

МОНГОЛ ОРНЫ ХӨГЖИЛД 12-Р ЧУУЛГА УУЛЗАЛТ



МОНГОЛ
ОРНЫ
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"БҮТЭЭЛЧ ҮЙЛДВЭРЛЭЛИЙН ХӨГЖИЛ"
2016 оны 4-р сарын 30, Парис хот



Монгол Улсын архитектурын салбарт хэрэглэх боломжтой олон улсын архитектурын шилдэг туршлага

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01: What is Architecture?



figure; 001_01

What is Architecture?

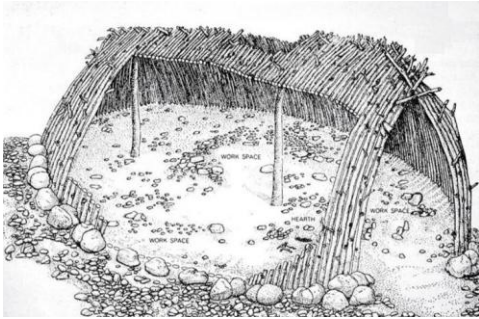
“Architecture is part of the art of living, and is at its most successful when it seems to give expression to the life that inhabits it...”

Michel de Montaigne (28.02.1533 – 13.09.1592)



figure; 001_02

Terra Amata Hut: 400 000 BCE Nice, Southern France.



figure; 001_03

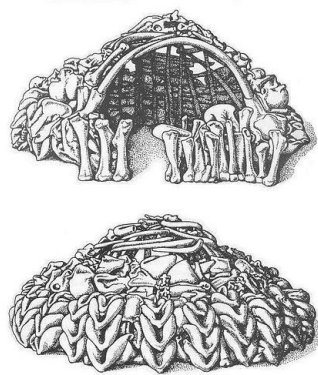


figure; 001_04



figure; 001_05

Mammoth boned Hut: 14 000 BCE Moscow, Russia.



figure; 001_06



figure; 001_07



figure; 001_08

Community of Jericho 8 000 BCE Israel



figure; 001_09



figure; 001_10



figure; 001_11

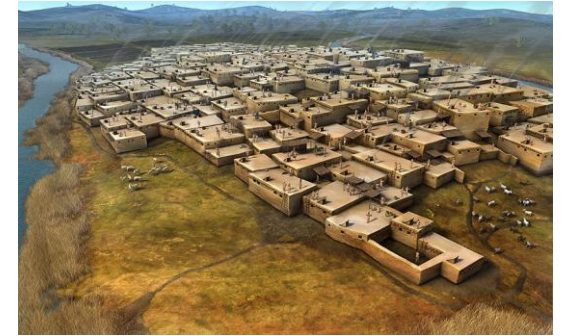


figure; 001_12

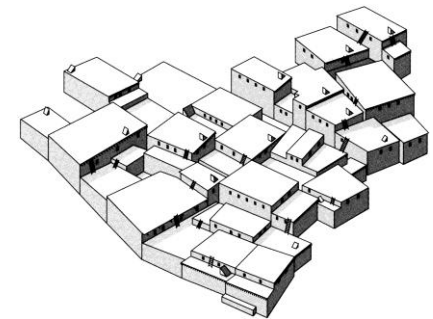
Çatal Höyük 6 5000 BCE Konya, Turkey



figure; 001_13



figure; 001_14



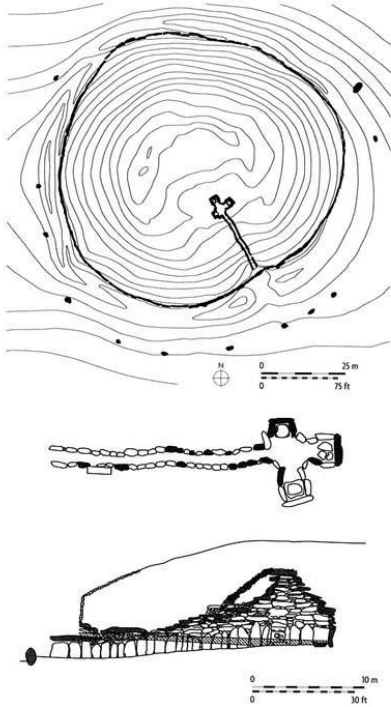
figure; 001_15

Çatal Höyük 6 5000 BCE Konya, Turkey

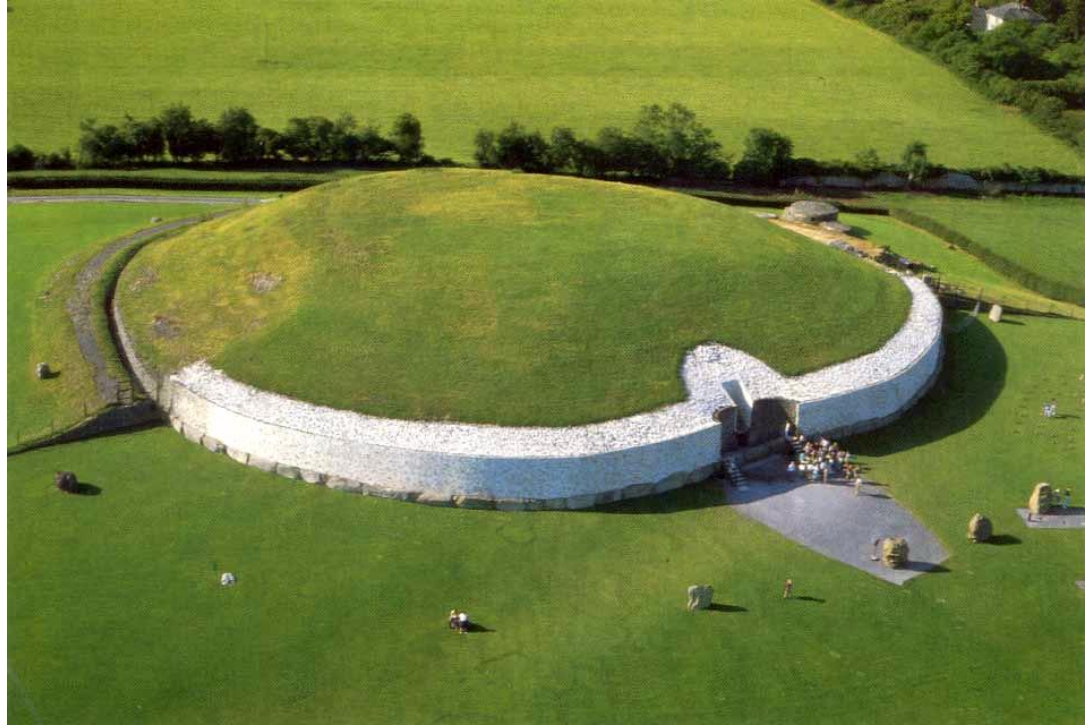


figure; 001_16

5 000 BCE – 2 000 BCE Age of stone graves and temples



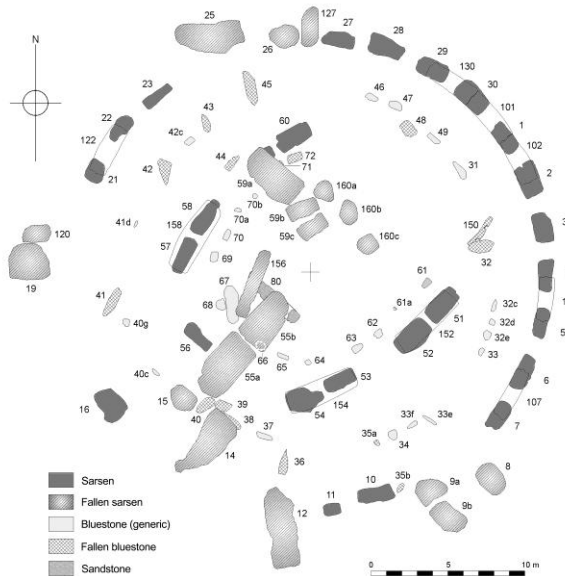
figure; 001_17



figure; 001_18

Newgrange passage grave, County Meath, Ireland. ca 3 100 BCE

5 000 BCE – 2 000 BCE Age of stone graves and temples



figure; 001_19



figure; 001_20

Stonehenge, Salisbury Plain, England, ca 2 900 BCE – 1 400 BCE

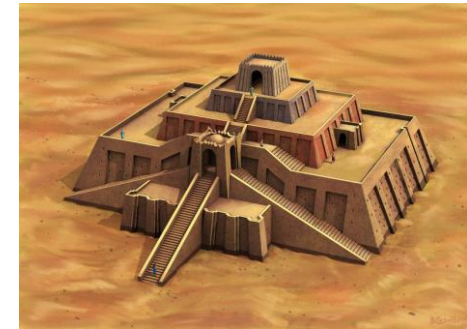
Ancient Mesopotamia, ca 3 000 BCE, Iraq and Iran



figure; 001_21



figure; 001_22



figure; 001_23

The ziggurat at Ur, Mesopotamia, (Iraq) 2 100 BCE

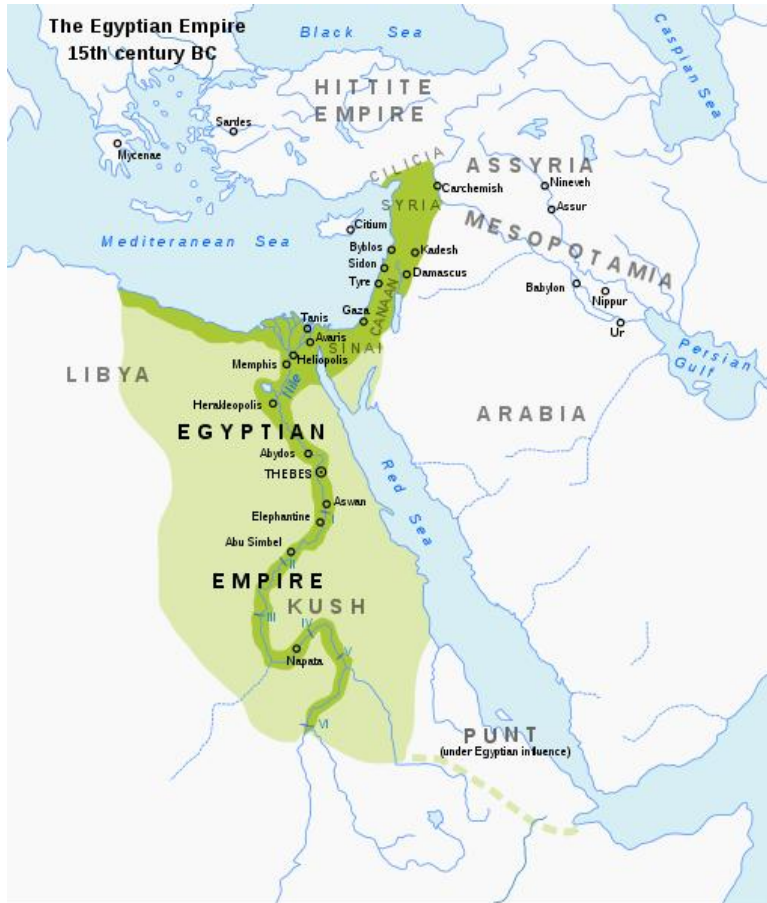
Ancient Mesopotamia, ca 3 000 BCE, Iraq and Iran



