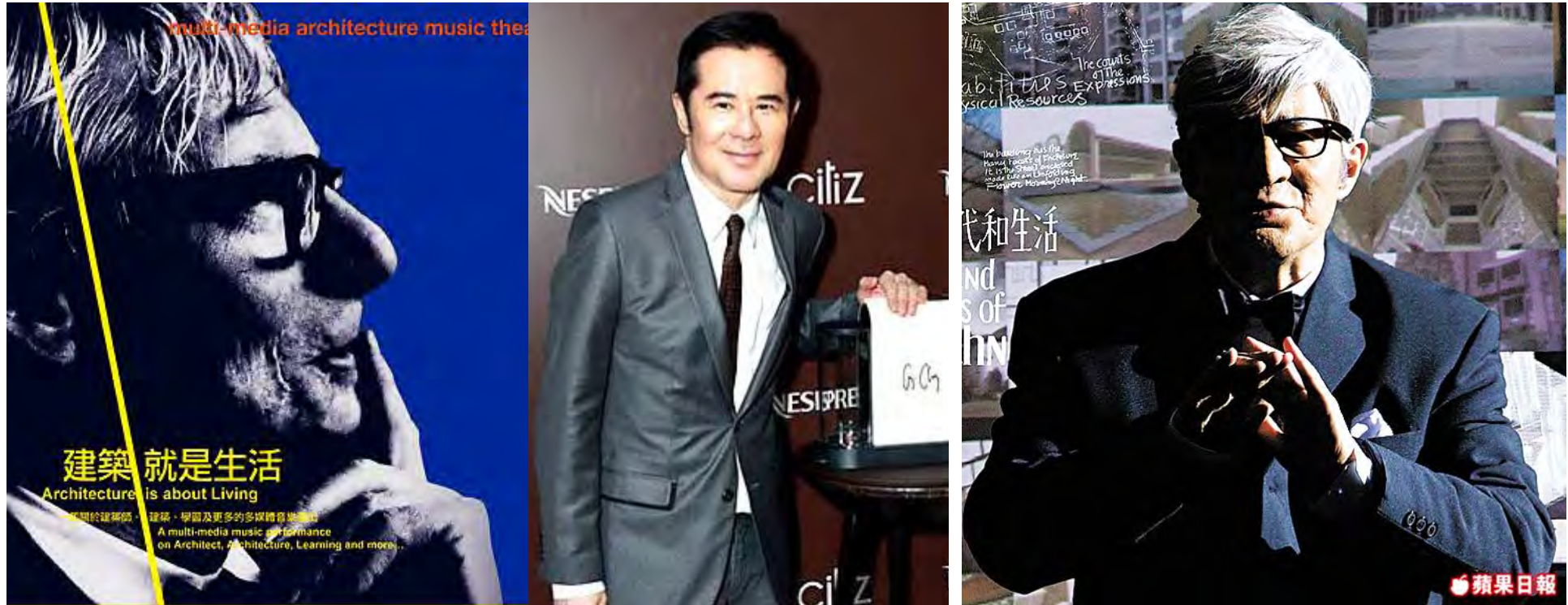
RAPTUROUS!
 ONE OF THE BEST FILMS OF THE YEAR.
 -Carmy Rabbey, THE PHILADELPHIA INQUIRER

REMARKABLE! POWERFUL!"
 -Michael Wilmington, CHICAGO TRIBUNE

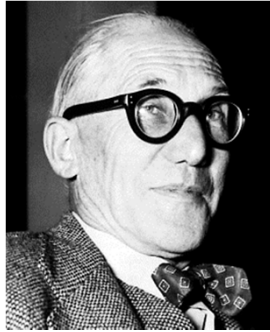
A MAN. HIS BUILDINGS. HIS SECRET LIVES.
 A FILM BY NATHANIEL KAHN

MY ARCHITECT A SON'S JOURNEY

Louis Kahn, the Hong Kong star



***The Life and Times of Louis i. Kahn* 《路易簡的時代和生活》**, a 2007 musical theatre with Kahn played by Hong Kong actor, director and screenwriter Kam Kwok-leung (甘國亮, born 1950).



**Le Corbusier
and the creation of public housing architecture**

Le Corbusier (1897-1965)

(Swiss-born Charles-Édouard Jeanneret, became French citizen in 1930)

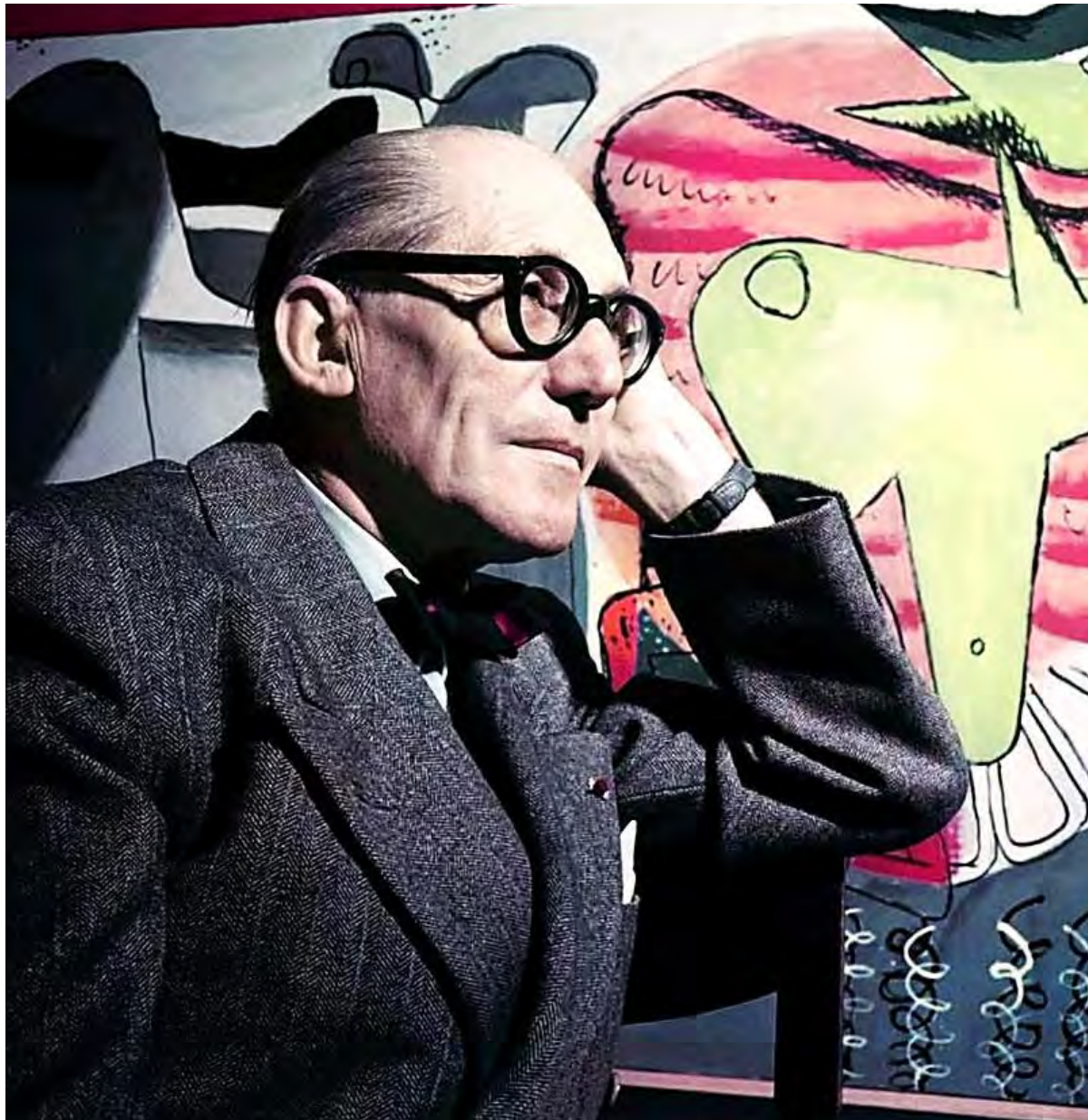


Image source: architah.com; (stamp) 123rf.com; (banknote) thebadatimes.blogspot.com

Le Corbusier's Architecture: Potential UNESCO World Heritage Sites



United Nations
Educational, Scientific and
Cultural Organization



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L'œuvre architecturale et urbaine de Le Corbusier

Description

- Maisons La Roche & Jeanneret
- Cité Frugès
- Villa Cook
- Villa Savoye & maison du gardien type CIAM
- Cité de refuge de l'Armée du Salut
- Pavillon Suisse à la Cité universitaire à Paris
- Immeuble locatif à la Porte Molitor
- Unité d'habitation à Marseille
- Usine Claude & Duval
- Chapelle Notre-Dame-du-Haut de Ronchamp
- Cabanon de Le Corbusier
- Couvent Sainte-Marie-de-la-Tourette
- Site de Firminy-Vert

Maisons Jaoul
Proposition pour une série trans-nationale

 **France**

Date of Submission: 31/01/2006

Criteria: (i)(ii)(vi)

Category: Cultural

Submitted by:
Direction de l'architecture et du patrimoine, Ministère de la Culture et de la Communication

State, Province or Region:
Aquitaine ; Franche-Comté ; Provence-Alpes-Côte-d'Azur (PACA); Lorraine ; Rhône-Alpes

Ref.: 1666

Property names are listed in the language in which they have been submitted by the State Party.

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Le Corbusier's influence on architects' fashion



Le Corbusier's architectural ideas

Le Corbusier's Unité d'Habitation, Marseille, France (1952)

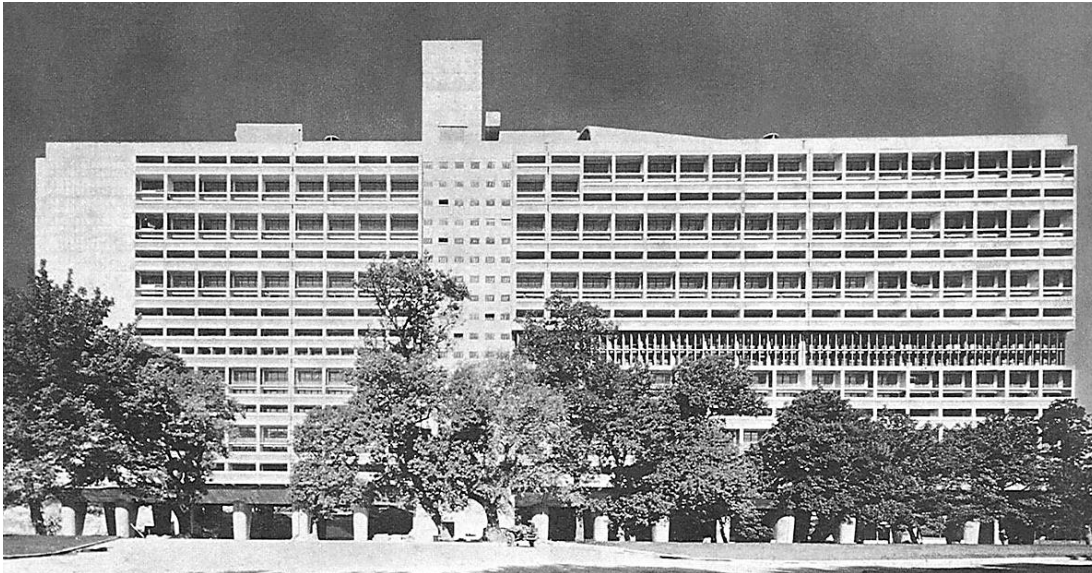
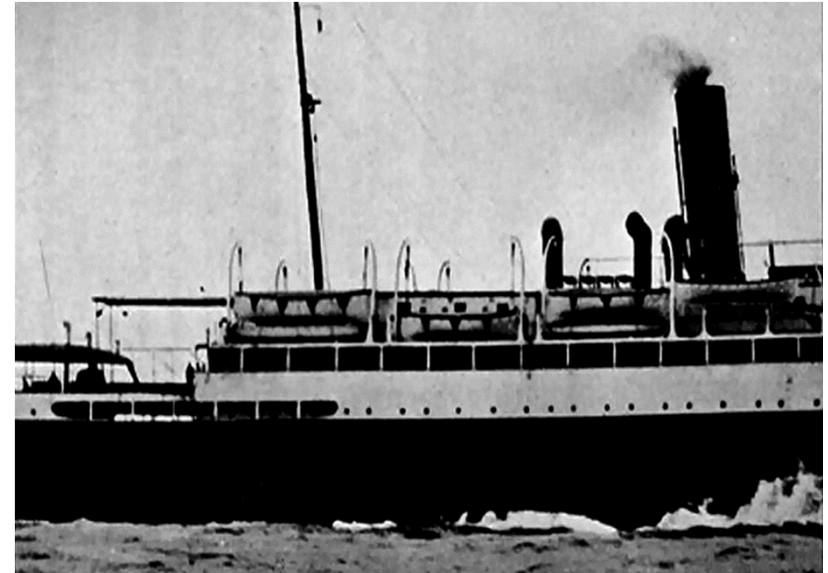


Illustration from Le Corbusier's book-cum-manifesto, *Vers une Architecture* (translated as *Towards a New Architecture*) (1927)



"The house is a **machine** for living in."

Le Corbusier, in *Vers une Architecture*, 1923

Le Corbusier's architectural ideas

Le Corbusier's Unité d'Habitation, Marseille, France (1952)



"The house is a **machine for living in."**

Le Corbusier, in *Vers une Architecture*, 1923

Le Corbusier's architectural ideas

Le Corbusier's Unite d'Habitation, Nantes-Reze (1955)



Lower Ngau Tau Kok Estate, Hong Kong (1967)



"The house is a **machine** for living in."

Le Corbusier, in *Vers une Architecture*, 1923

Le Corbusier's influence in Hong Kong's public housing

Le Corbusier's Unite d'Habitation blocks: Marseille (1952), Nantes-Reze (1955), Berlin-Westend (1957), Briey (1963), Firminy (1965)



Queenstown HDB Housing Estate, Singapore (1960s blocks)



Shek Kip Mei Estate, Hong Kong (1970s blocks)



Le Corbusier's influence in Hong Kong's public housing

The urban sprawl - high population in low-rise housing, resulting in little public open space



Image source: www.theprotocity.com

Le Corbusier's influence in Hong Kong's public housing

Le Corbusier's *Plan Voisin* for central Paris (1925) – high-population in high-rise housing, freeing up public open space



Image source: www.theprotocity.com

Le Corbusier's influence in Hong Kong's public housing

Le Corbusier's *Plan Voisin* for central Paris (1925) – high-population in high-rise housing, freeing up public open space

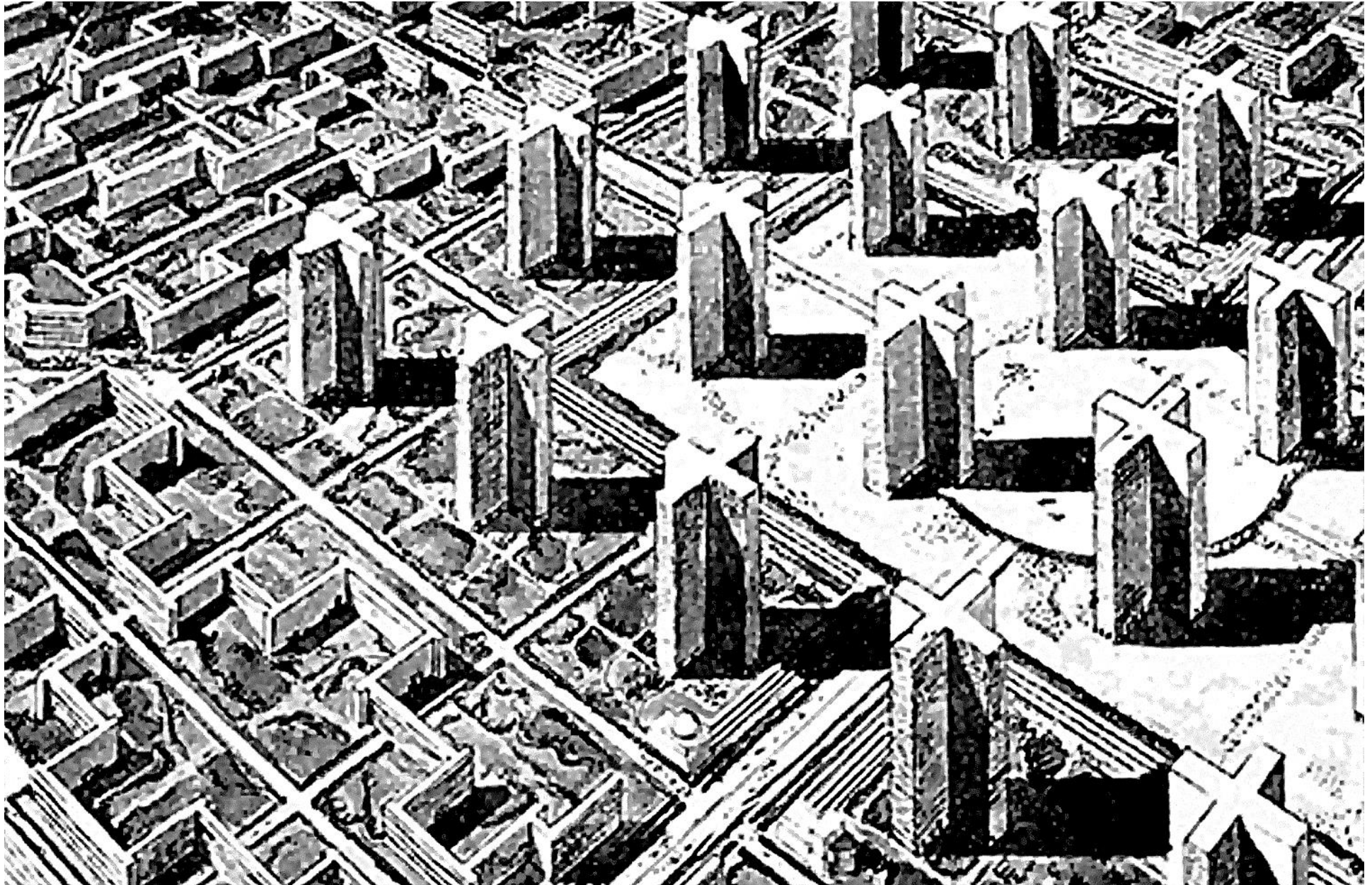


Image source: hanser.ceat.okstate.edu

Le Corbusier's influence in Hong Kong's large housing estates

Le Corbusier's *Plan Voisin*, Paris (1925)