figure; 001_24

City of Ur, Mesopotamia (Iraq) ca 2 100 BCE

Ancient Egypt, ca 3 000 BCE,



figure; 001_25

Map of The New Kingdom of Egypt, ca 1450 BCE



figure; 001_26

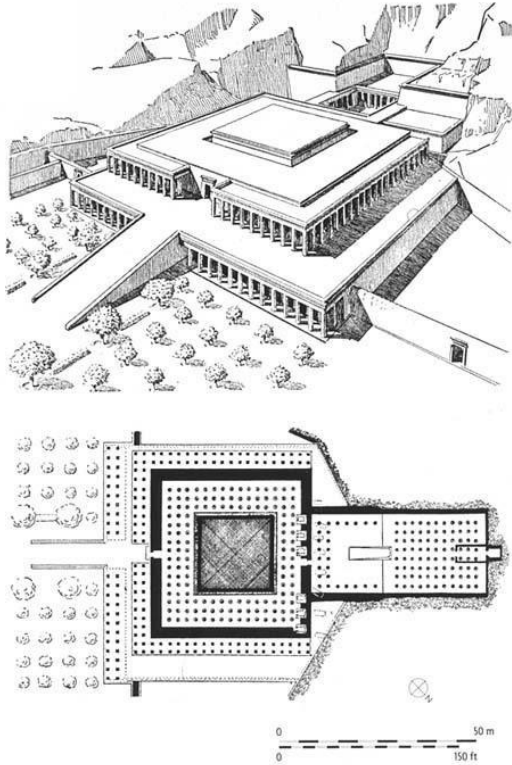
Khafre's pyramid and
the Sphinx, Giza Egypt.
ca 2550 – 2460 BCE



figure; 001_27

The step pyramid, Saqqara,
Egypt. ca 2630 BCE

Tumba de Mentuhotep II, adjacently to Mortuary Temple Of Hatshepsut, Ancient Egypt, ca 2000 BCE



figure; 001_28



figure; 001_29

The Persian Empire 540 BCE,



figure: 001_30

Map of the Ancient World by 540 BCE

The Persian Empire



figure; 001_31



figure; 001_32



figure; 001_33

The ruins of the palace, Persepolis, Persia (Iran) ca 518 BCE

The Greek World ca 3 000 BCE – 323 BCE



figure; 001_34

Temple of Hera 1 at Paestum 550 bce



figure; 001_35

temple of Hera 2 at Paestum 448 bce

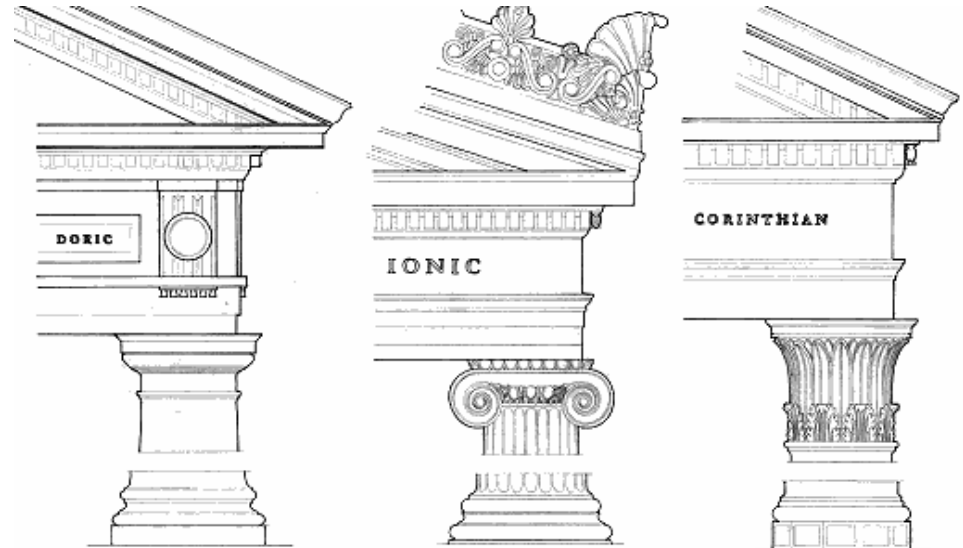
The Greek's architectural as the Classical period (479 BCE – 323 BCE)

The Greek's architectural as the Classical period (479 BCE – 323 BCE)



The Erechtheion, Athens 421 bce

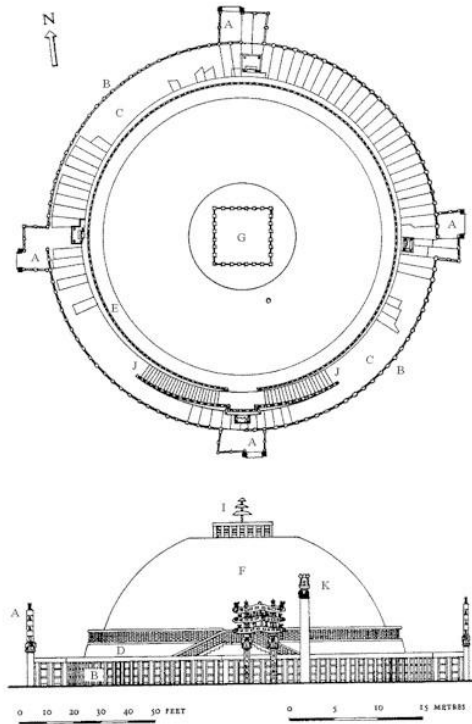
figure; 001_36



figure; 001_37

Column's classic order

The Architecture of Asia, Ancient India

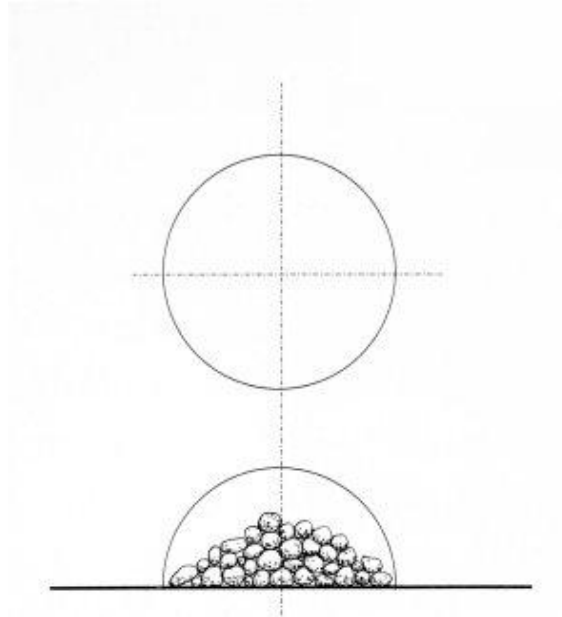


figure; 001_38



figure; 001_39

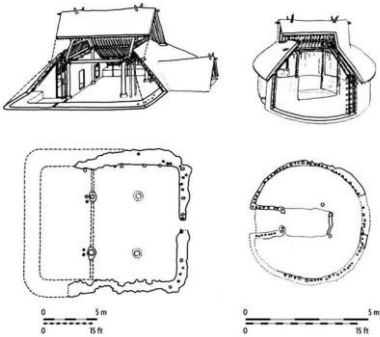
Early Buddhist Shrines, Great Stupa, Sanchi, ca 250 BCE – 250 CE



figure; 001_40

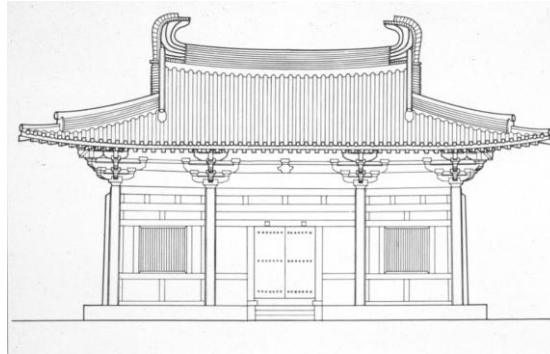
Diagram Illustrating the Origin of the Great Stupa, Sanchi, ca 250 BCE – 250 CE

The Architecture of Asia, China



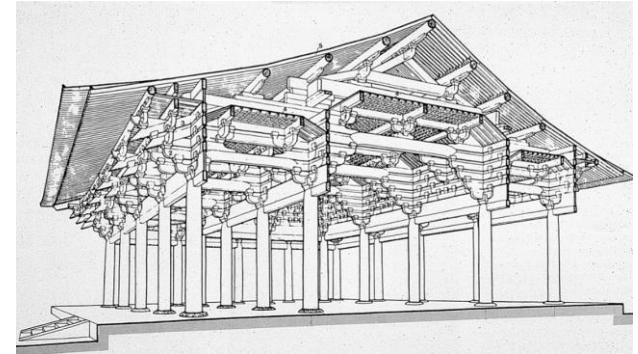
figure; 001_41

Banpo house 2 000 bce the foundations were founded nearby The Yellow River



figure; 001_42

Nanchan Monastery 782 CE, elevation drawing and interior structural drawing



figure; 001_43

Ancient Chinese Pagoda



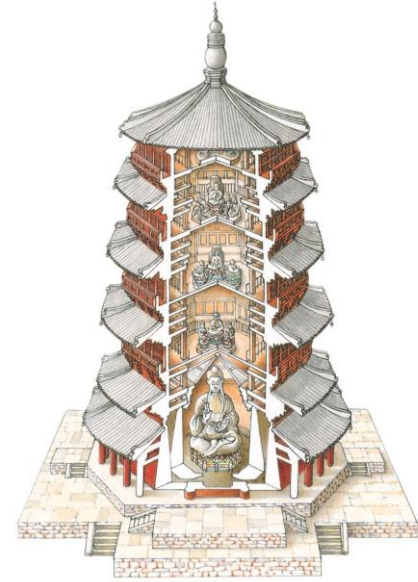
figure; 001_44

Songyue Pagoda 523 AD (Earliest Chinese Brick Pagoda)

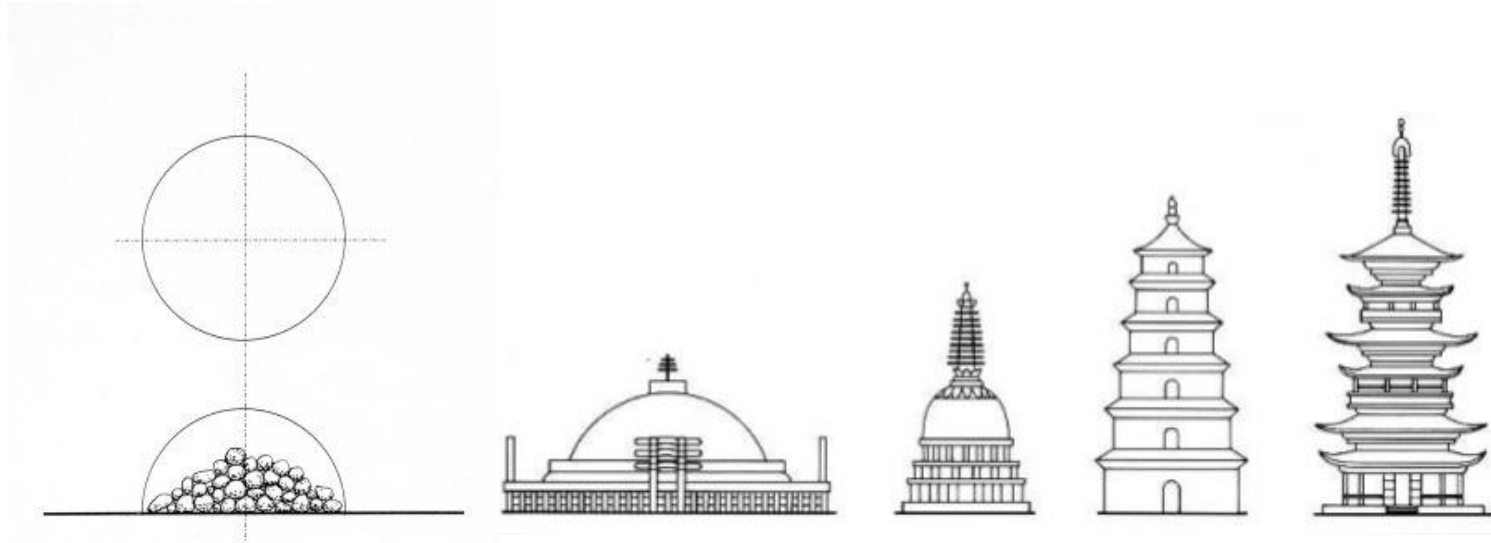


figure; 001_45

Fogong Pagoda 1056 AD (Earliest Chinese Wooden Pagoda)



figure; 001_46



figure; 001_47

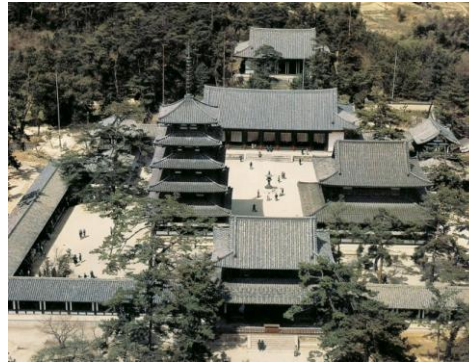
This diagram shows the cultural influences on design. (Ancient Indian, Chinese and Japanese)

The Architecture of Asia, Japan



figure; 001_48

Main Sanctuary, Ise Shrine, Uji-Yamata,
690CE – present)



figure; 001_49

Horjuyi temple complex, near Nara, 670-
714



figure; 001_50

Traditional House, (minka) probably 19th
century

Chinese and Japanese Pagodas



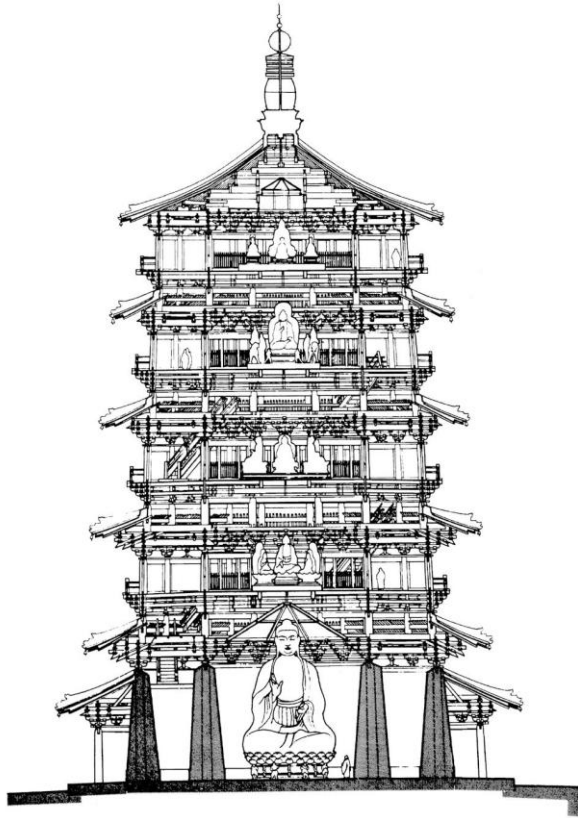
figure; 001_51

Fogong Pagoda 1056 AD (Earliest Chinese Wooden Pagoda)



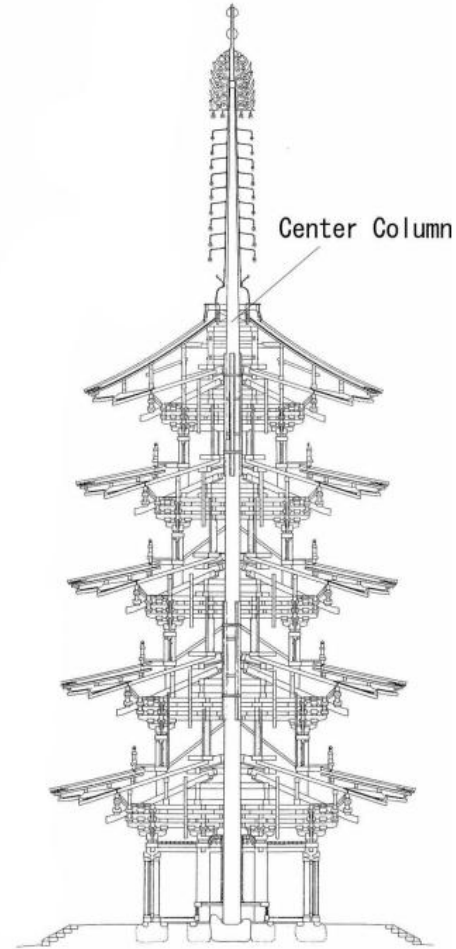
figure; 001_52

Pagoda, Horyuji complex, near Nara 670-714



figure; 001_53

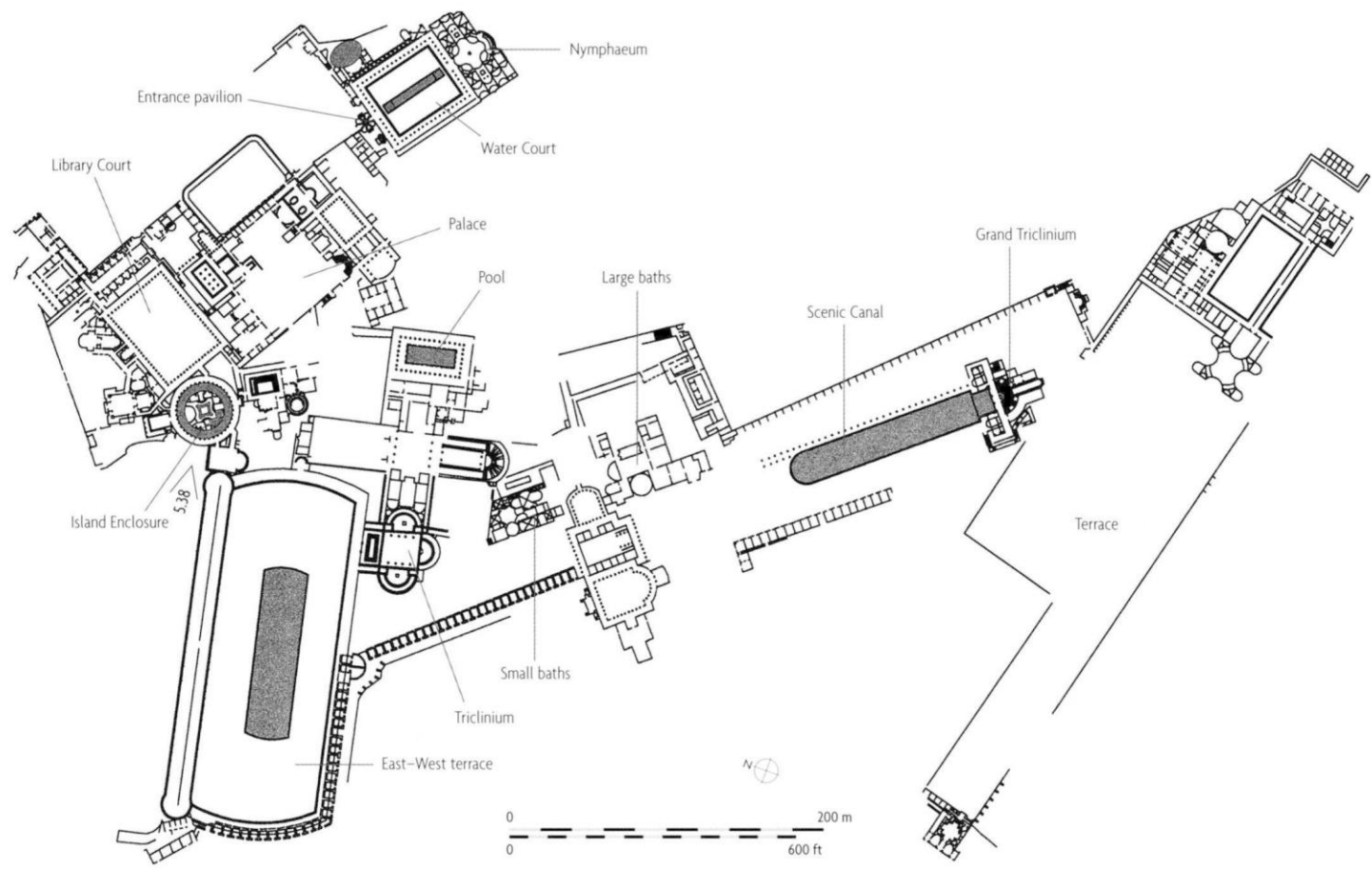
Fogong Pagoda 1056 AD (Earliest Chinese Wooden Pagoda)



figure; 001_54

Pagoda, Horyuji complex, near Nara 670-714

The Roman World



figure; 001_55



figure; 001_56

Pont du Gard, Nîmes, 20 – 16 bce



figure; 001_57

The Colosseum (Flavian Amphitheatre), Rome, completed 80ce.