Mei Foo Sun Chuen, Hong Kong (in phases, 1965-78)



Le Corbusier's influence in Hong Kong's large housing estates

Le Corbusier's *Plan Voisin*, Paris (1925)



Taikoo Shing, Hong Kong (in phases, 1977-87)





**Walter Gropius
and the form-follows-function Functionalism**

Functionalist design 功能主義設計 – popular from the 1950s to the 1960s

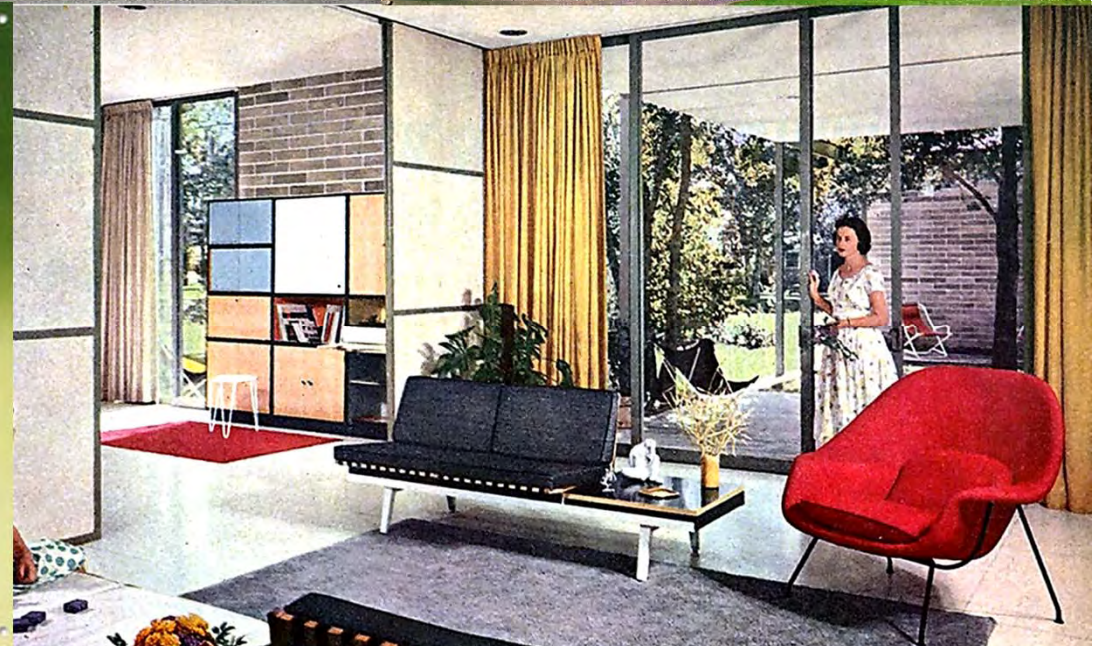


Image source: www.sony.co.jp; www.shorpy.com; albumofawesomeness.com; sgarchperspectives.blogspot.hk; www.offroadxtreme.com; www.midcenturia.com

Functionalism in architecture 功能主義建築設計 : Walter Gropius (1883-1969)

Founding director of the Bauhaus School of Design; master of the Functionalist approach to architecture

Bauhaus School of Design, Dessau, Germany
(completed in stages from 1925 to 1932)



Image source: historyofads.the-voice.com



Image source: www.arch.mcgill.ca

Walter Gropius (1883-1969)
Founding director and architect of the Bauhaus School of Design

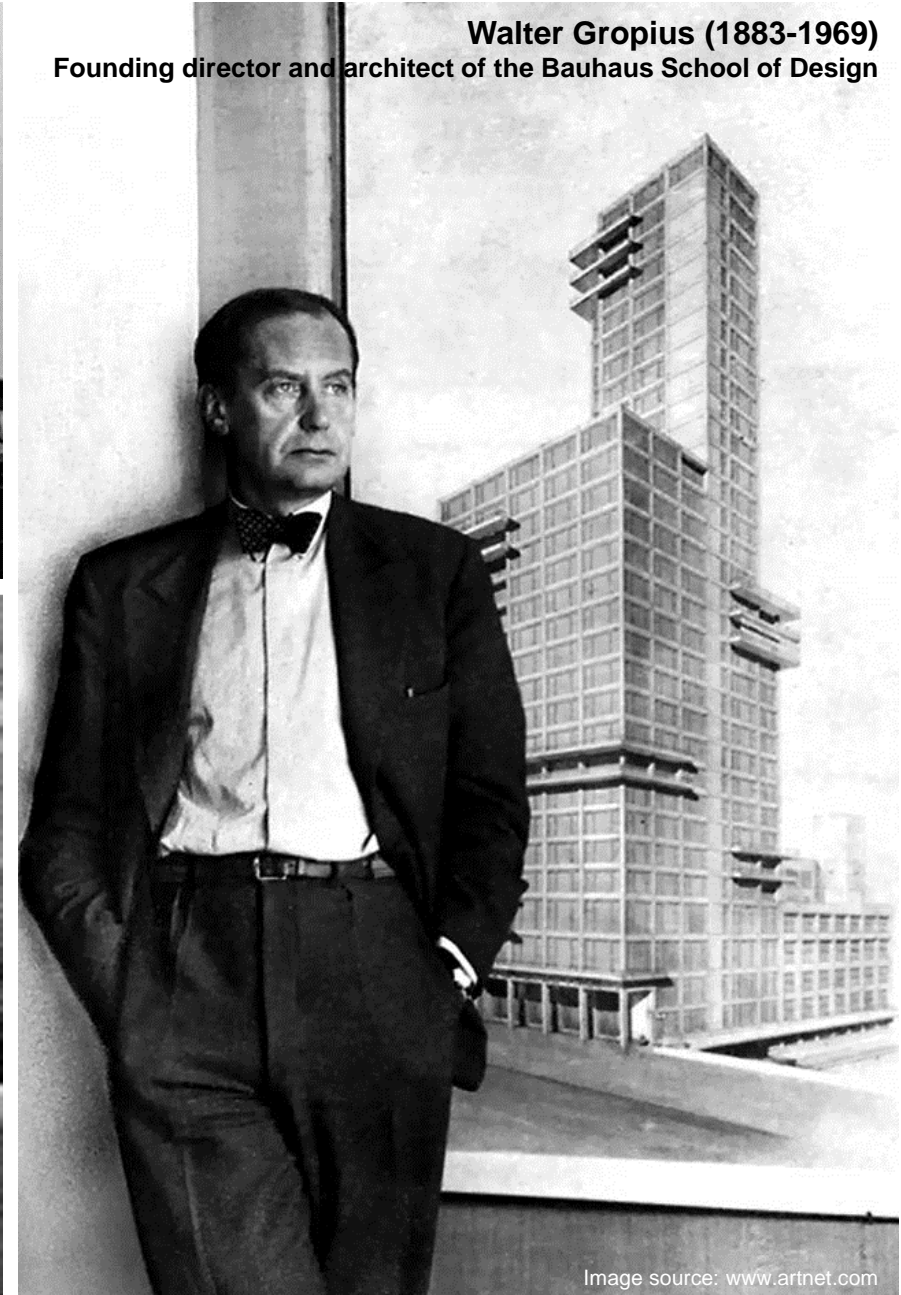
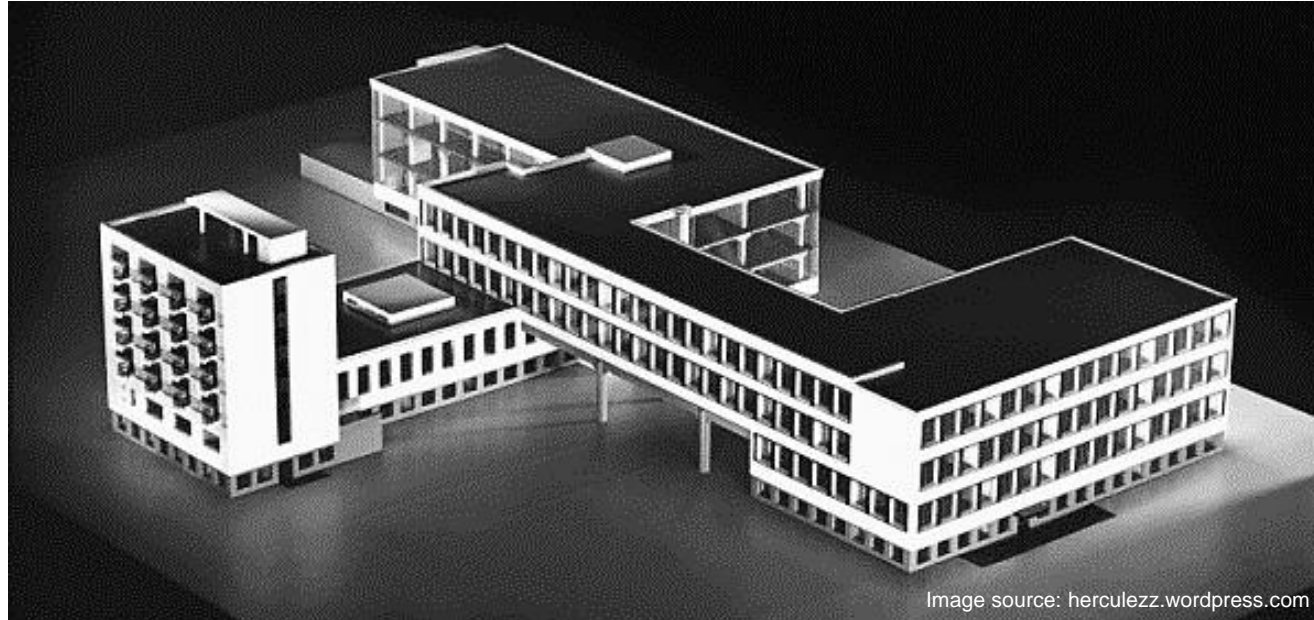


Image source: www.artnet.com

Legacy of Gropius' Functionalist approach to architecture in Hong Kong



City Hall, Ron Phillips & Alan Fitch architects (1962)



The Old CGO, Public Works Department architects (1957-1959, completed in three phrases)



Functionalist architecture CDEs: high-low block composition

**Le Corbusier's UN Headquarters,
New York (1952)**



People's Park Complex, Singapore (1973)

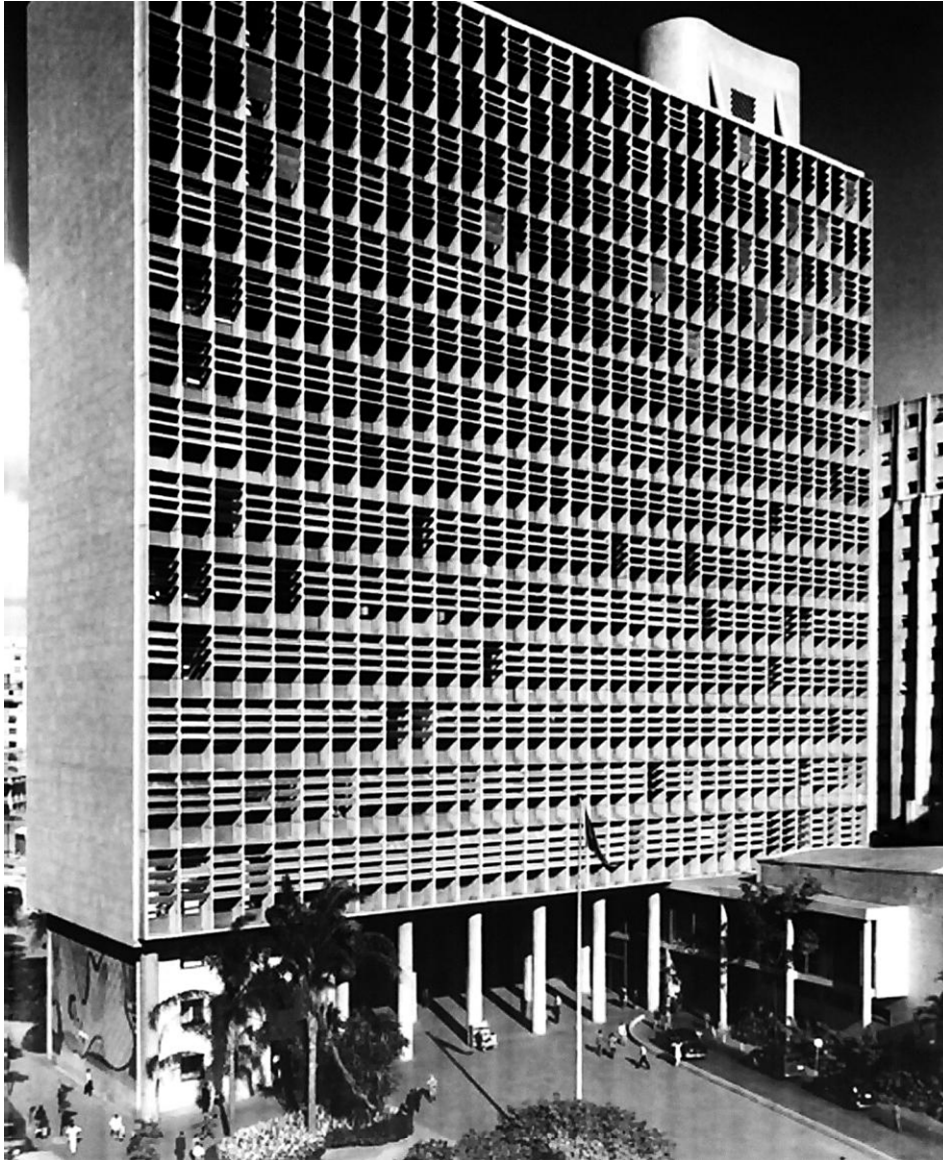


Hong Kong City Hall, Hong Kong (1962)



Functionalist architecture CDEs: "egg-crate" sun-shading fins

Ministry of Education & Health, Rio de Janeiro (1942)



HKU Knowles Building, Hong Kong (1973)



Image source: www.tumblr.com; Lee Ho Yin

Legacy of Gropius' Functionalist approach to architecture in Hong Kong

Bridges Street Market (1951), Bridges Street, Hong Kong



Image source: Lee Ho Yin

Legacy of Gropius' Functionalist approach to architecture in Hong Kong

Tang Lung Chau Market (1964), Jardine's Bazaar, Hong Kong



Image source: Lee Ho Yin



Image source: www.sony.co.jp



**Mies van der Rohe
and the less-is-more Minimalism**

Functionalist design 功能主義設計 – popular from the 1950s to the 1960s

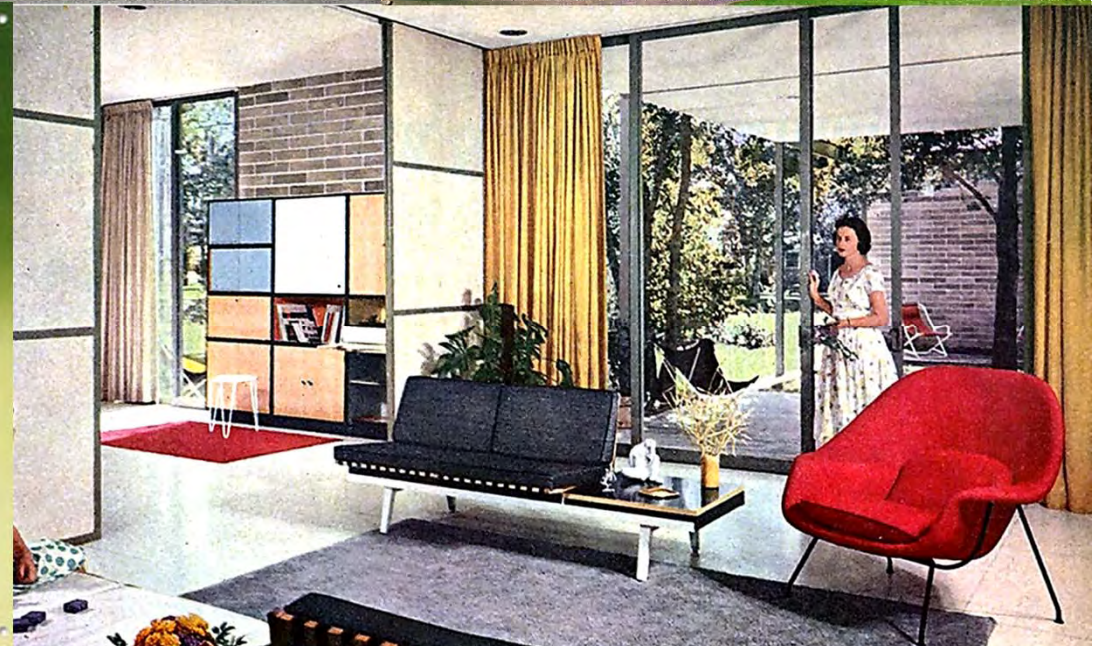


Image source: www.sony.co.jp; www.shorpy.com; albumofawesomeness.com; sgarchperspectives.blogspot.hk; www.offroadxtreme.com; www.midcenturia.com