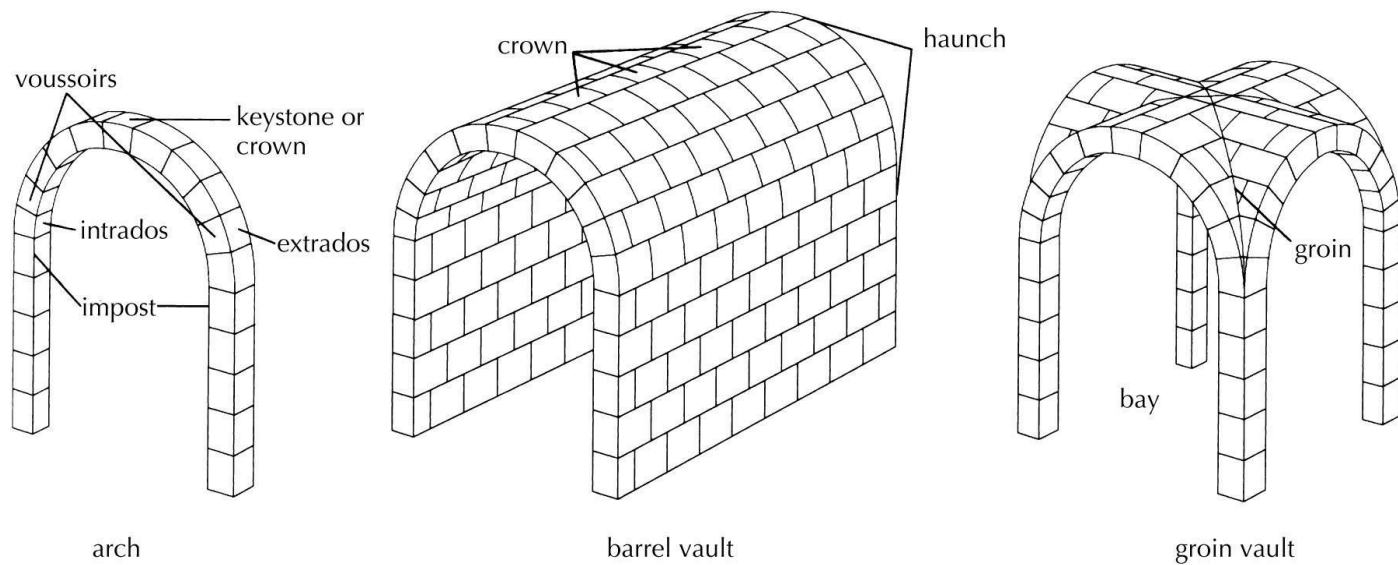
figure; 001_58

View of the Forum Romanum, Rome (37 bce – 14 ce)

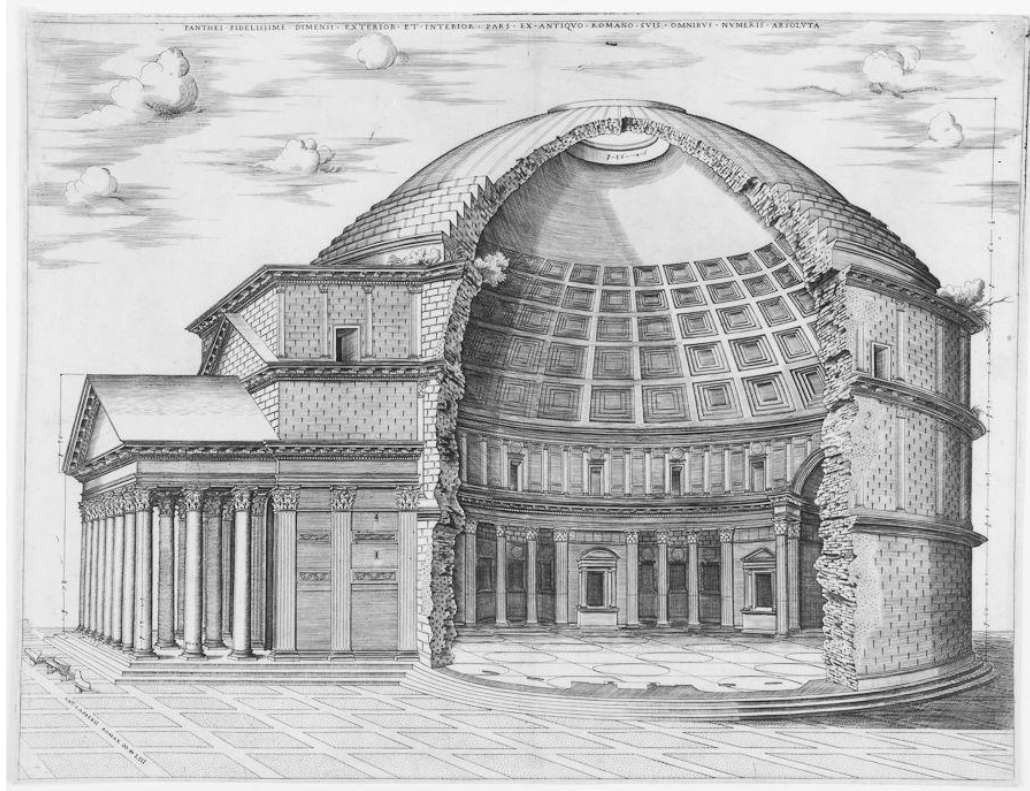


figure; 001_59

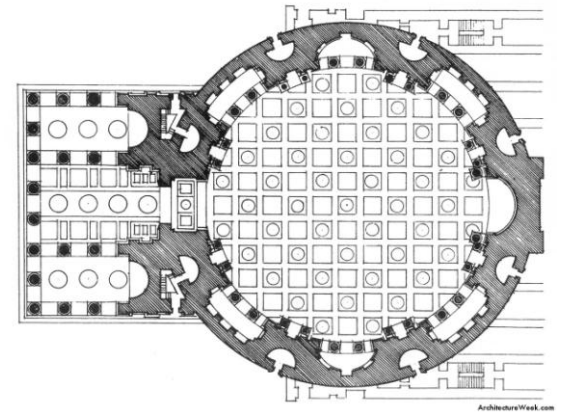
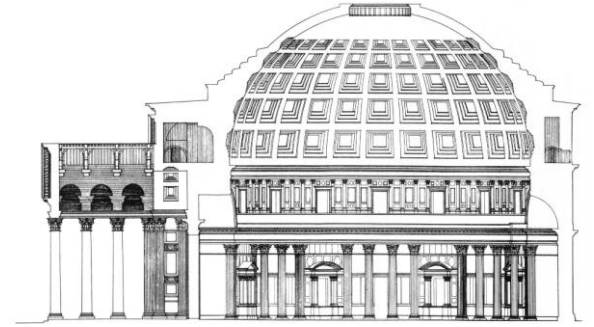
Temple of Fortuna Virilis, Rome 2th century bce



figure; 001_60



figure; 001_61



figure; 001_62

Pantheon , Rome, ca 125ce



figure; 001_63



figure; 001_64

Pantheon , Rome, ca 125ce

Earliest concrete walls,



figure; 001_65



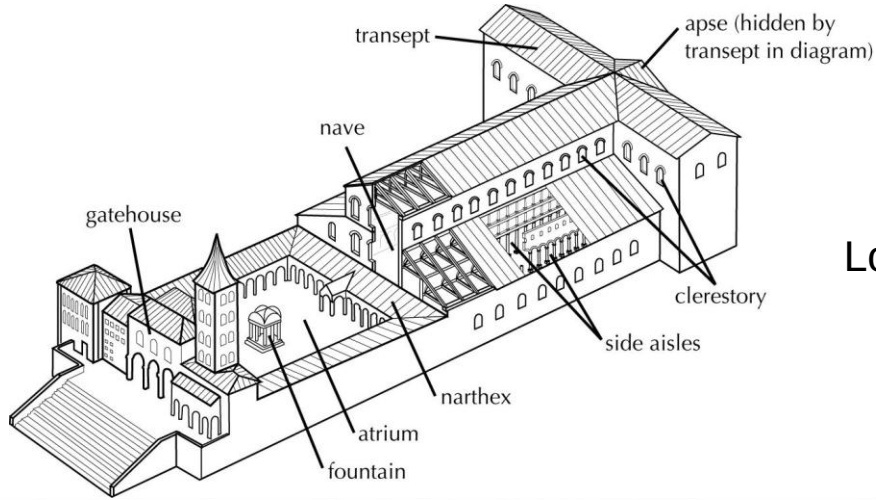
figure; 001_66

Early Christian Architecture



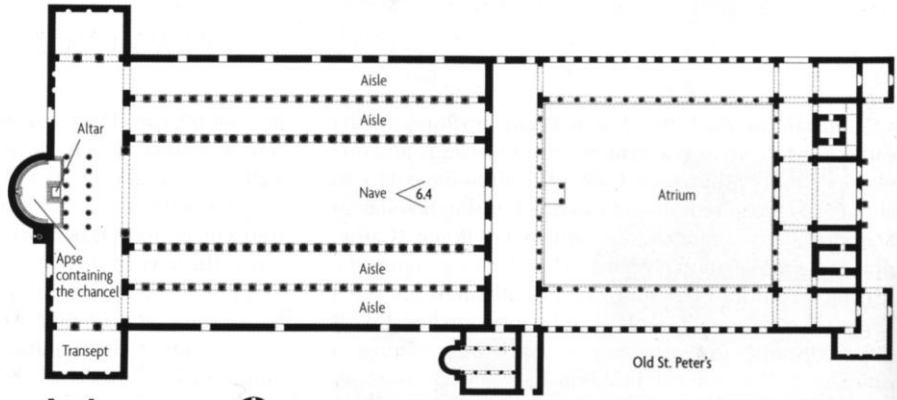
figure; 001_67

Marco interior, Venice, rebuilt 1063 – 89

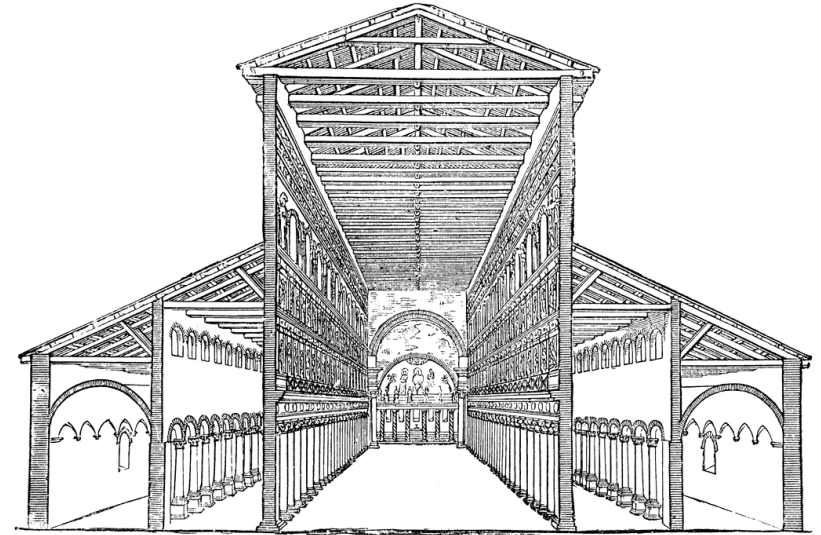


figure; 001_68

Longitudinal planning



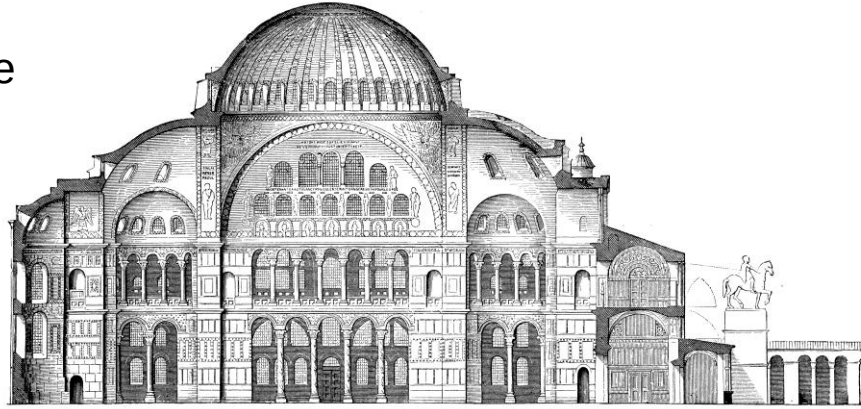
figure; 001_69



figure; 001_70

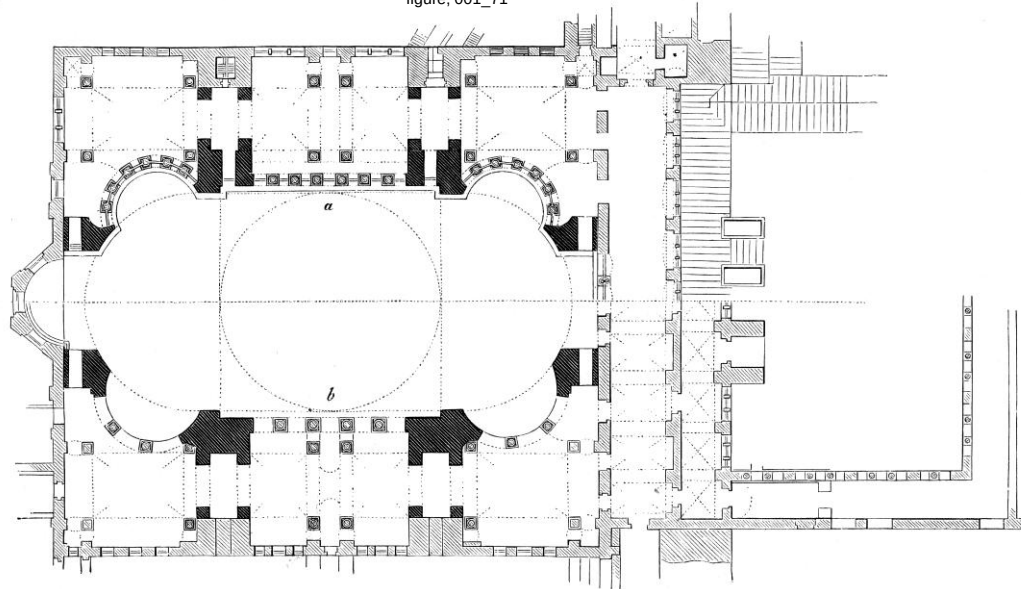
Axonometric, plan, and one point perspective drawings of Old St. Peter's, Rome, ca 318-22

Islamic Architecture



figure; 001_71

Central planning



figure; 001_72

A section and plan drawing
of Hagia Sophia, 532-37



figure; 001_73



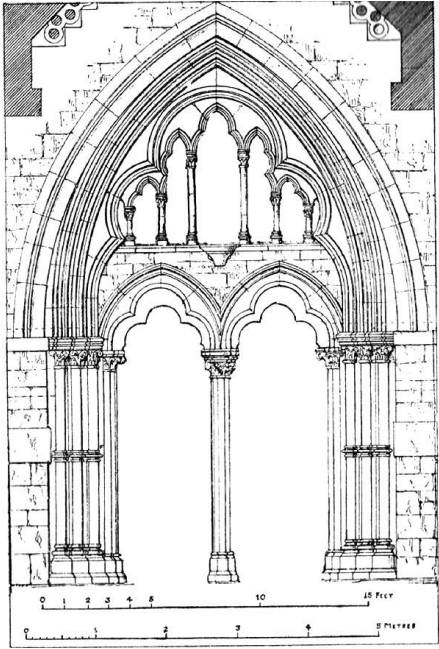
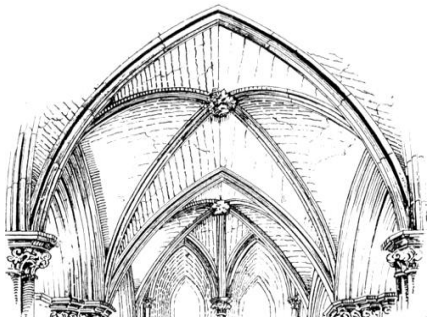
figure; 001_74

Hagia Sophia, 532-37 (Istanbul, Turkey)

Gothic Architecture



figure; 001_75



figure; 001_76

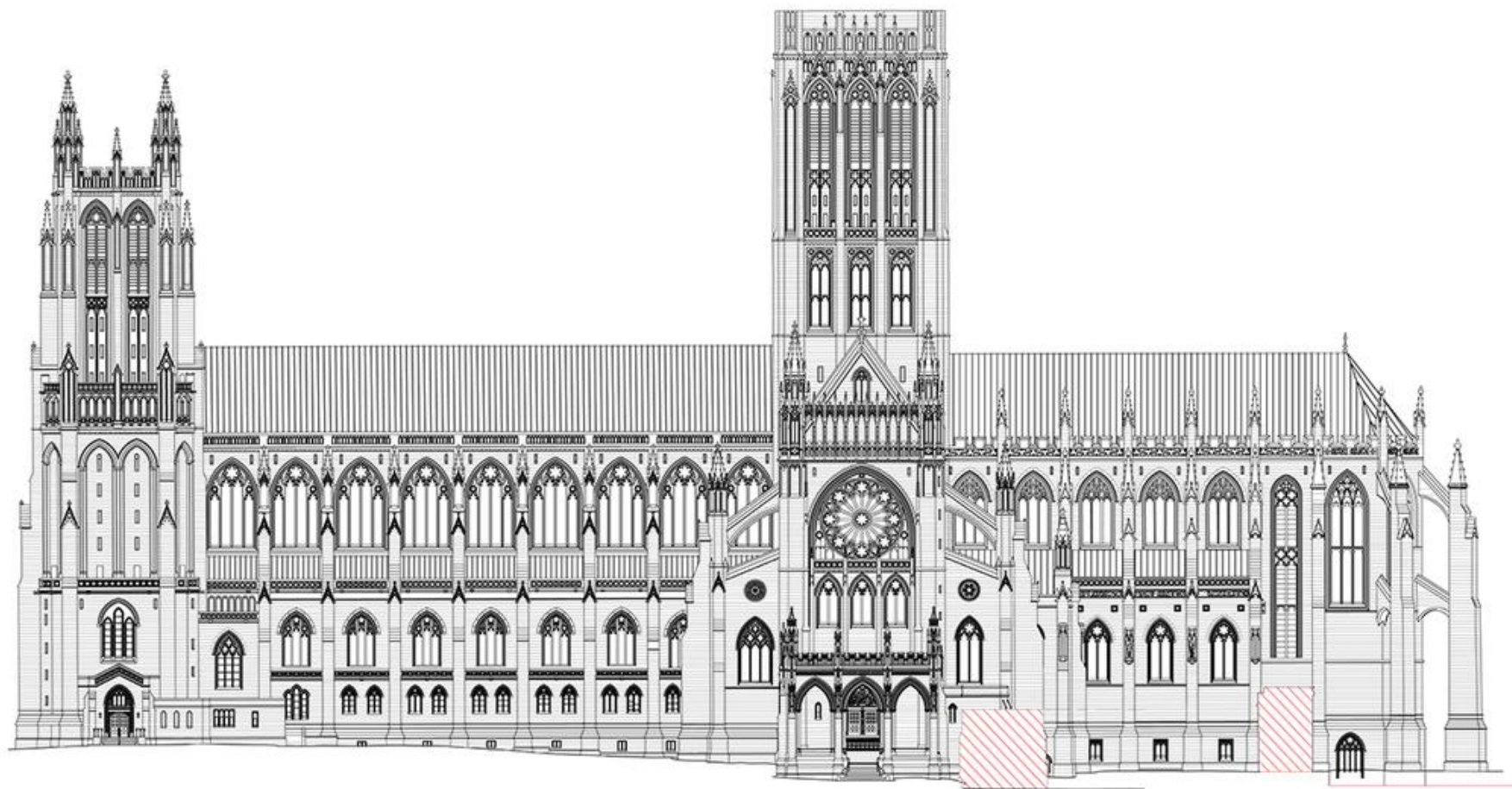
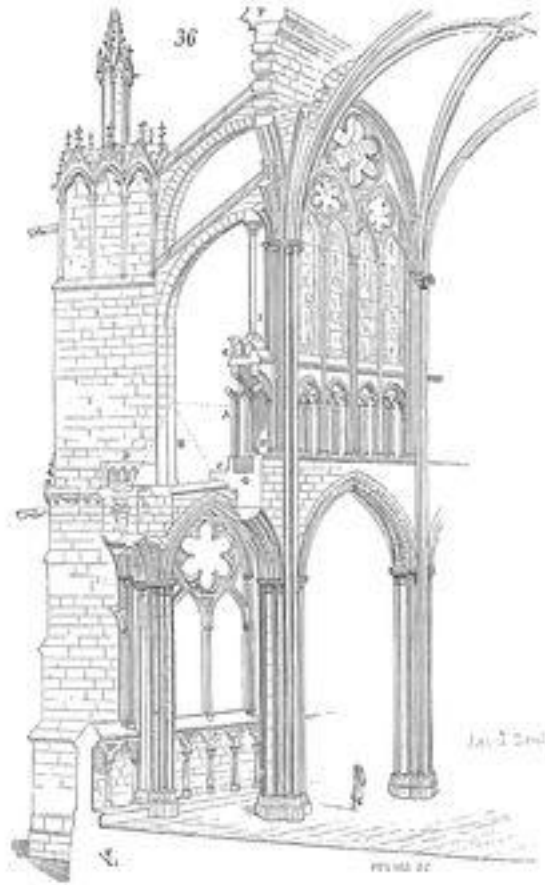