Minimalist design 極簡主義設計 – continues to today

More difficult in the past with analogue mechanical control, more feasible today with automatic digital control

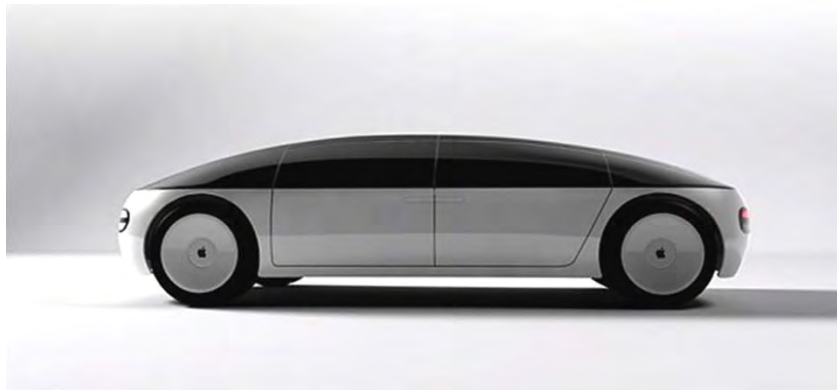


Image source: Wikipedia; ww.slashgear.com; www.displayblog.com; www.valuewalk.com; www.trendir.com; www.homedosh.com; www.homedosh.com

Minimalism in architecture 極簡主義建築設計: Ludwig Mies van der Rohe (1886-1969)

Third and last Director of the Bauhaus School of Design; creator and master of the Minimalist approach to architecture

“**Less is more**” 簡約見精華; “**God is in the details**” 精緻顯神通 - Famous quotes from Mies van der Rohe



Image source: theredlist.fr

Mies van der Rohe's Minimalist glass box

Neue Nationalgalerie (New National Gallery), Berlin (1968)



Mies van der Rohe's Minimalist glass boxes

Barcelona Pavilion, Barcelona, Spain (first built 1929, demolished 1930, reconstructed 1986) – a protected historic monument



Farnsworth House, Plano, Illinois, USA (1951) – a National Historic Landmark



Inspired by Ludwig Mies van der Rohe's Minimalist glass boxes



Image source: Internet sources

Ludwig Mies van der Rohe's really big Minimalist glass boxes

Seagram Building, New York, USA (1958)



860-880 Lake Shore Drive Apartments, Chicago, USA (1951)



Image source: designkultur.wordpress.com; chuckmanchicagonostalgia.wordpress.com

Inspired by Ludwig Mies van der Rohe's really big Minimalist glass boxes

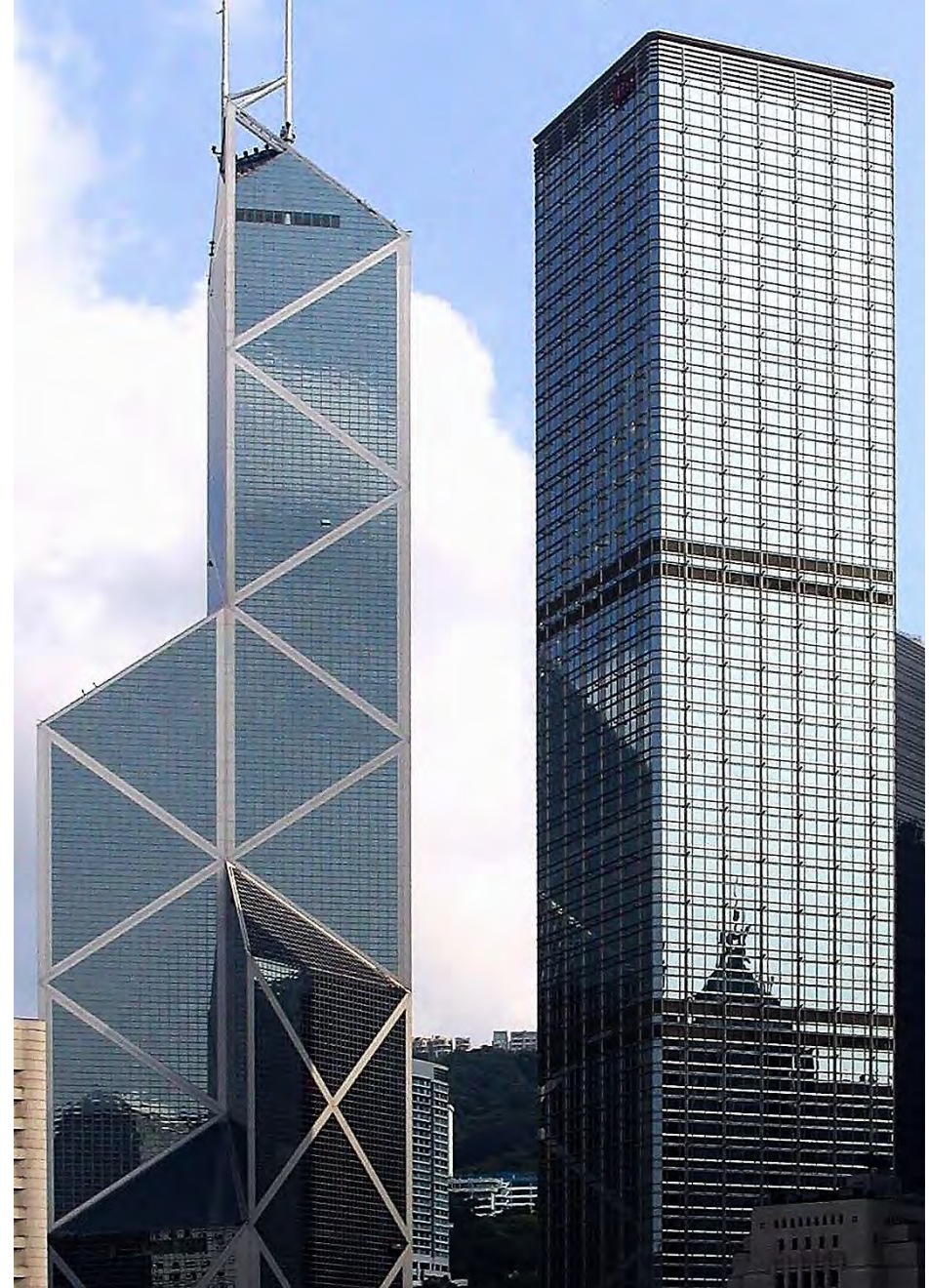
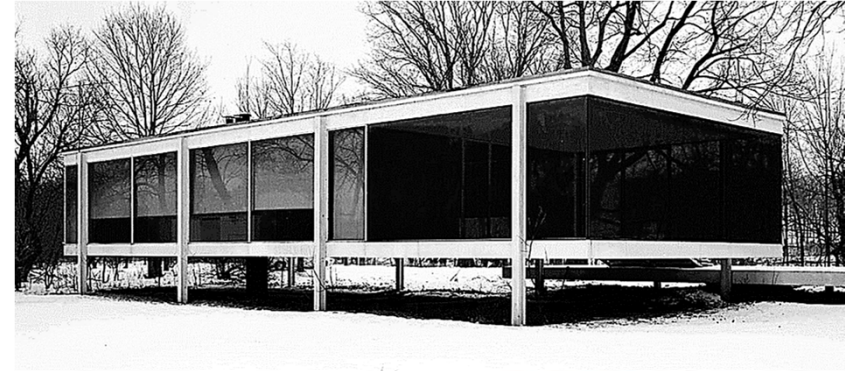


Image source: Lee Ho Yin; Baycrest at Wikipedia

Modern architecture 現代主義建築

Modern architecture, or Modernism in architecture, is based on the principle of Functionalism, in which the aesthetics is derived from function and not decoration. This principle is summarized by the Modern architect's maxim, **"form follows function."** The resultant architecture often has an utilitarian appearance that is not easily appreciated or understood – the buildings look like boxes!



Postmodern Architecture 後現代主義建築

Golden period: the 1980s

Postmodern Architecture 後現代主義建築

Postmodern Architecture, or Postmodernism in architecture, was a 1980s reaction to the austere and abstract functional aesthetics of Modern architecture by taking on a populist approach in designing architecture that ordinary people can find it easier to appreciate and relate to. The architecture is characterized by the use of colours, playful shapes, metaphoric forms and tongue-in-cheek reinterpretation of Classical elements.



Postmodern architecture 後現代主義建築

Four architects whose works defined Postmodern architecture:

Robert Venturi (born 1925), American architect and Professor at Yale University

Charles Moore (1925-1993), American architect and Professor at the University of Texas at Austin

Aldo Rossi (1931-1997), Italian architect and Professor at ETH Zurich

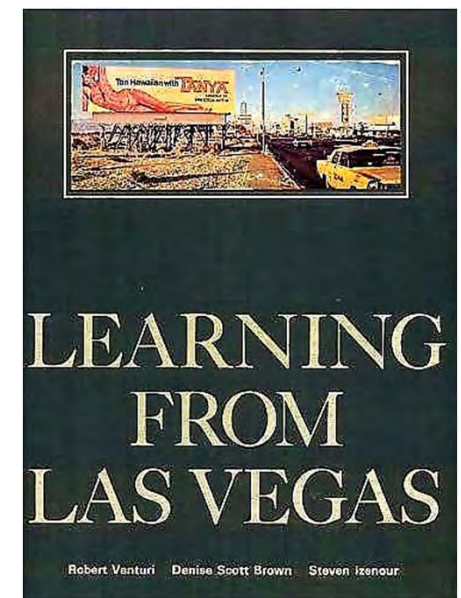
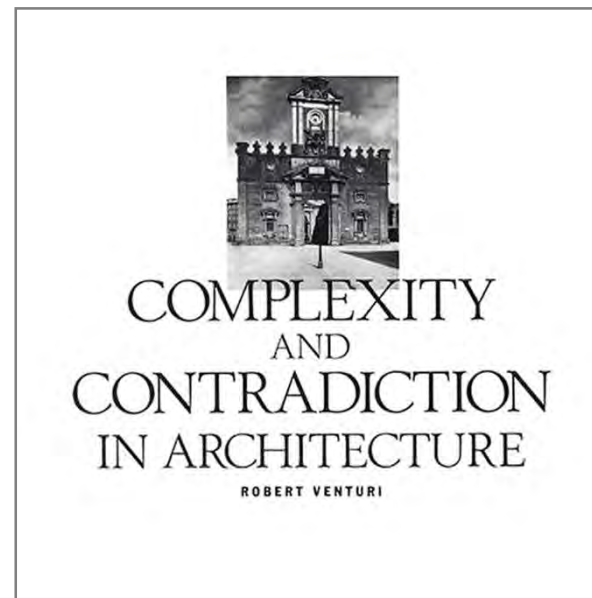
Michael Graves (1934-2015), American architect and Professor at Princeton University



Two books that laid the theoretical foundation of Postmodern architecture:

Complexity and Contradiction in Architecture by Robert Venturi, first published in 1966.

Learning from Las Vegas by Robert Venturi, Denise Scott Brown and Steven Izenour, first published in 1972, revised in 1977.



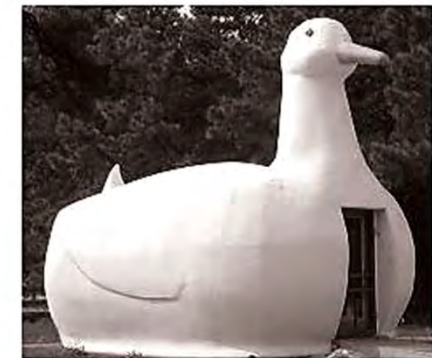
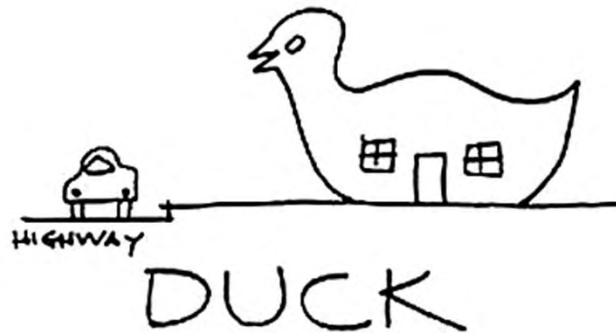
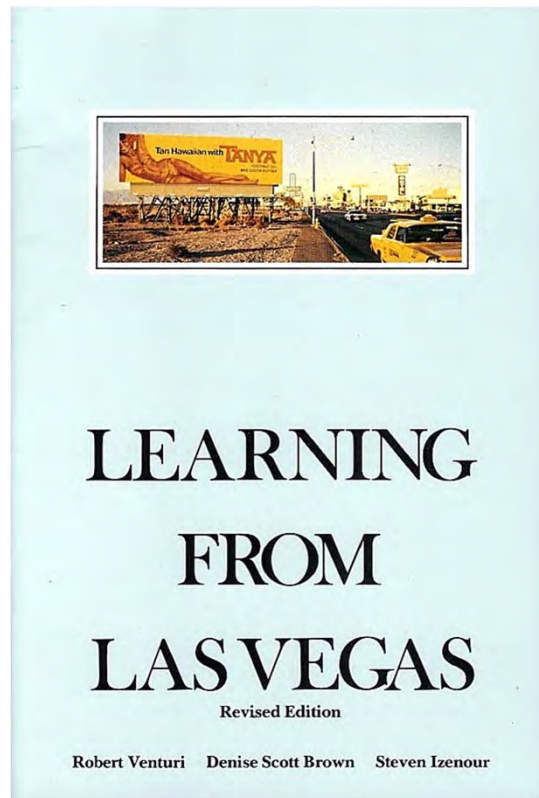
Postmodern architecture 後現代主義建築

Four architects whose works defined Postmodern architecture:

Robert Venturi (born 1925), American architect and Professor at Yale University



The 1977 *Learning from Las Vegas: the Forgotten Symbolism of Architectural Form* (revised from the 1972 *Learning from Las Vegas*) disagrees with the abstract and elitist Modern Architecture that people find hard to understand. Instead, the book coins the terms “**Duck**” and “**Decorated Shed**” to describe the explicit visual ways for buildings to easily convey their meaning to ordinary people. “Ducks” with explicit iconography and “Decorated Sheds” with colourful and sometimes flamboyant ornamentation became the character-defining elements of Postmodern Architecture that became popular in the 1980s.



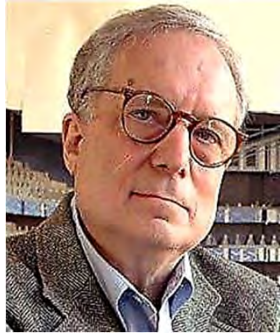
VS



Postmodern architecture 後現代主義建築

Four architects whose works defined Postmodern architecture:

Robert Venturi (born 1925), American architect and Professor at Yale University



The 1977 *Learning from Las Vegas: the Forgotten Symbolism of Architectural Form* (revised from the 1972 *Learning from Las Vegas*) disagrees with the abstract and elitist Modern Architecture that people find hard to understand. Instead, the book coins the terms “**Duck**” and “**Decorated Shed**” to describe the explicit visual ways for buildings to easily convey their meaning to ordinary people. “Ducks” with explicit iconography and “Decorated Sheds” with colourful and sometimes flamboyant ornamentation became the character-defining elements of Postmodern Architecture that became popular in the 1980s.