figure: 001_77

Notre-Dame Cathedral, Paris, 1163 - 1250

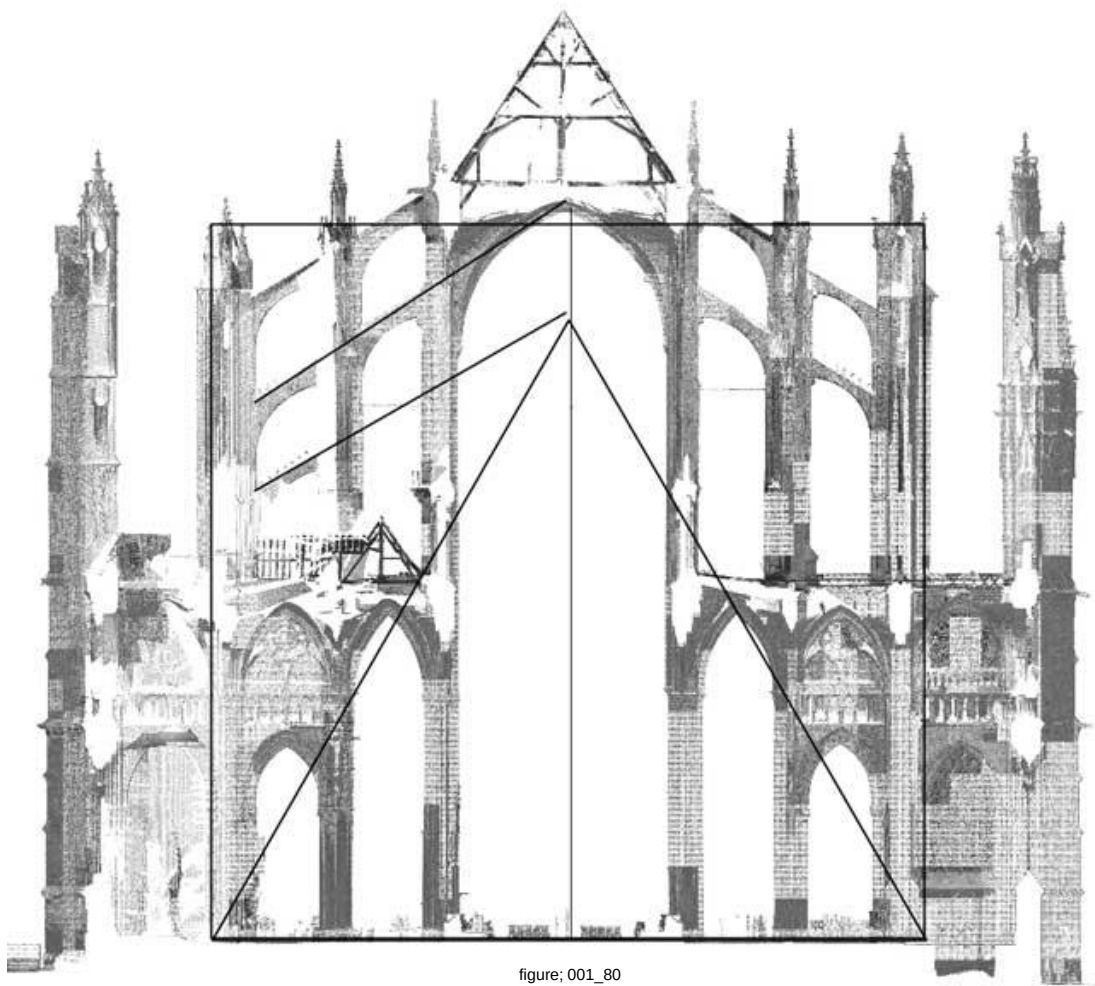


figure; 001_78

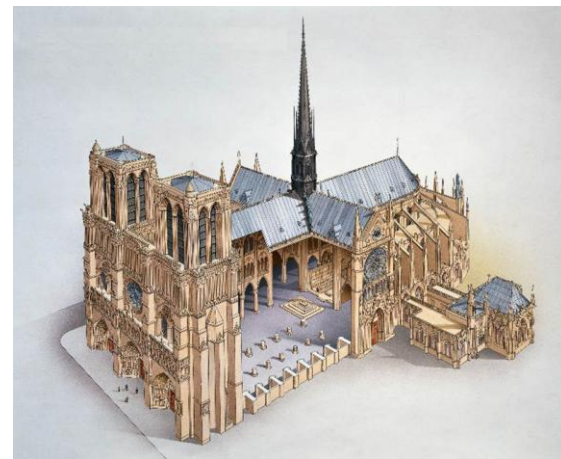


figure; 001_79

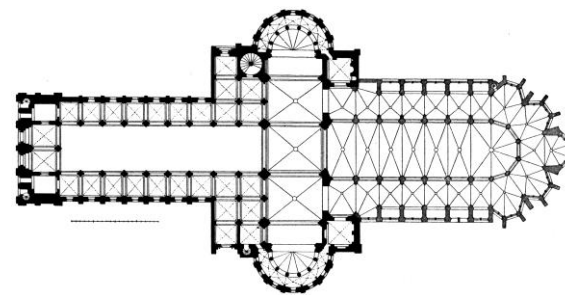
Section perspective showing the Gothic structure of a major church.



figure; 001_80

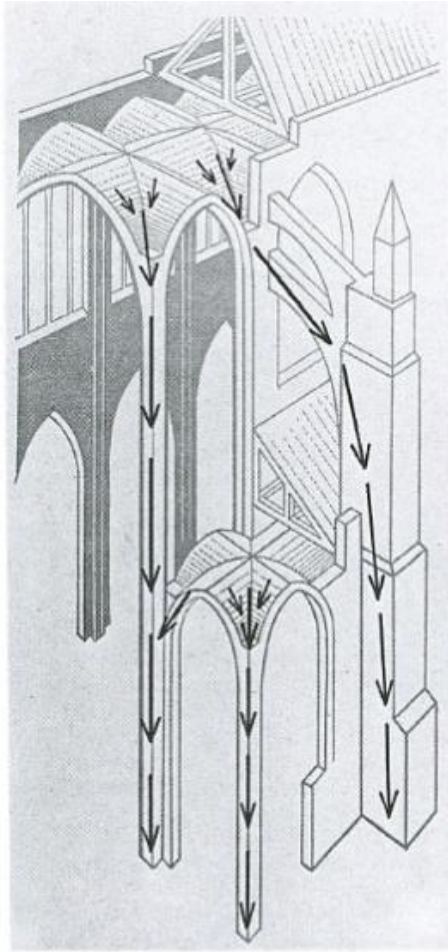


figure; 001_81

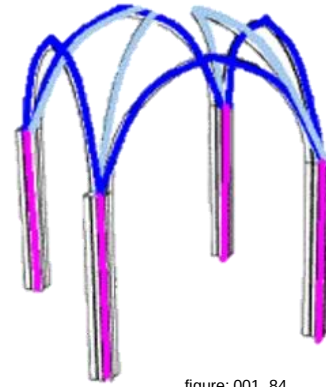


figure; 001_82

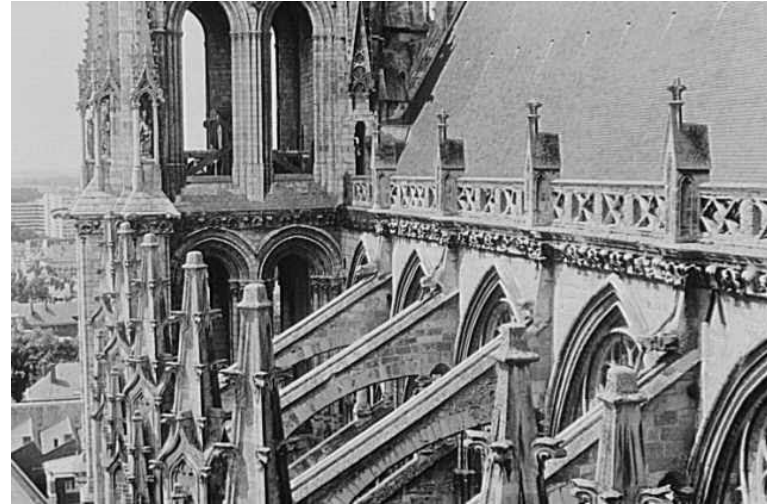
Section, plan and 3D perspective showing structural strategy of the Gothic architecture.