Farnsworth House (a house)
Designed by Ludwig Mies van der Rohe, completed in 1951



St. Coletta of Greater Washington (a special needs school)
Designed by Michael Graves, completed in 2006

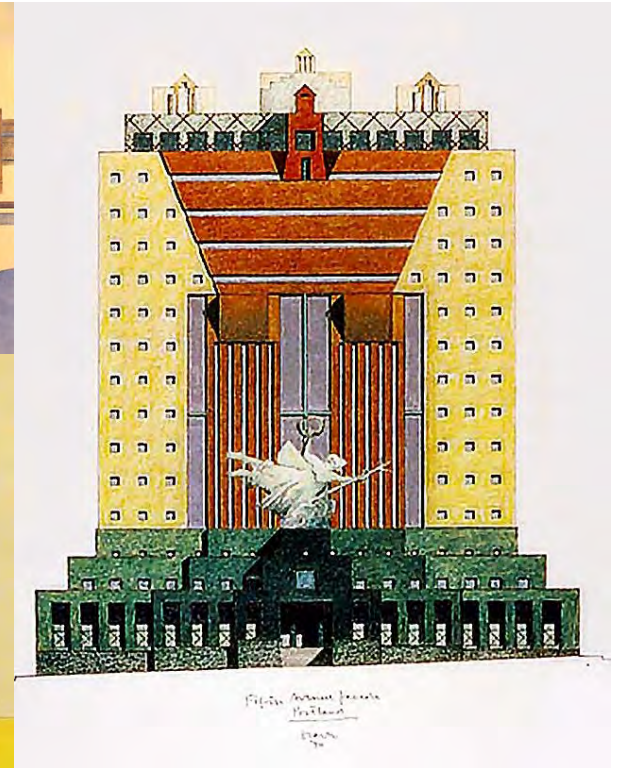
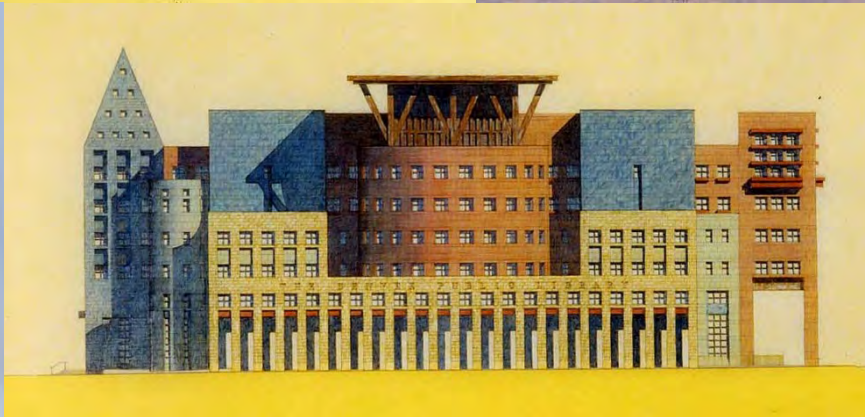
Postmodern architecture 後現代主義建築

US architect Prof. Michael Graves (1934-2015), the superstar architect during the Postmodern trend in architecture through the 1980s, who architectural critic Paul Gapp (in the 4 August 1985 edition of Chicago Tribune) referred to as “The prince of Postmodernism.”



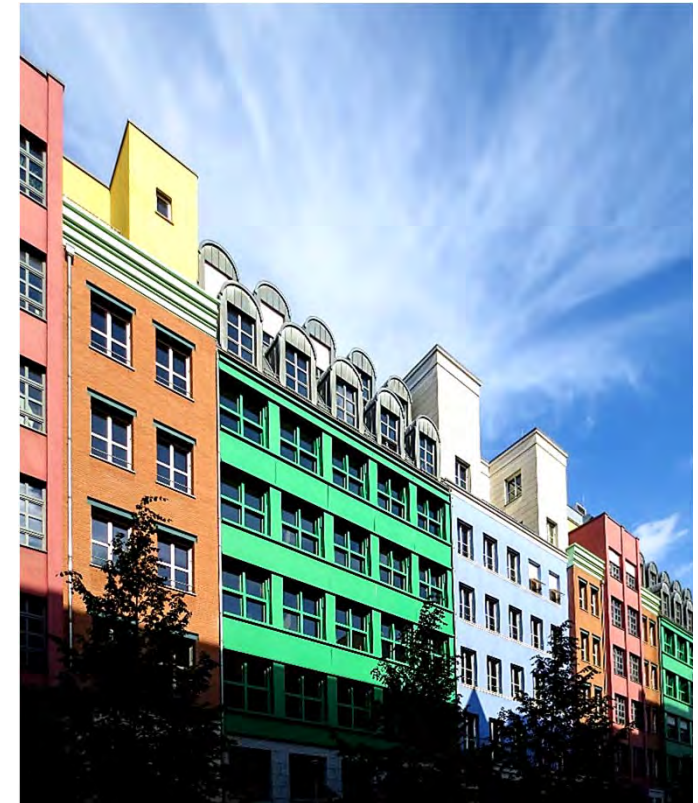
“Even though I was one of the originators of Postmodernism, I don’t think in terms of style at all. I never have. I was simply trying to humanize Modernism. I was simply trying to find a way to make an architecture that didn’t leave me cold.”

Michael Graves, in Architect, the Magazine of the American Institute of Architects, 3 January 2011,



Postmodern architecture 後現代主義建築

Postmodern architecture are characterized by the **use of colours, playful shapes, symbolic forms** and tongue-in-cheek reinterpretation of Classical elements.



Examples of Postmodern architecture designed by Aldo Rossi (1931-1997) from the late 1970s to the 1990s

Postmodern architecture 後現代主義建築

Postmodern architecture are characterized by the use of colours, playful shapes, symbolic forms and **tongue-in-cheek reinterpretation of Classical elements**.



Team Disney The Michael D. Eisner Building, Burbank CA (1991), designed by US architect Michael Graves

Postmodern architecture 後現代主義建築

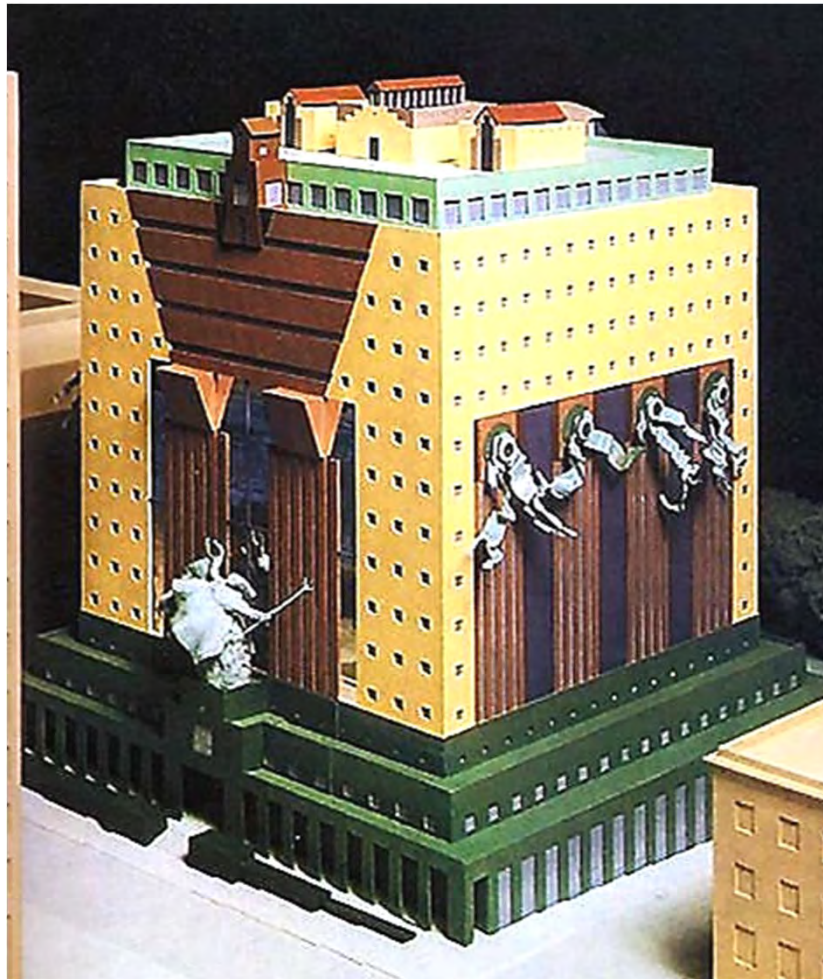
Postmodern architecture are characterized by the use of colours, playful shapes, symbolic forms and **tongue-in-cheek reinterpretation of Classical elements**.



Piazza d'Italia, New Orleans, Louisiana (1978), designed by US architect Charles Moore (1925-1993)

Iconic Example of Postmodern Architecture: Portland Building, USA

Designed by US architect Michael Graves (1934-2015) of Michael Graves & Associates, the **Portland Municipal Services Building** (aka Portland Building) (1982) in Portland, Oregon, arguably ushered the global trend in Postmodern architecture that lasted through the 1980s. It is essentially a simple boxy building heavily decorated with colours and tongue-in-cheek re-interpretation of Classical architectural elements.



Iconic Example of Postmodern Architecture: Neue Staatsgalerie, Germany

Designed by British architect James Stirling (1926-1992) of Stirling Gowan Wilford Architects, **Neue Staatsgalerie Stuttgart** (New State Gallery Stuttgart) (1984) is populist architecture at its best – it has fun colours and a cute Classical appearance that brings back in a warm-and-fuzzy way the collective memory of what the city of Stuttgart was like before it was destroyed by aerial bombing during World War II.



Iconic Example of Postmodern Architecture: Kushiro Marsh Observatory, Japan

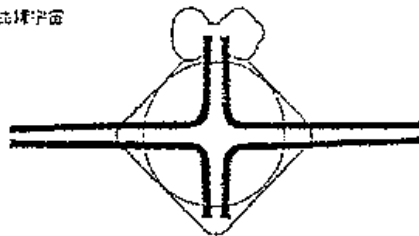
Designed by Japanese architect Kiko Mozuna (毛綱毅曠 1941-2001), **Kushiro Marsh Observatory** 釧路市濕原展望台 (1984) is an observatory-cum-ecological museum. The architecture incorporates symbolic forms relating to the myths and feng shui of the marshland.



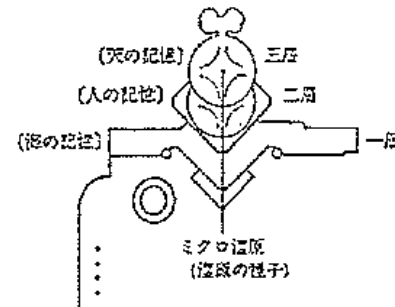
風水術
【八字交差形】



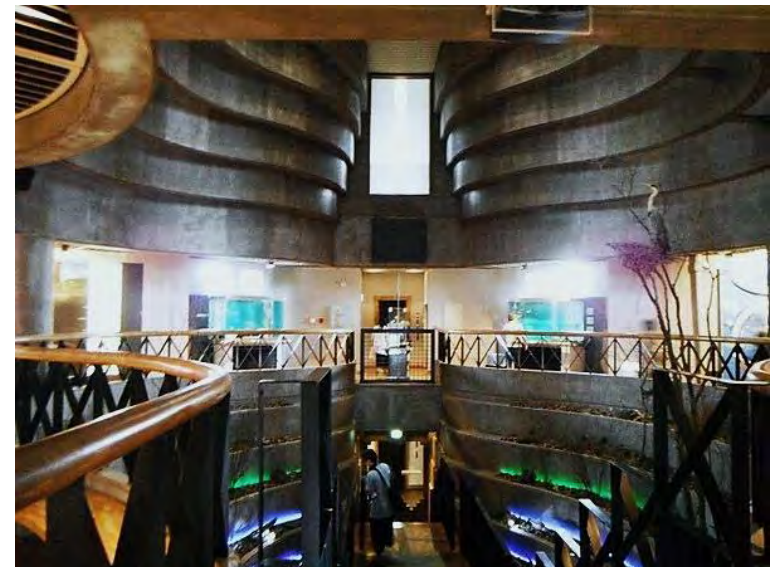
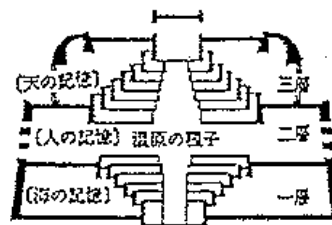
双龍捧字宙



記憶のパラダイム



空間柱バウーン



Iconic Example of Postmodern Architecture: Guangdong Museum, China

Designed by Rocco Yim (born 1952) of Rocco Design Architects Ltd., **Guangdong Museum** (博物館) (2010) is a museum dedicated to Guangdong's history, art and culture. The architecture's Postmodern influence can be seen from the architect's statement (as stated on his architectural practice's website) that "it is an allegory to the impeccably and intricately sculpted antique Chinese artifacts of a lacquer box" (錦盒).



Image source: Interkultur Germany at flickr;

Postmodern copycature! 後現代抄襲主義建築!



**Portland Municipal Services Building (1982),
designed by US architect Michael Graves**



**Hong Kong Central Library (2001),
designed by the HKSAR Architectural Services Department**

Deconstructivist Architecture 解構主義建築

Golden period: the 1990s to today

Deconstructivist Architecture 解構主義建築

Deconstructivist Architecture, or Deconstructivism in architecture, rebels against the regularity of Modernism and superficiality of Post-modernism by fragmenting and distorting the built form to maximize its visual complexity. It is influenced by the **Punk Subculture** (龐克次文化) of the 1970s and early 1980s, **Chaos Theory** (混沌理論) that became popular in the 1990s, and **Deconstruction** theories of French philosopher Jacques Derrida (1930-2004). The term “Deconstructivist Architecture” was created by architects Philip Johnson and Mark Wigley, who curated the 1988 MOMA exhibition of the same name.

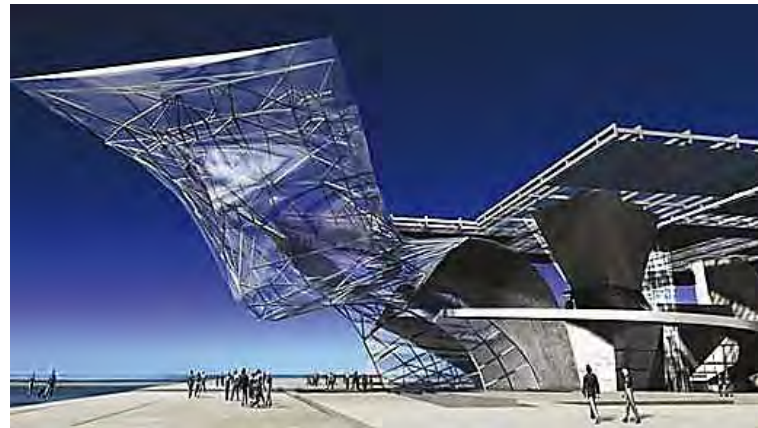


Image source: (top three images) www.coop-himmelblau.at; (bottom three images) www.gehrytechnologies.com; <http://www.dezeen.com>; www.guardian.co.uk

Deconstructivist Architecture 解構主義建築

Influence: **Punk Subculture** (龐克次文化) of the 1970s and early 1980s – architecture taking on the punk aesthetics of anarchism and post-apocalypse.

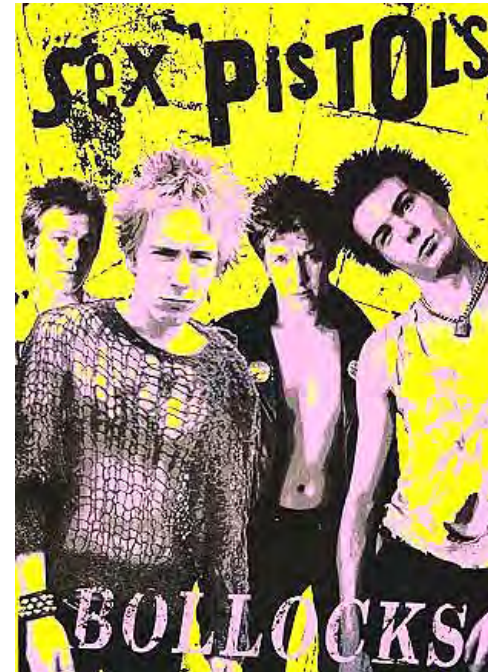
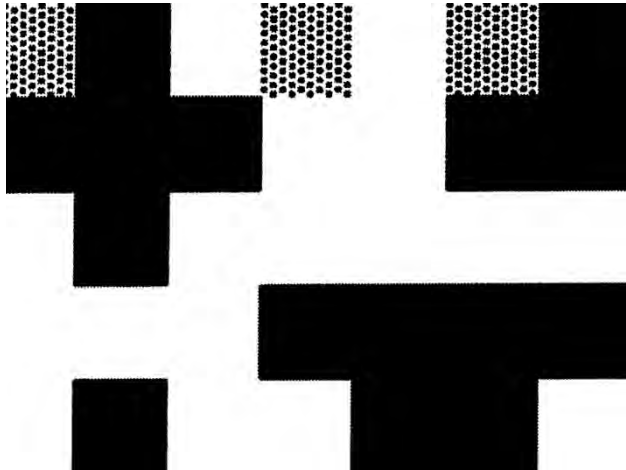
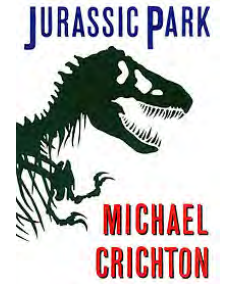


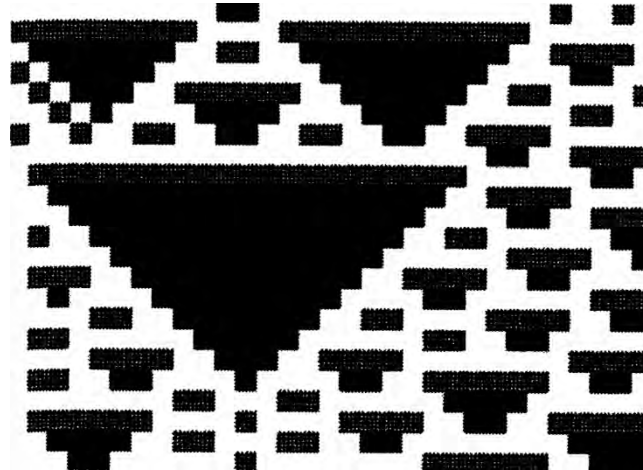
Image source: (left) josie-hunt.blogspot.com; (centre column) fashionandpower.blogspot.com; www.reddit.com; (right column) www.myfreewallpapers.net; www.mangareader.net

Deconstructivist Architecture 解構主義建築

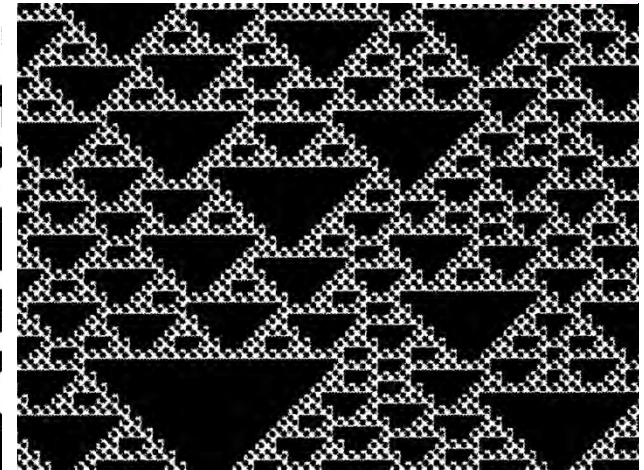
Influence: Chaos Theory 混沌理論, introduced to the popular culture by Michael Crichton in his novel *Jurassic Park* 侏羅紀公園 (1990) – architecture simulating maximal complexity at the unstable **edge of chaos** 仿倣不穩定秩序混沌邊緣的超複雜建築設計.



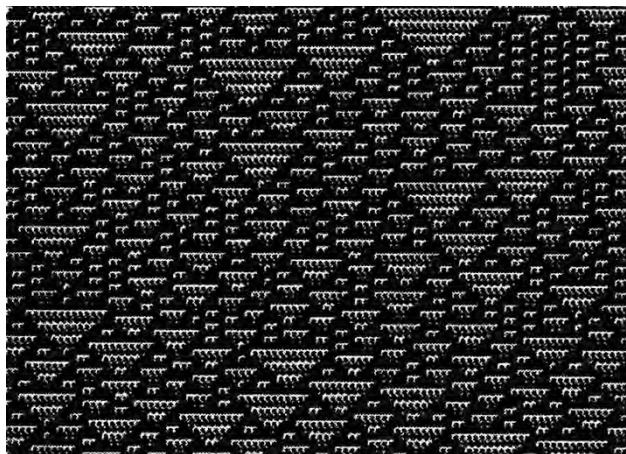
1. No order



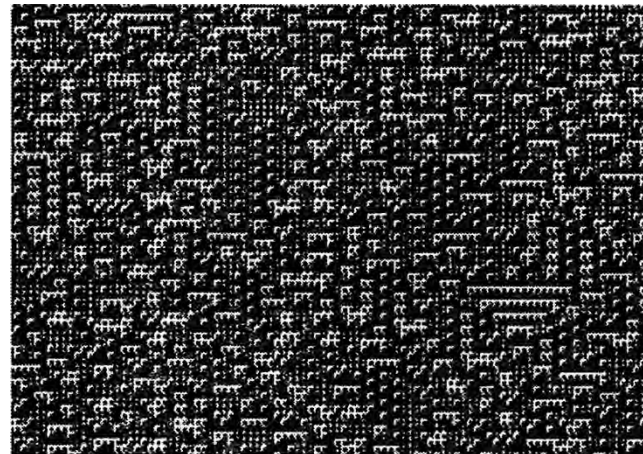
2. emerging order



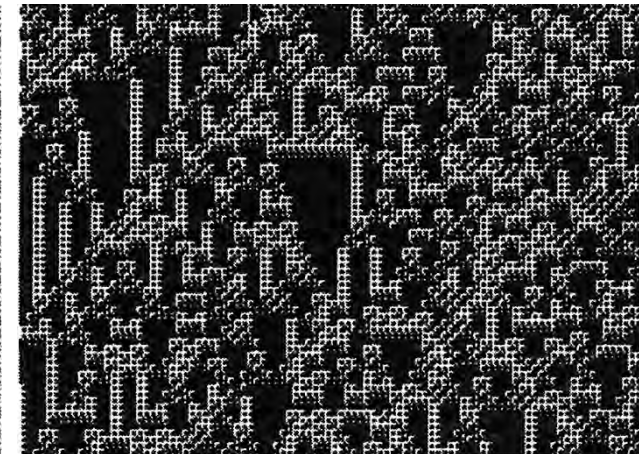
3. complex order



4. over-complex order



5. complex order reaches critical point
(**edge of chaos**)



6. collapse of order

Deconstructivist Architecture 解構主義建築

Influence: the linguistic concept of Deconstruction 解構主義 by French philosopher Jacques Derrida 德里達 (1930-2004).

The attempt in Deconstructivism throughout is to move architecture away from what its practitioners see as the constricting "rules" of Modernism such as "form follows function," "purity of form," and "truth to materials."

Deconstructivism in contemporary architecture stands in opposition to the ordered rationality of Modernism. Its relationship with Postmodernism is also decidedly contrary. ...Deconstruction took a confrontational stance toward much of architecture and architectural history, wanting to disjoin and disassemble architecture.

The main channel from deconstructivist philosophy to architectural theory was through the philosopher Jacques Derrida's influence with [architect and professor] Peter Eisenman. Eisenman drew some philosophical bases from the literary movement Deconstruction, and collaborated directly with Derrida on [architectural] projects.... The presupposition is that architecture is a language capable of communicating meaning and of receiving treatments by methods of linguistic philosophy.

Excerpts from *New World Encyclopedia*, s.v. "Deconstructivism," modified on 27/07/2013,
<http://www.newworldencyclopedia.org/entry/Deconstructivism>

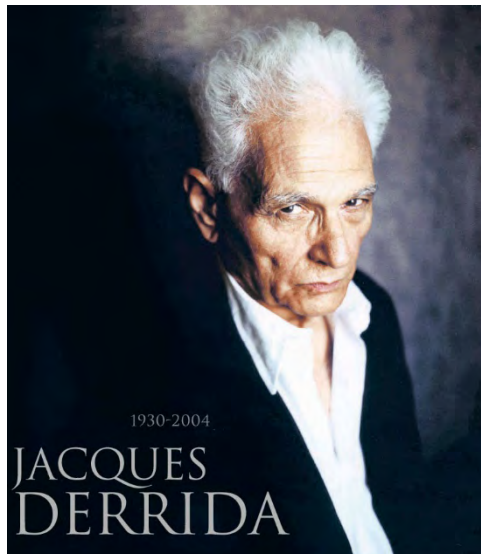


Image source: Wikimedia Commons

Deconstructivist Architecture 解構主義建築

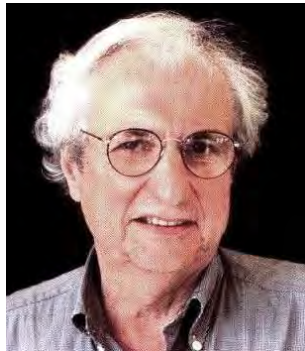
Four architects whose works defined Deconstructivist architecture:

Frank Gehry (born 1928), Canadian-American architect and Professor at Columbia University

Peter Eisenman (born 1932), American architect and Professor Emeritus at the Cooper Union School of Architecture

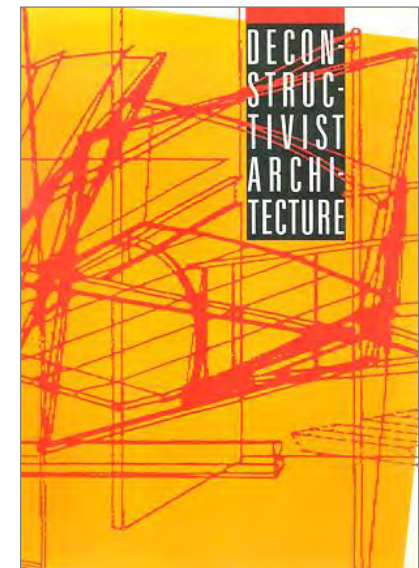
Wolf Prix (born 1942), Austrian architect

Daniel Libeskind (born 1946), Polish-American architect



The publication that gave the architecture its official name:

Deconstructivist Architecture by Philip Johnson and Mark Wigley, the companion publication of the 1988 MOMA exhibition of the same title.



Deconstructivist Architecture: Jewish Museum Berlin, Germany

Designed by Polish-American architect Daniel Libeskind (born 1946), the **Jewish Museum Berlin** was a 1988 competition winner that was completed in 1999 as an empty museum, which drew over 350,000 visitors before it was filled and officially opened in 2001. **It looks a train wreck!**



Image source: www.tumblr.com; www.thefewgoodmen.com

Deconstructivist Architecture: Musée des Confluences, France

Designed by Austrian architect Wolf Prix (born 1942), the **Musée des Confluences** (2014) at Lyon is a museum of science and society, and a part of an ambitious urban regeneration project of an old industrial area. **It looks like a plane crash!**



Deconstructivist Architecture: Royal Ontario Museum Extension, Canada

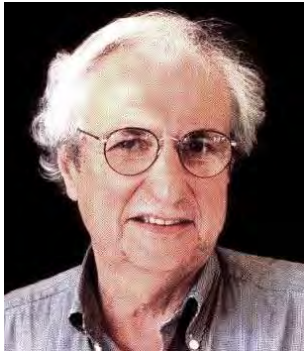
Designed by American architect Daniel Libeskind (born 1946), the **Royal Ontario Museum Extension** (2007), now called the **Michael Lee-Chin Crystal**, was a rejuvenation project for the old museum and the city of Toronto. **It looks like an earthquake disaster!**



Image source: www.dcnoni.com; canadatourism.blogspot.com; dcnoni.com; gbtimes.com

Deconstructivist Architecture: Dancing House, Czech Republic

Designed by Canadian-American architect Frank Gehry (born 1929), the **Dancing House** (1996) in the Czech capital of Prague is also known by the nickname “Fred and Ginger,” in reference to the famous movie stars Fred Astaire and Ginger Rogers who were known for their dance performance in many Hollywood musical films. The building was controversial at the time for its location in a historical urban setting.



Opus Hong Kong 傲璇



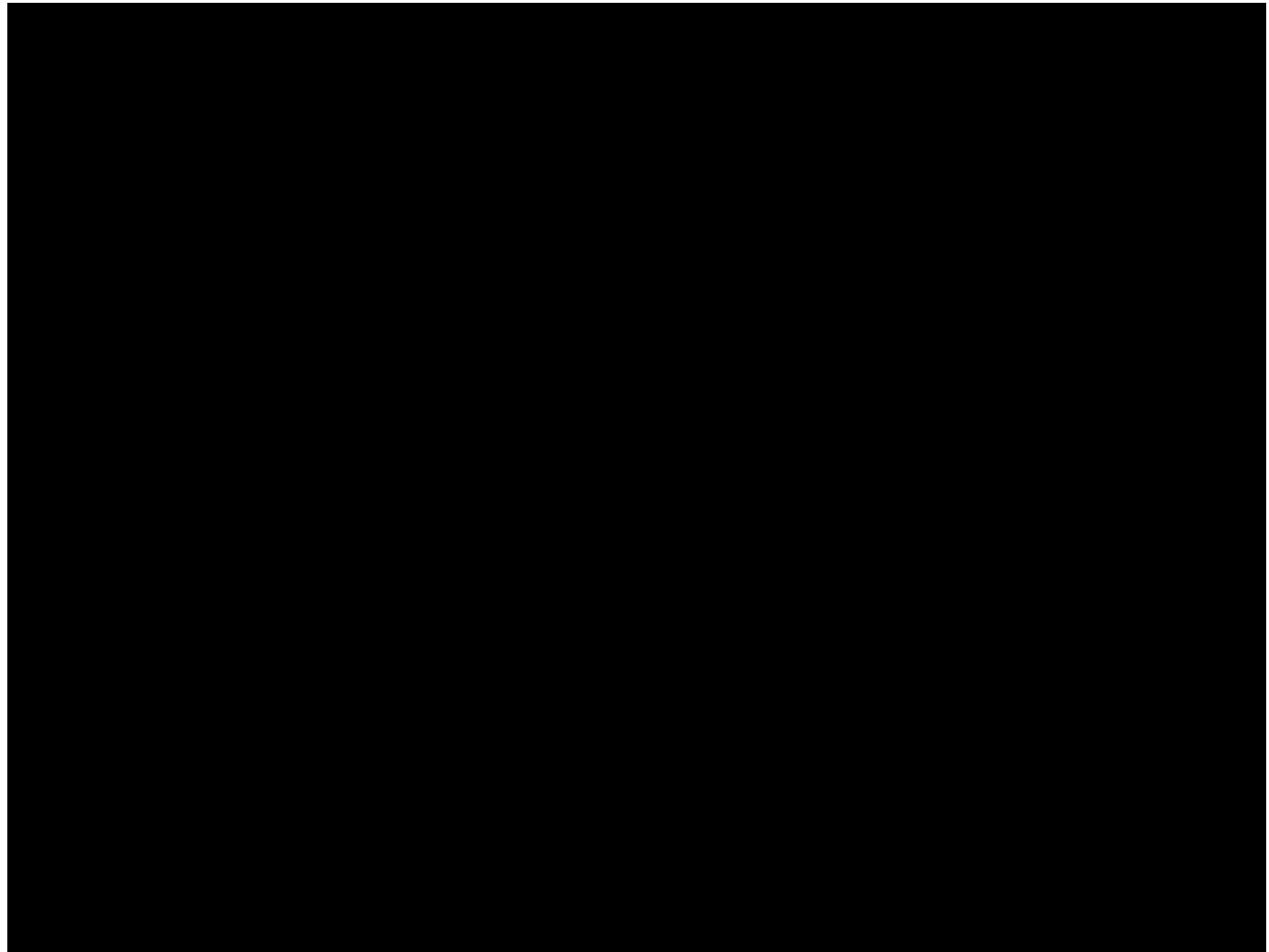
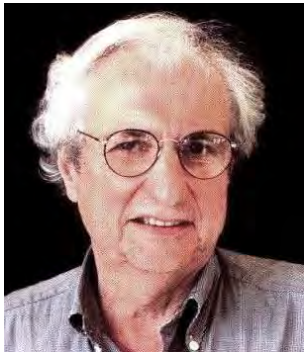
The ultimate Deconstructivist Architecture: Guggenheim Museum Bilbao, Spain

Designed by Canadian-American architect Frank Gehry (born 1929), the **Guggenheim Museum Bilbao** (1997) is an **urban regeneration** project to rejuvenate the economically declining city of Bilbao. Although the museum has single-handedly revived the city's economy, people visit the museum because of the architecture rather than what it contains (and nobody seem to remember what the exhibition is).



Frank Gehry and Deconstructivist Architecture in *The Simpsons*

It sums up, not inaccurately, the aesthetics of Deconstructivist architecture.



Video source: <https://www.facebook.com/video/video.php?v=1703734826126>; image source: en.artintern.net

Hong Kong's own Deconstructivist Architecture (didn't happen!): the "bamboo scaffolding" scheme for the Central Police Station Compound

Designed by the Swiss architectural office Herzog & de Meuron, the ambitious "bamboo scaffolding" scheme was announced 2007 but was abandoned due to public disapproval. It looks somewhat like a collapsing scaffolding 禾棚架.



Image source: Herzog & de Meuron / Hong Kong Jockey Club

Parametric Architecture 參數式建築

Golden period: the 2000s to today

Parametric Architecture 參數式建築

Parametric Architecture is a trend that began around 2000 when affordable fast and powerful personal computers and easy to use design software became commonplace. This enables architects to design highly complex curvilinear building forms that can only be executed by 3D-modelling design software that uses **calculus** (微積分學) as the computing basis – such software was originally used in the aerospace industry.



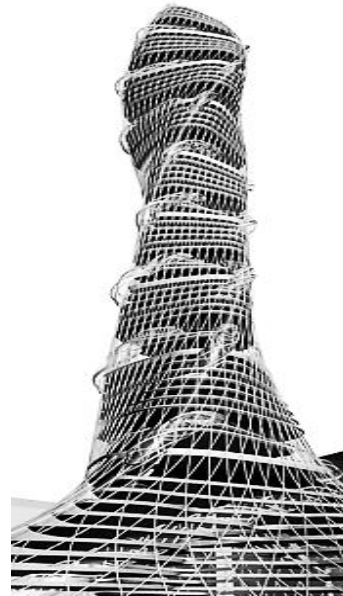
Image source: Richard rjt208 at flickr; openbuildings.com; www.designboom.com; www.constructionweekonline.com; www.skyscrapercity.com

Parametric Architecture 參數式建築: the aesthetics of mathematics

Influence: **Topology** 拓撲數學, the mathematical study of the continuity and connectivity of shapes and space (transformation of shapes and space without altering its quantitative nature). Topology's "continuous map" 連續映射 inspired Parametric Architecture's "continuous surface" 連續表面.