figure; 001_83



figure; 001_84



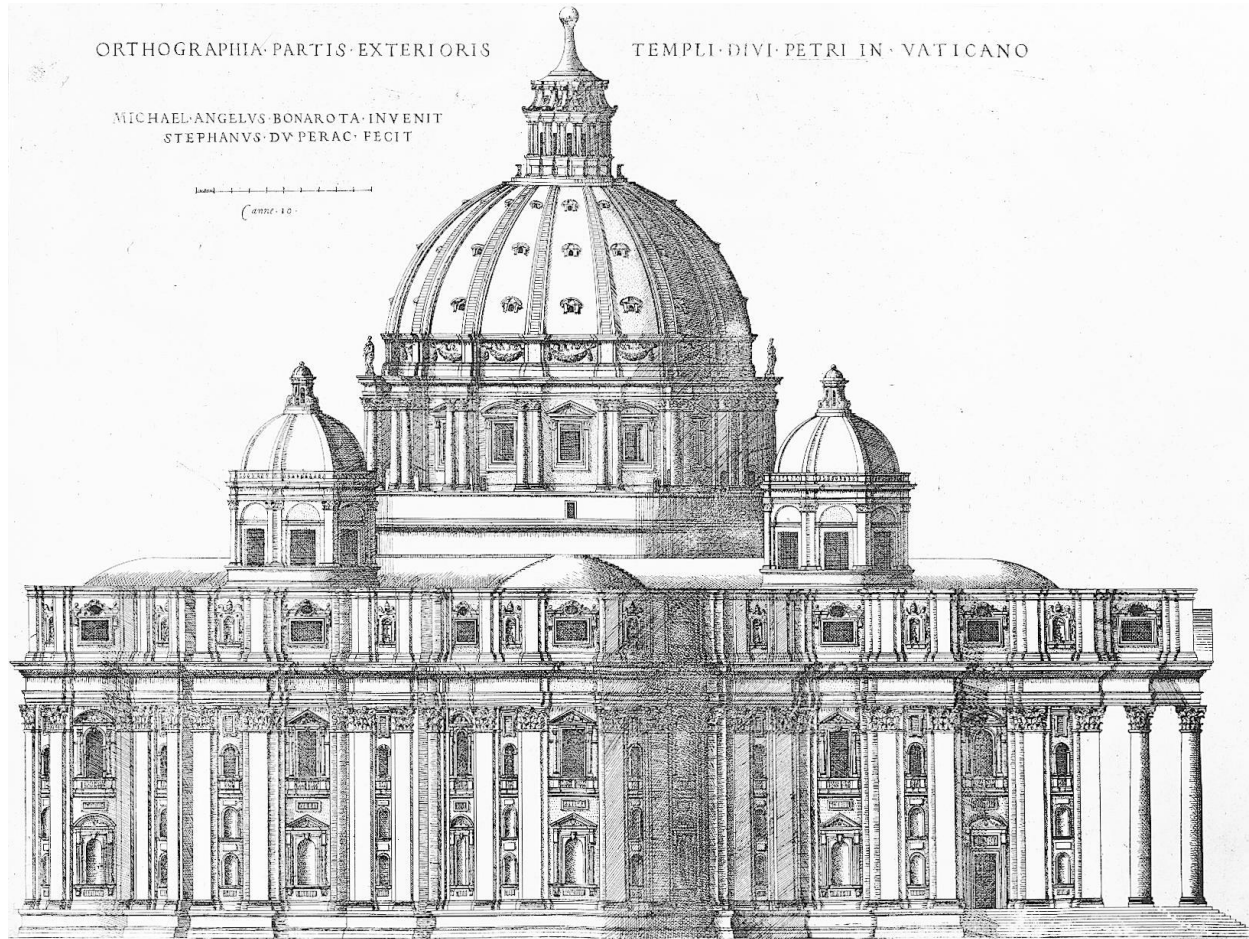
figure; 001_85

Images showing skeleton structural system

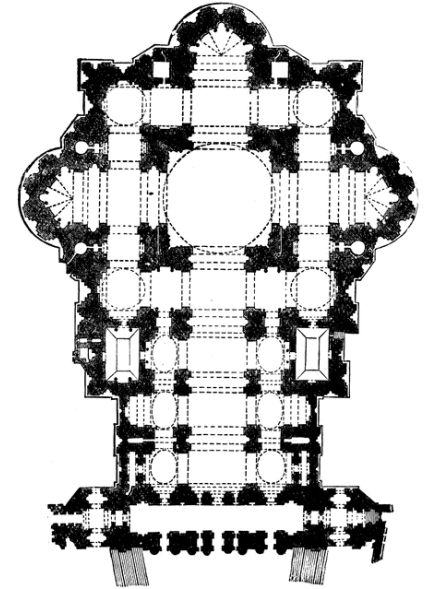




Renaissance Architecture

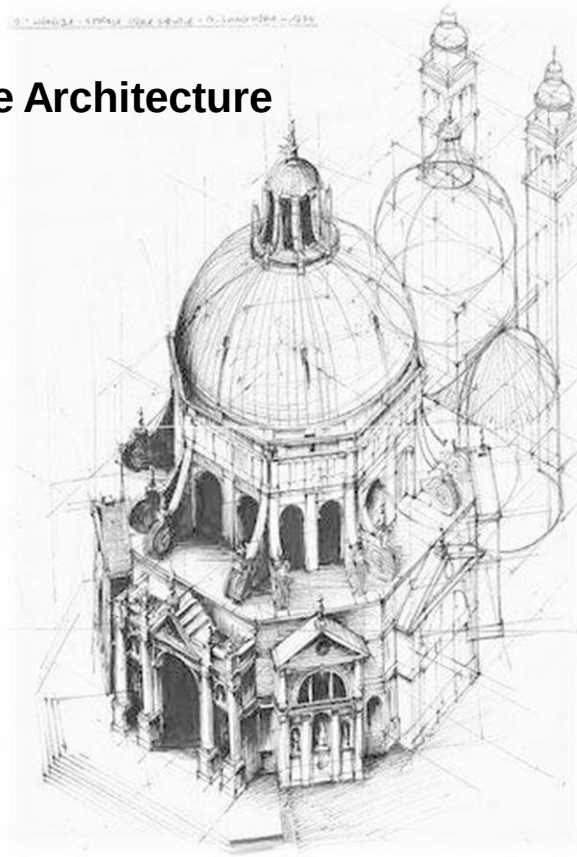


figure; 001_88



figure; 001_89

Baroque Architecture

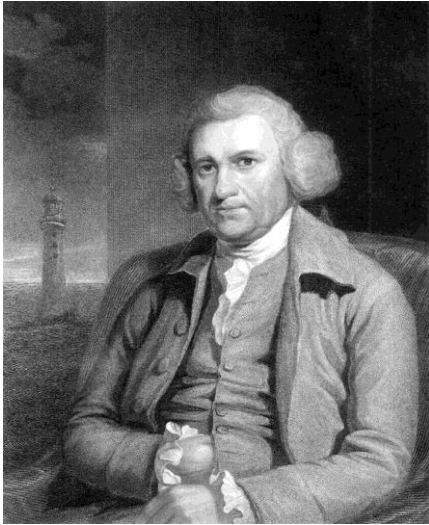




18th Century Architecture



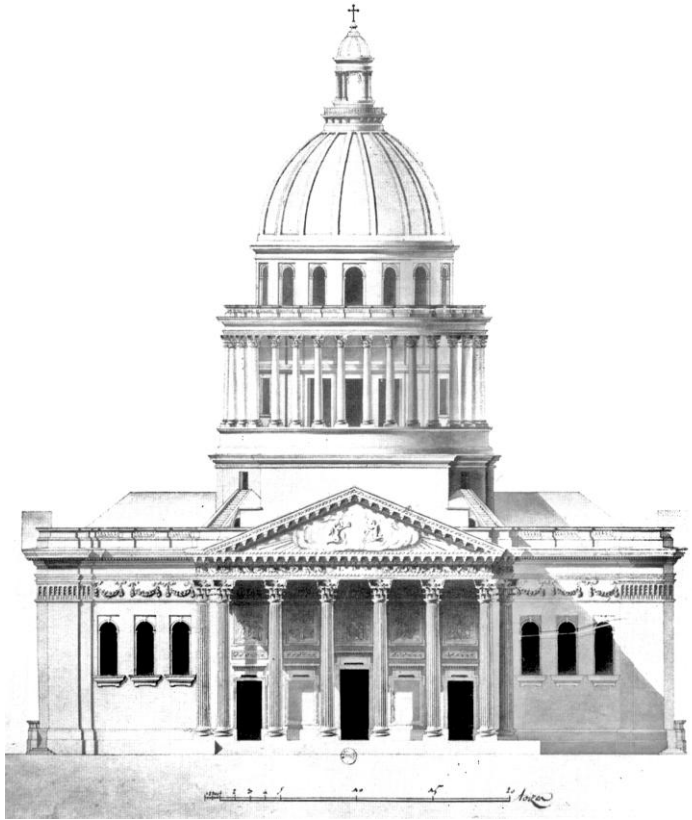
figure: 001_90



figure; 001_91

John Smeaton (08.06.1724 – 28.10.1792)

Who was an English civil engineer responsible for the design bridges, canals, harbours, and lighthouses. Also the founder of first engineer society in the world, **The Smeatonian Society of Civil Engineers**.



figure; 001_91



figure; 001_92

Structural design and calculation were first applied to a new design in the building of Pantheon, Paris.

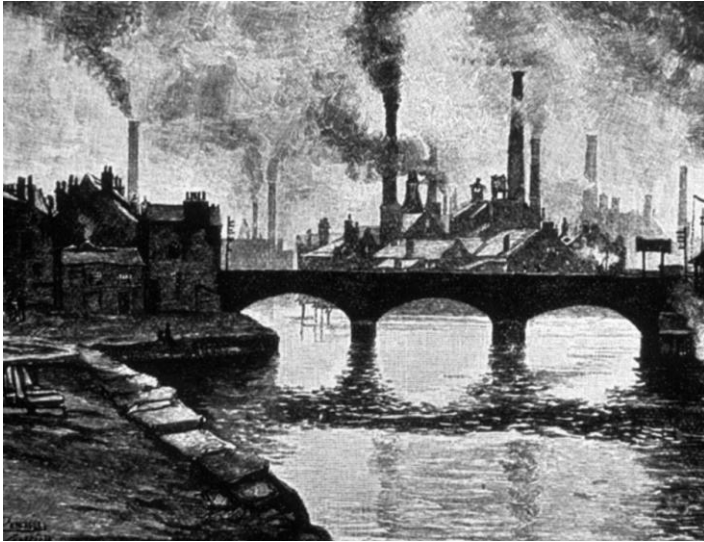
Abraham Darby (14.04.1678 – 08.03.1717)

Who was the first and best developing of method of producing pig iron in a blast furnace fuelled by coke rather than charcoal. This was a major step forward in the production of iron as a raw material for the Industrial Revolution.

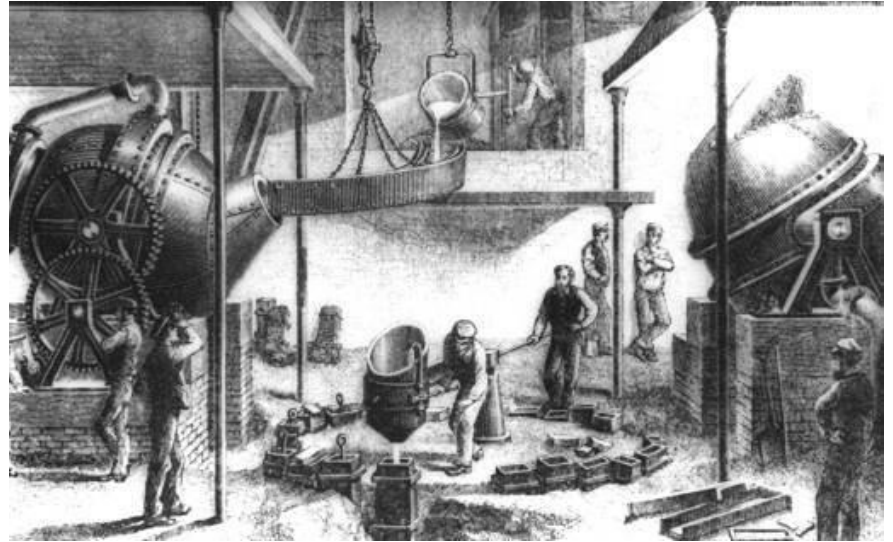


figure; 001_93

The Industrial Revolution in the 18th century.



figure; 001_94



figure; 001_95

The first iron bridge over the river Severn, England,
designed by architect Thomas Pritchard in 1779



figure; 001_96

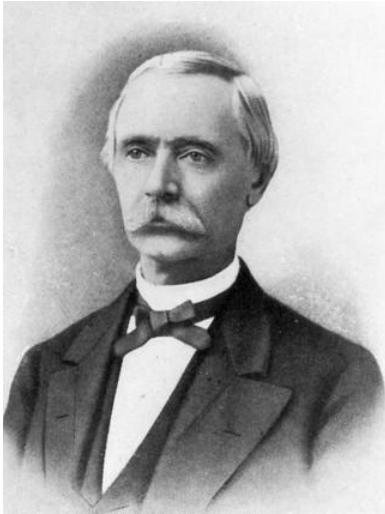
19th Century Architecture



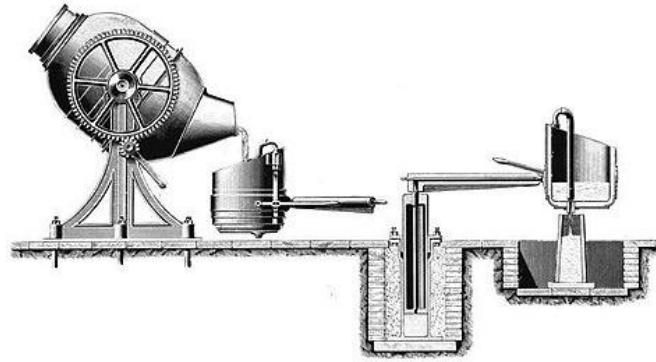
figure; 001_97

William Kelly (21.08.1811 – 11.02.1888)

Who was an American inventor.



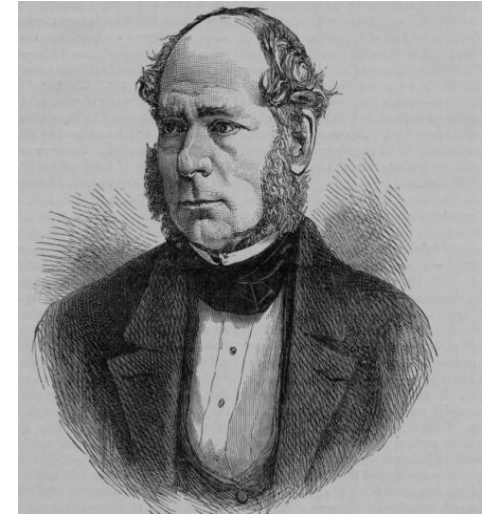
figure; 001_98



figure; 001_99

Sir Henry Bessemer (19.01.1813 – 15.03.1898)

Who was an English inventor.



figure; 001_100

The invention the **pneumatic process** of steelmaking, in which air is blown through molten pig iron to oxidize and remove unwanted impurities

Ead's Bridge, the first steel bridge over the river Mississippi, USA,
designed by Capitan James B, Eads in 1869 - 1874