圖一 一杯咖啡經不斷拉扯、變形或收縮變為甜甜圈形式。這些被稱為連續變形，因為他們是同胚的或等價的。一個橡皮圈，在它的彈性限度內，任憑我們把它拉長、扭轉，只要不把它弄斷，那麼它永遠是一個圓圈。



Parametric architecture 參數式建築: the aesthetics of mathematics

The superstar who studied mathematics before architecture, and who successfully translated mathematics into architectural aesthetics in the form of “parametric architecture”:

Dame Zaha Hadid 紮哈 • 哈迪德 女爵士 (1950-2016), Iraqi-British architect



Jockey Club Innovation Tower, HK PolyU (completed 2013)

Parametric architecture 參數式建築: the aesthetics of mathematics

Classical architecture: aesthetics by mathematical proportions

“Nature's great book is written in mathematical language”

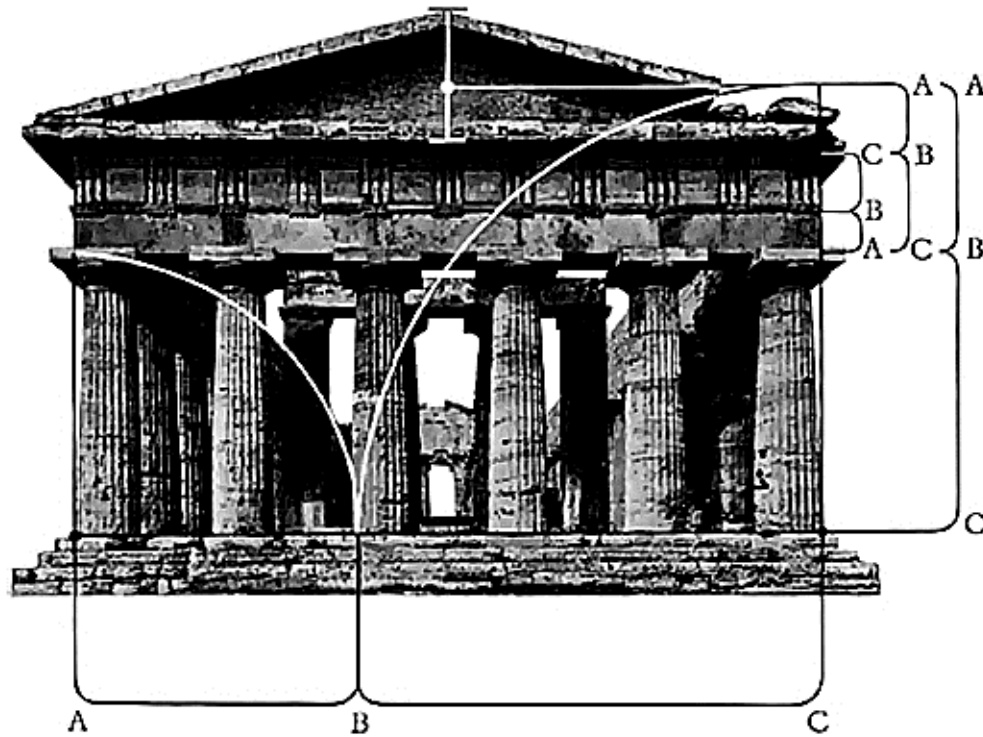
Astronomer and physicist Galileo Galilei in *The Assayer* (*Il Saggiatore*), 17th century



Image source: Wikipedia; Wikipedia; write.less.dk

Parametric Architecture 參數式建築: the aesthetics of mathematics

Classical architecture: aesthetics by mathematical proportions

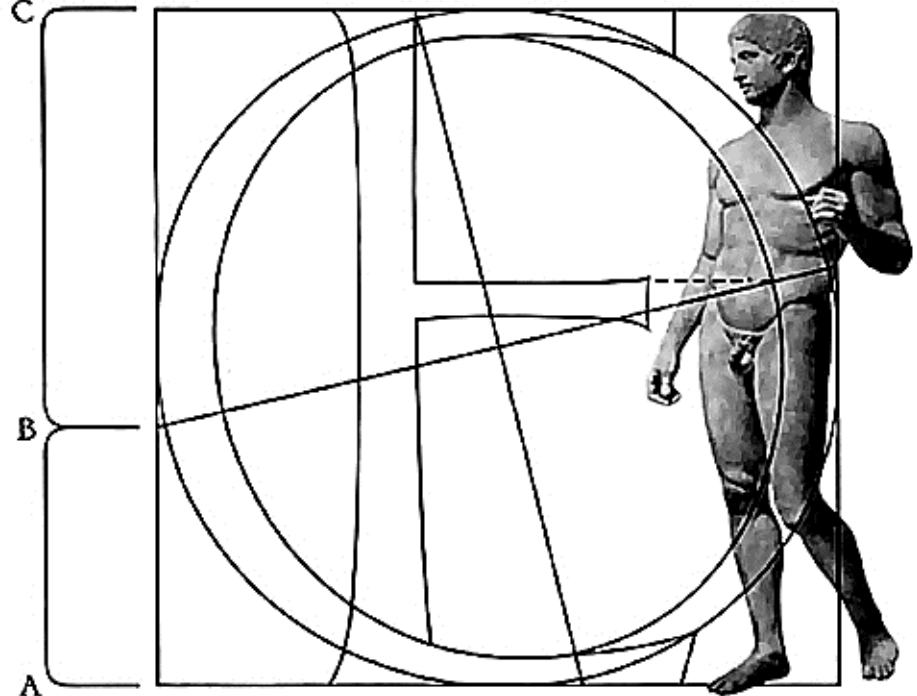


FRONT VIEW OF THE NEPTUNE TEMPLE IN PAESTUM
A Greek temple in Doric style of the 6th century B.C.
(The chiefstress of the gable shows the proportion of the golden mean.)

FRONTAL-ANSICHT DES NEPTUN-TEMPELS IN PAESTUM
Griechischer Tempel im dorischen Stil aus dem 6. Jh. v. Chr.
(Das Schwergewicht des Giebels weist das goldene Schnittverhältnis auf.)

STATUE OF DORYPHORUS (Spear bearer)
Copy after the bronze original by Polyclethus.
(In classical times it was known as an unsurpassed representation of the perfect athletic body.)
— National Museum, Naples —

STATUE DES DORYPHORUS (Speerträger)
Kopie nach dem Bronze-Original von Polyklet.
(War im Altertum als maßgebende Darstellung des durchgebildeten Körpers bekannt.)
— Nationalmuseum Neapel —



Parametric Architecture 參數式建築: the aesthetics of mathematics

Classical aesthetics of mathematics: "golden" proportions found in nature (1: 1.618)

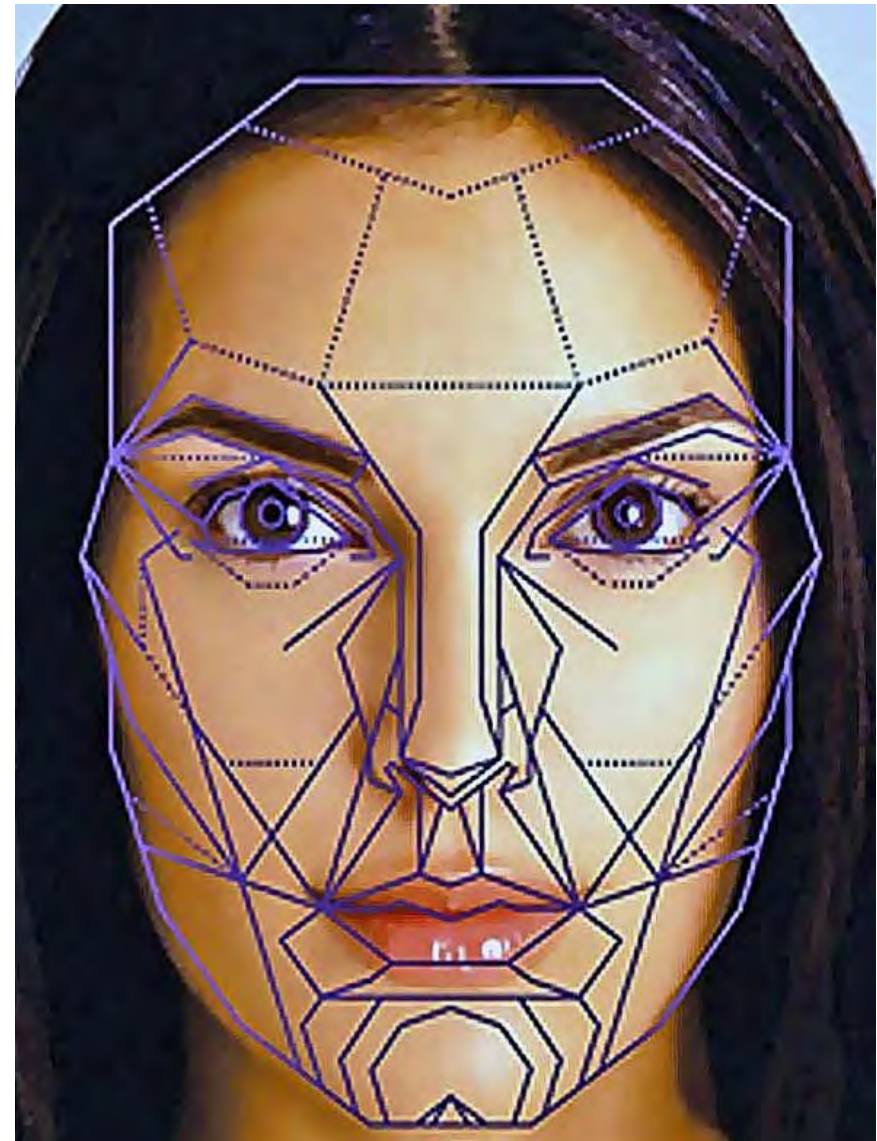
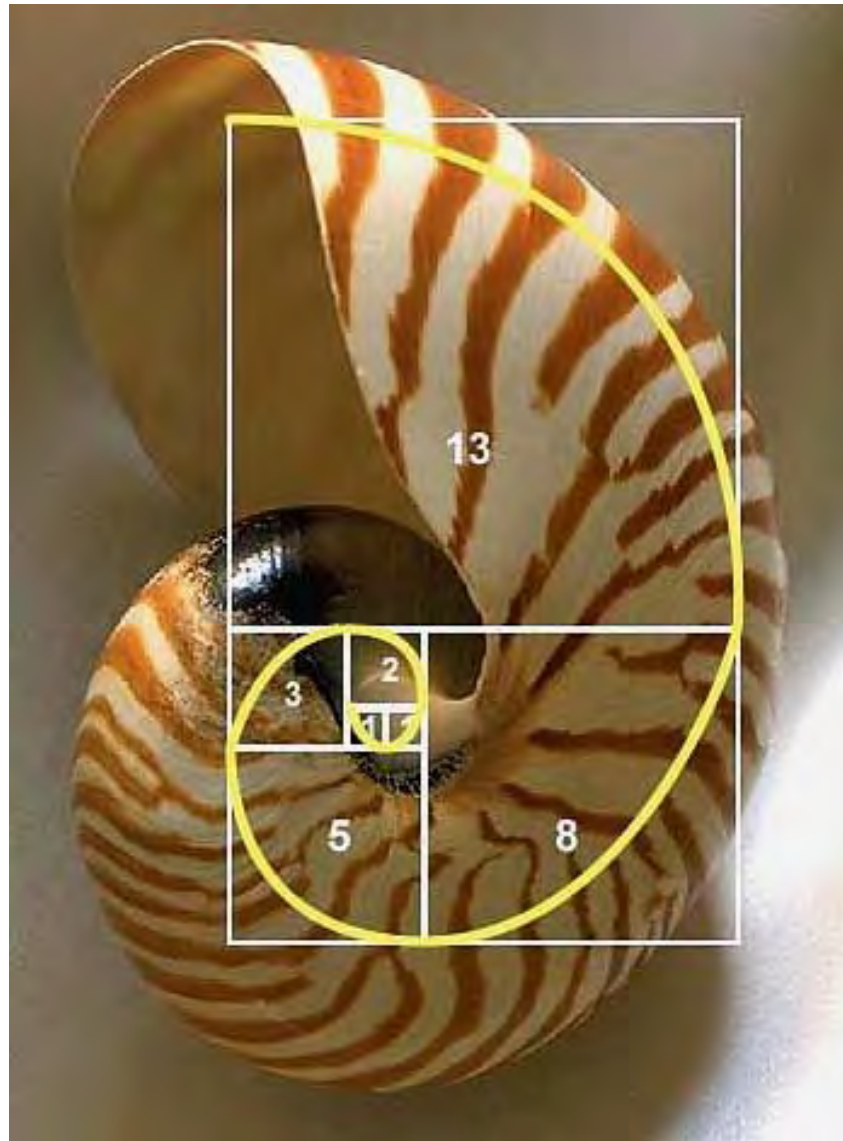
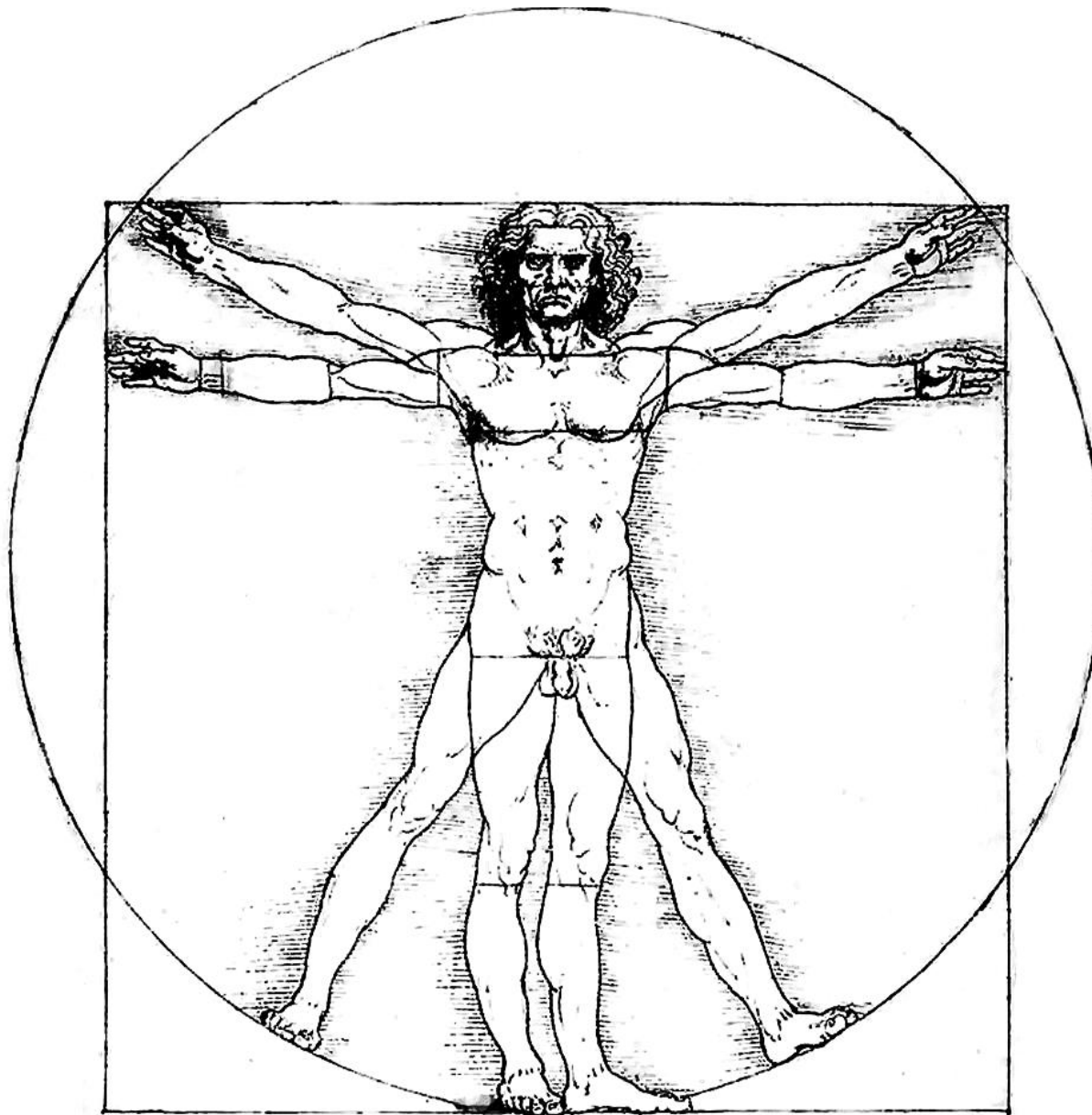


Image source: (shell) saurondor.blogspot.com; (mask) ylift.blogspot.com; (face) spisanie.to

Parametric architecture 參數式建築: the aesthetics of mathematics

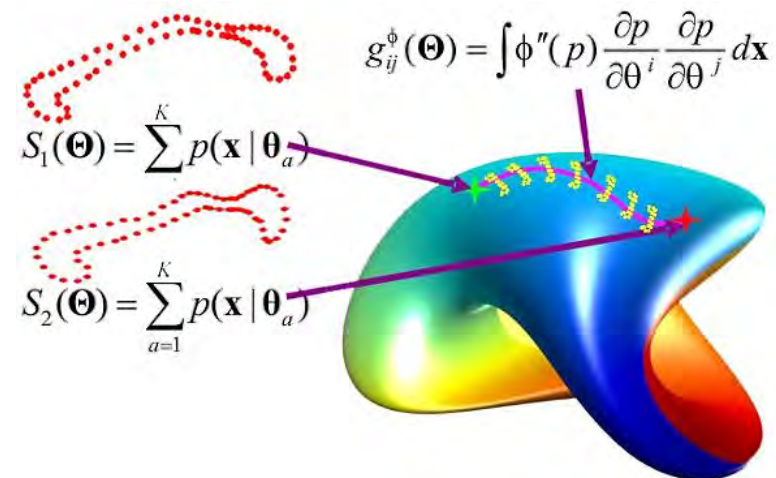
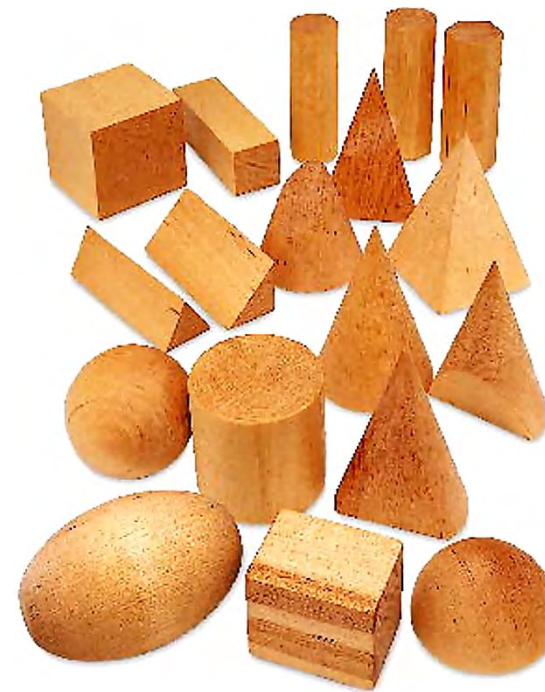
Renaissance aesthetics of mathematics: geometry of the human proportion



Parametric Architecture 參數式建築: the aesthetics of mathematics

Parametric design: complex geometry by calculus

Form	Equation
Cube	a^3
Rectangular box	$l \cdot w \cdot h$
Prism	$B \cdot h$
Cylinder	$\pi r^2 h$
Pyramid	$\frac{1}{3} B h$
Cone	$\frac{1}{3} \pi r^2 h$
Sphere	$\frac{4}{3} \pi r^3$
Ellipsoid	$\frac{4}{3} \pi abc$
Calculus shape	$\int A(h) dh$



Parametric Architecture 參數式建築: the aesthetics of mathematics

Analogue computing and complex geometry



Image source: (Sydney Opera House) www.berfrois.com; (orange) www.lifeinreviews.com; (all others) unknown Internet sources;

Parametric Architecture 參數式建築: the aesthetics of mathematics

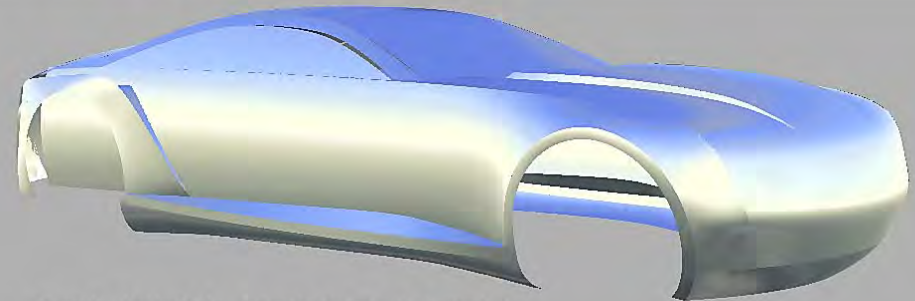
Digital computing and complex geometry



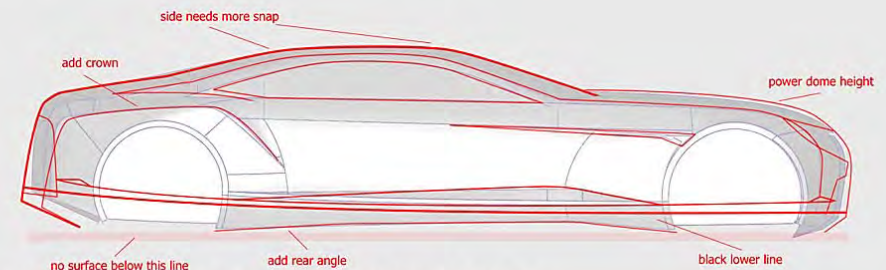
“Designing a revolutionary concept in software demanded a computer with extraordinary performance. The Tandy 2000 delivered.” —Bill Gates
Chairman of the Board,
Microsoft



VEHICLE DESIGN WORK



3D MODEL PROGRESSION



3D MODEL REFINEMENT LINES

Parametric Architecture 參數式建築: the aesthetics of mathematics

Digital computing power and complex geometry

1980s computing power for animation



Post-2000 computing power for animation

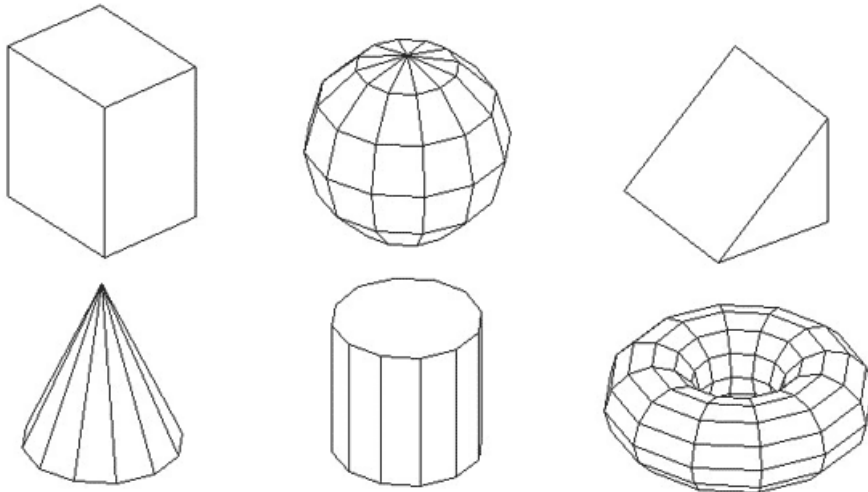


Image source: (top row) mondoweiss.net; finalfantasy-xiii.net; (bottom row) sketchmodeler.com; www.g4g.it

Parametric Architecture 參數式建築: the aesthetics of mathematics

Digital computing power and complex geometry



Parametric Architecture 參數式建築: the aesthetics of mathematics

Digital computing power and complex geometry

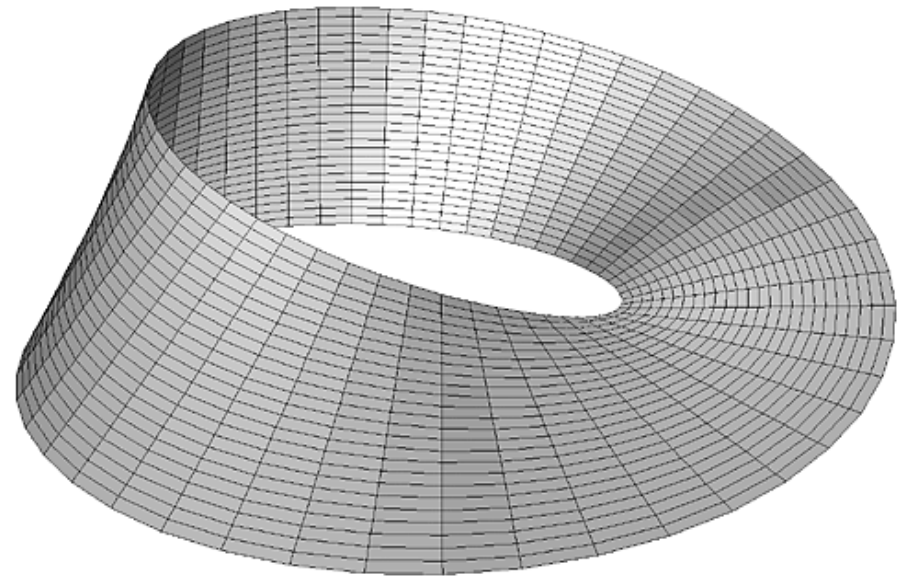
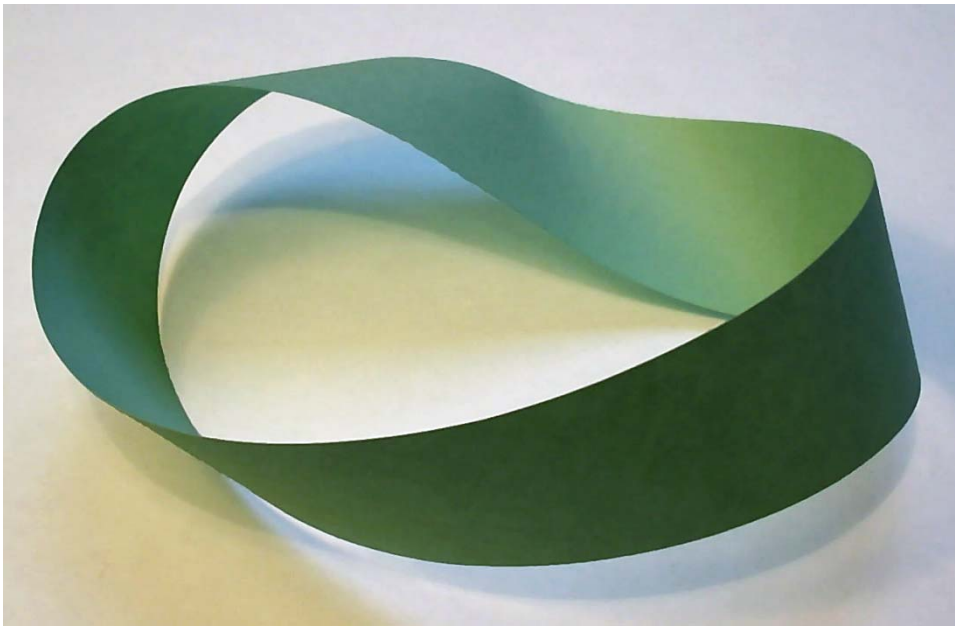


Image source: us.cdn291.fanshare.com; www.student.lth.se

Parametric Architecture 參數式建築: the aesthetics of mathematics

Mathematic model as inspiration for architecture

Möbius Strip 莫比烏斯帶 (mathematical model of a continuous surface)



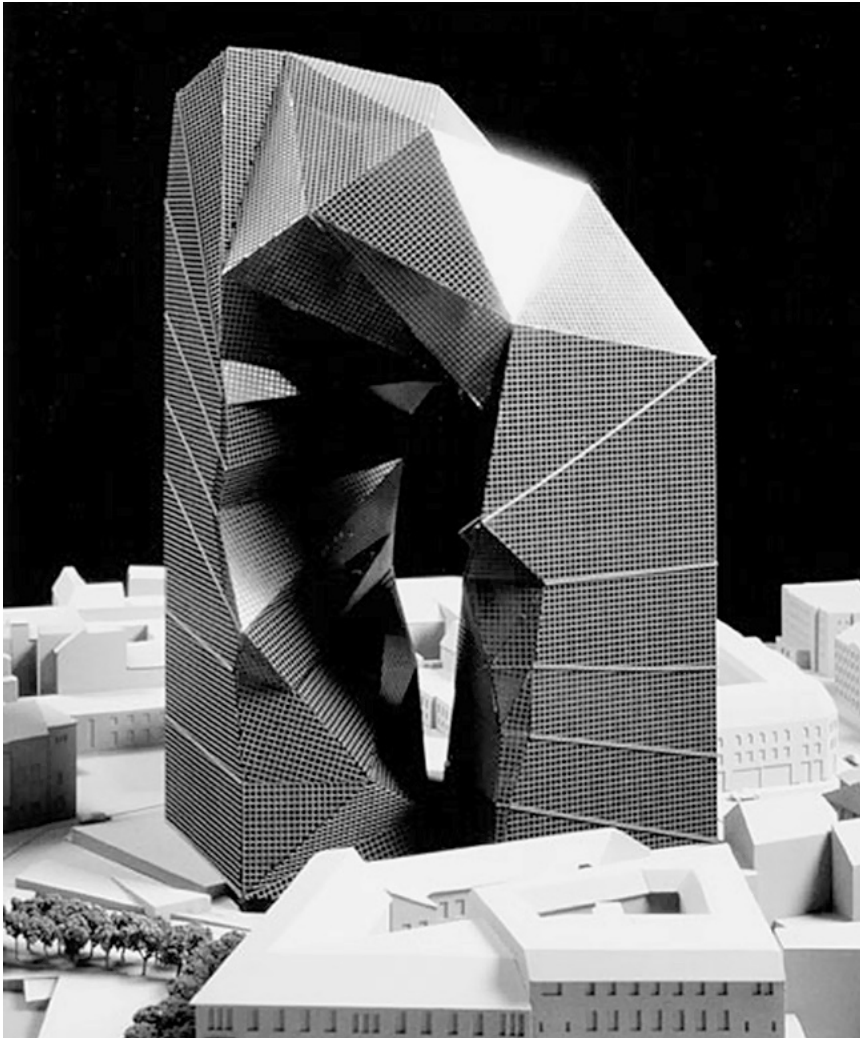
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Mathematic model as inspiration for architecture

Möbius Strip 莫比烏斯帶 (mathematical model of a continuous surface)



Max Reinhardt House,
Berlin (by Peter Eisenman, project 1992)



CCTV Headquarters,
Beijing (by OMA, completed 2008)



Image source: www.stylepark.com; weheartit.com

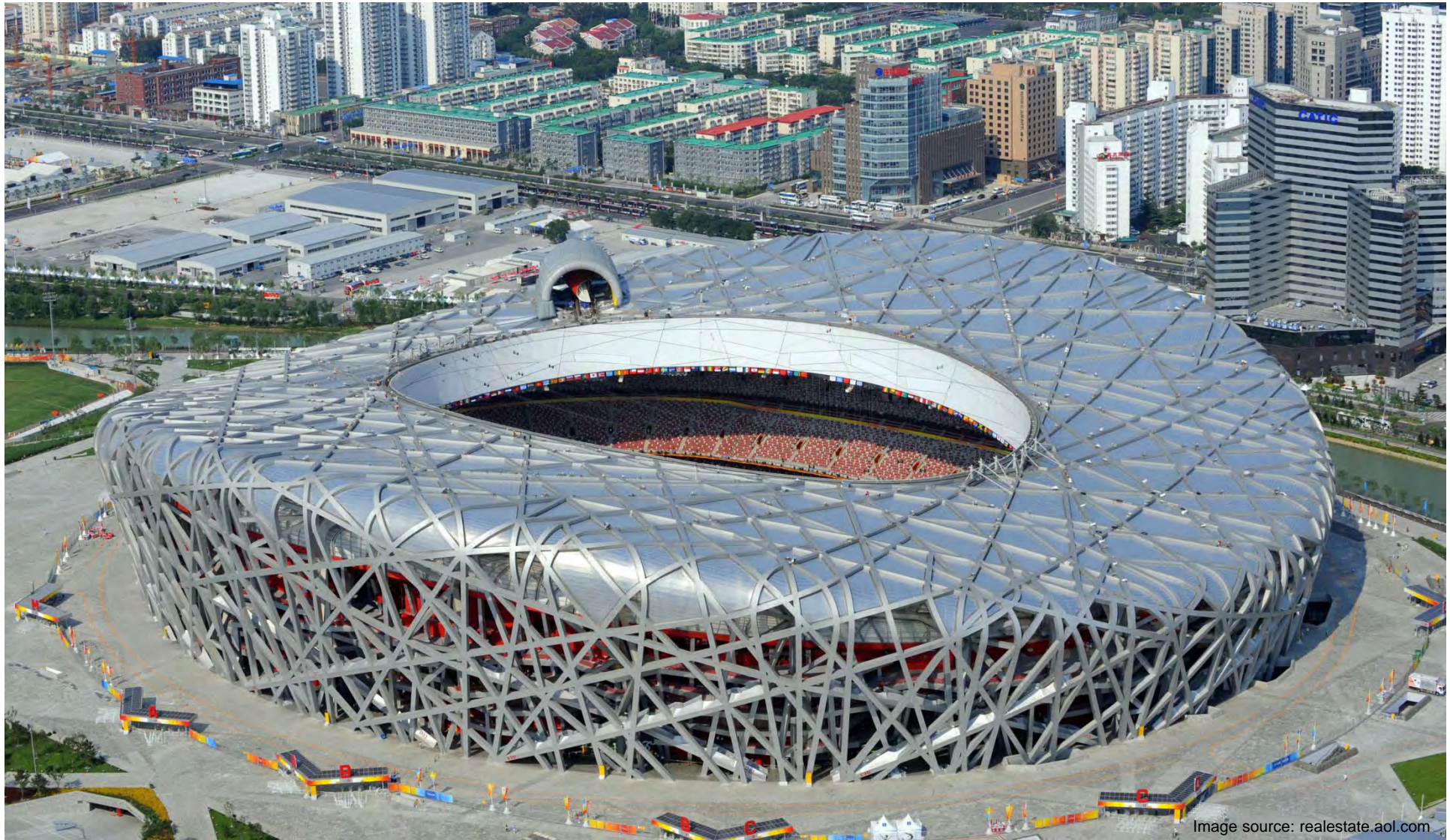
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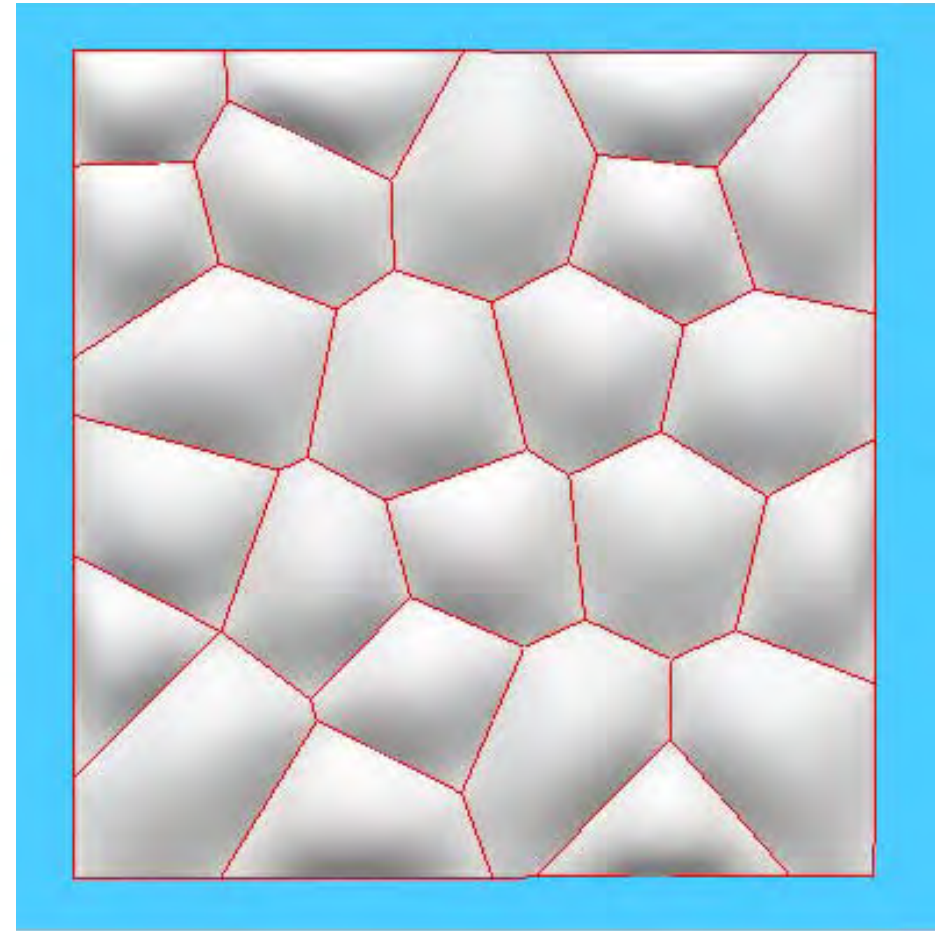
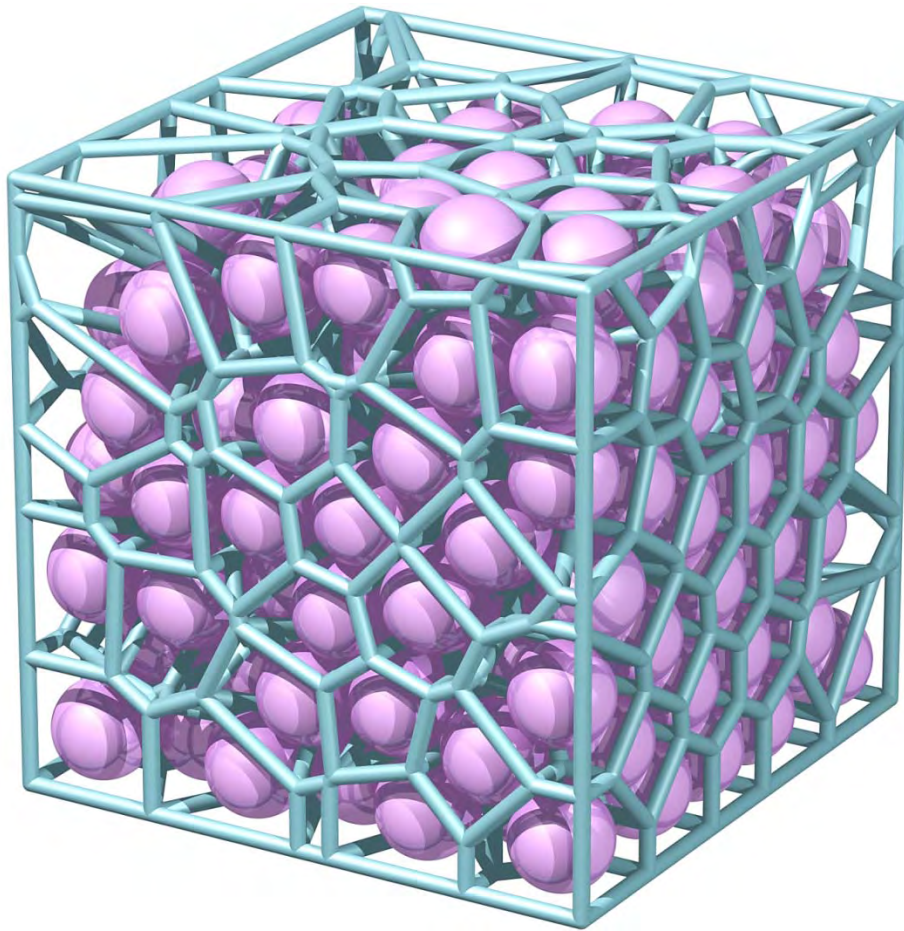
National Stadium, Beijing (by Herzog & de Meuron, completed 2008).



Parametric Architecture 參數式建築: the aesthetics of mathematics

Mathematic model as inspiration for architecture

Voronoi Cells / Diagram 沃羅諾伊組織 / 圖 (mathematical model of a cluster of soap bubbles in 3D or 2D)



Parametric Architecture 參數式建築: the aesthetics of mathematics

Mathematic model as inspiration for architecture - Voronoi cells (mathematical model of soap bubbles)

Beijing National Aquatics Center, Beijing (by PTW Architects / Arup / CSCEC / CCDI, completed 2008).



Parametric Architecture 參數式建築: aesthetics by mathematics

Parametric architecture is a trend that began around 2000 when affordable fast and powerful personal computers and easy to use design software became commonplace. This enables architects to design highly complex curvilinear building forms that can only be executed by 3D-modelling design software that uses **calculus** (微積分學) as the computing basis – such software was originally used in the aerospace industry.

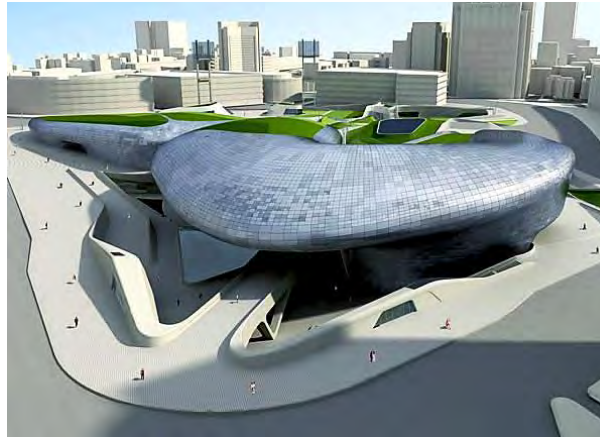
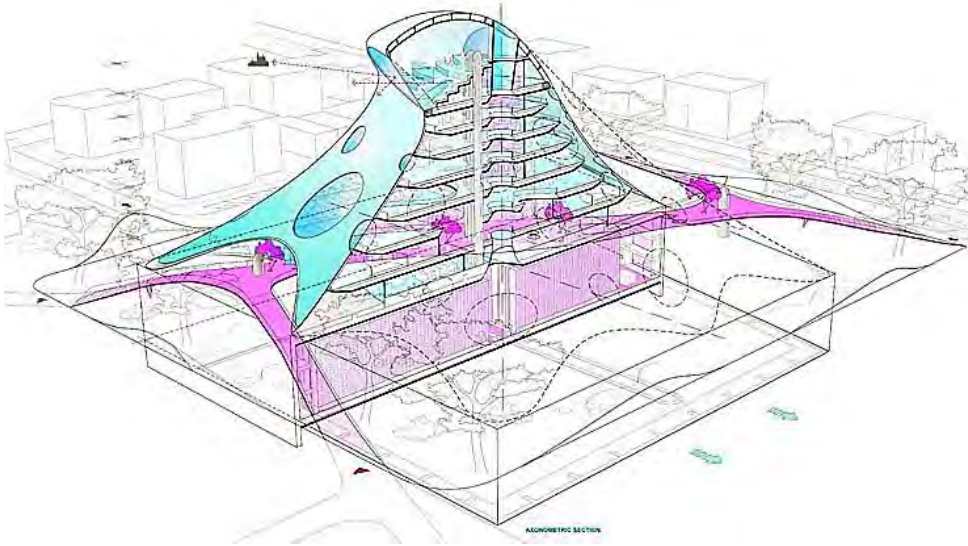


Image source: wikipedia; openbuildings.com; www.e-architect.co.uk; urbanlabglobalcities.blogspot.ru; kfnttravelguide.com

Parametric Architecture 參數式建築: Czech National Library, Prague (unbuilt)

Designed by the world-renowned Czech architect Jan Kaplický (1937-2009) of the former London-based, husband-and-wife architectural practice, Future Systems. The design won an international competition in 2007 and was commissioned to be built and scheduled for completion in 2011, but the couple divorced, the practice split and the Prague authorities cancelled the project in 2008.



Parametric Architecture 參數式建築: Chanel Mobile Art, various locations

Designed by British architect Zaha Hadid (1950-2016), **Chanel Mobile Art** (2008) was designed as an "unprecedented travelling exhibition container" that showcased art by contemporary artists inspired by Chanel's iconic handbag. In 2011, it was donated to the Arab World Institute in Paris.

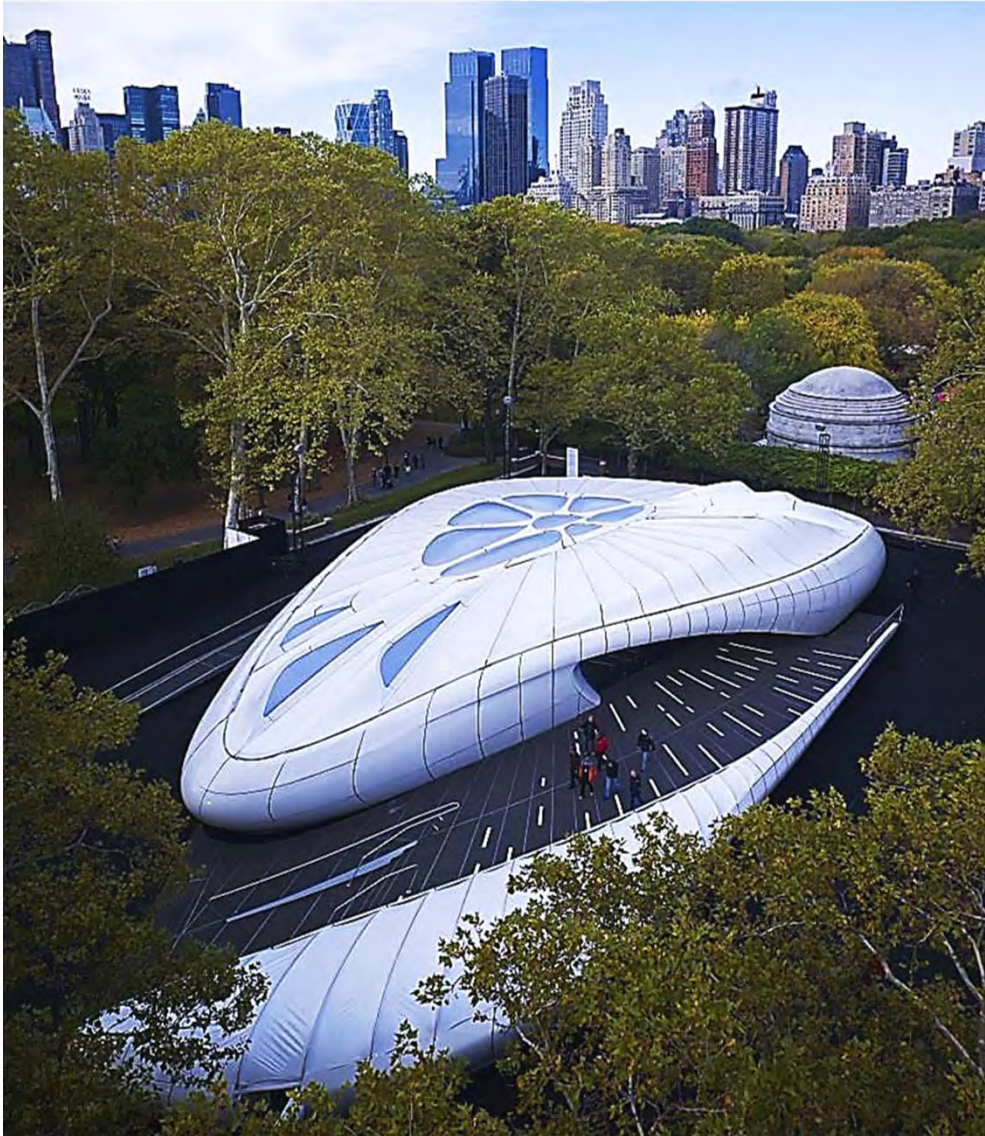


Image source: buildingindonesia.biz; www.gettyimages.com; www.designboom.com

Parametric Architecture 參數式建築: Heydar Aliyev Center, Azerbaijan

Designed by British architect Zaha Hadid (1950-2016), the **Heydar Aliyev Center** (2012) in Baku, Azerbaijan, contains a museum, a gallery and an auditorium. The complex architectural form is reminiscent of a shape of nature.



Parametric Architecture 參數式建築: Ferrari World, United Arab Emirates

British architectural practice Benoy's **Ferrari World Abu Dhabi** (2010) is an entire theme park (containing a Ferrari Museum) under one insanely huge shape-of-nature roof.



Parametric architecture 參數式建築: Ferrari World, United Arab Emirates

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Image source: cosmonavigator.wordpress.com

Parametric Architecture 參數式建築: WKCD "Sky Canopy" scheme, Hong Kong

British architectural practice Foster + Partners' West Kowloon Cultural District "Sky Canopy" design is a cluster of museums under one stupendously huge shape-of-nature roof. A competition winner in 2002, but a political loser in 2004, because it was too much too soon for people to accept.



Image source: www.skyscrapercity.com; www.artsdealer.net

Knockoff Zaha Hadid architecture! 山寨版紮哈 • 哈迪德建築



THE REAL DEAL:
Zaha Hadid Architects' **Wangjing SOHO**, Beijing
(completion in 2014)



THE KNOCKOFF:
Local developer's **Meiquan 22nd Century**,
Chongqing (completion in 2013)

Knockoff Zaha Hadid architecture! 山寨版紮哈 · 哈迪德建築

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HOMES

China developer accused of copying architect Zaha Hadid's designs

You've heard of fake designer bags and pirated DVDs, but imitation buildings reach a new level of rip-offs.

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AFP PHOTO

A model of the Meiquan 22nd Century building in China's southwest Chongqing on January 3, 2012.

Already famed for fake designer bags and pirated DVDs, imitation in China may have reached new heights with a set of

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Chongqing architect accused of copying Zaha Hadid's Beijing building

Agence France-Presse in Beijing

Friday, 04 January, 2013, 9:17am



The Meiquan 22nd Century building planned for Chongqing (right), which shows strong resemblances to a model of Zaha Hadid's design for a shopping and office complex in Beijing (left). Photos: AFP

Already famed for fake designer bags and pirated DVDs, imitation in China may have reached new heights with a set of towers that strongly resemble ones designed by renowned architect Zaha Hadid.

A developer in Chongqing is putting up buildings that share the distinctive round contours and white stripes of a 39-floor shopping and office complex conceived by the British-Iraqi designer and being built in Beijing.

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Image source: Daily News; South China Morning Post

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