Total lenght: 1964m



figure; 001_101

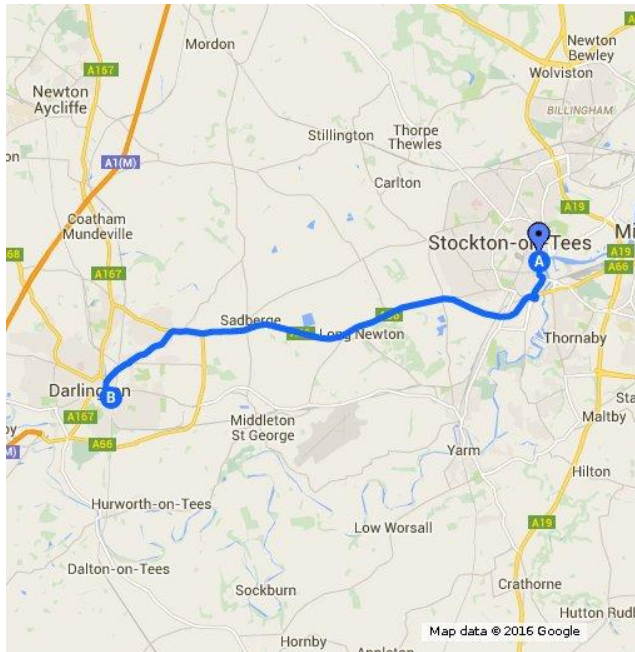
Brooklyn Bridge, the first steel suspension bridge over the river East River, New York, USA,

Total length: 1825m

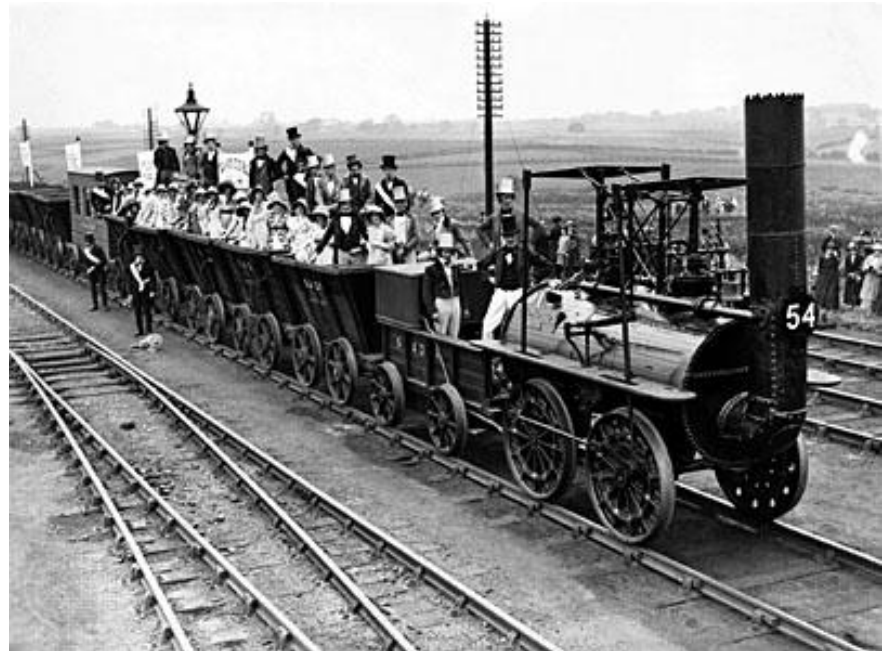


figure; 001_102

The first railroad, From Stockton to Darlington, England. 1825



figure; 001_103



figure; 001_104

The first iron structure, Kew Garden, London, England

Lightweight ironframing system with glass infill panes, 1845 - 47



figure; 001_105



figure; 001_106

Gustave Eiffel (15.12.1832 – 27.12.1923)

Who was a French civil engineer and architect.



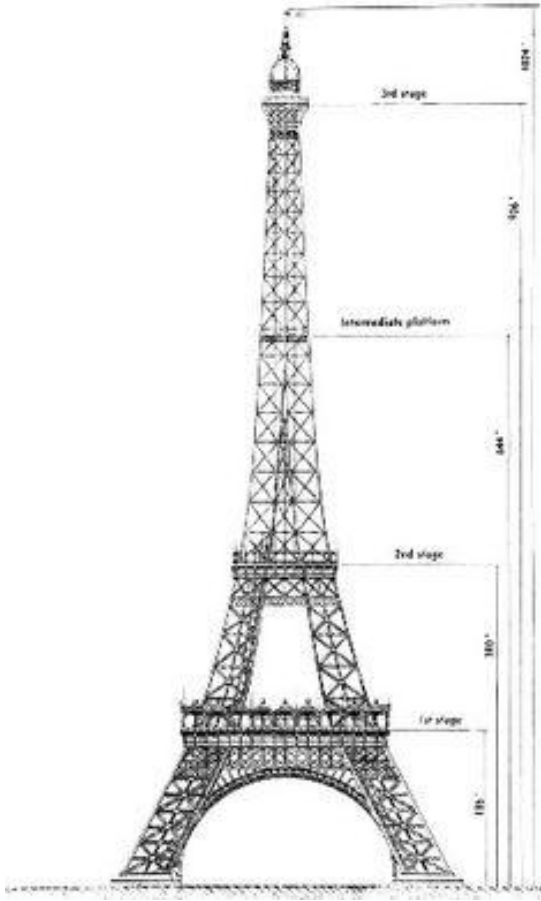
figure; 001_107

Garabit Viaduct over the river Truyere, France. 1880 - 1884

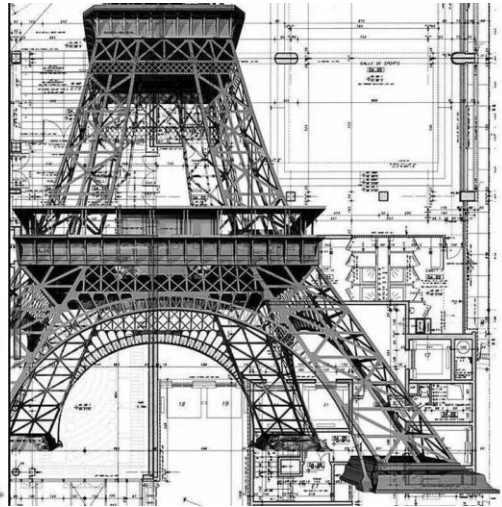


figure; 001_108

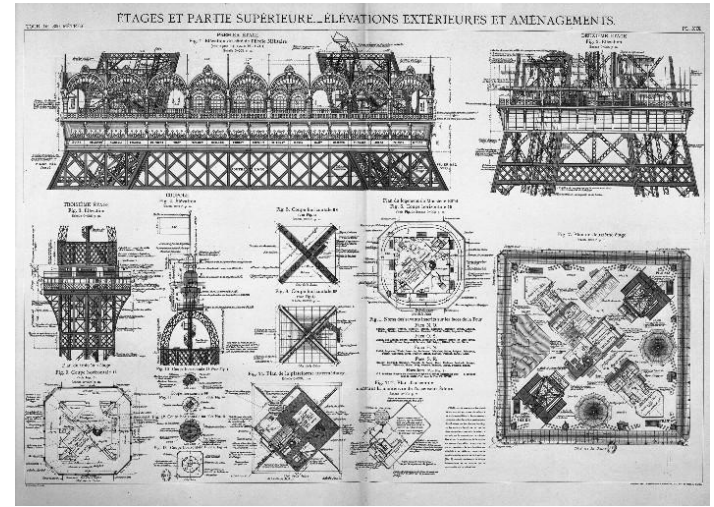
Eiffel Tower, the first and tallest iron tower, Paris, France. 1889



figure; 001_109



figure; 001_110



figure; 001_111

Great Fire in New York:

21.09.1776

One quarter of the city

16.12.1835

210 000 square metre, 674 buildings

19.07.1845

345 buildings, 26 civilians and 4 firefighters been killed.

Great Fire in Chicago:

08.10.1871
homeless

17 450 buildings, 300 civilians been killed, 9 square km, 100 000 people

Home Insurance Company Building, Chicago, USA

Designed by William Le Baron Jenney, 1883-85



figure; 001_112

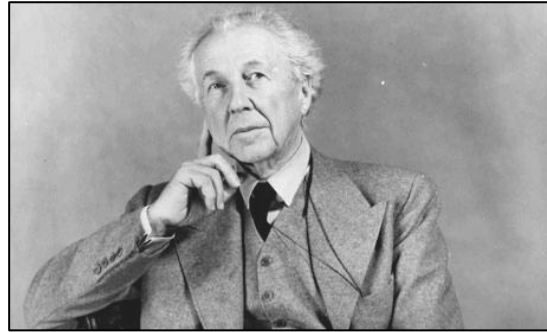
The second Rand McNally Building, Chicago, USA

Designed by Daniel H. Burnham and John Welborn Root, 1889-90



figure; 001_113

02: *“As an architect, You need to think at least 10 years ahead”*

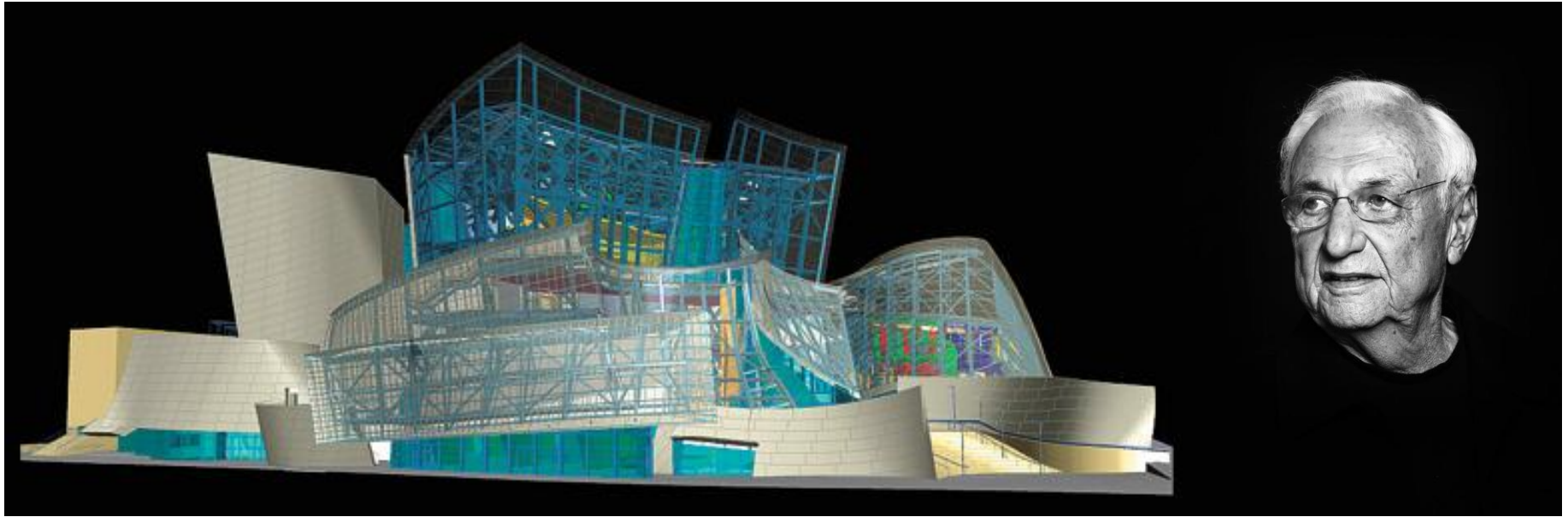


Frank Lloyd Wright (08.06.1867 – 09.04.1959)

Frank Gehry (28.02.1929)

The Guggenheim Museum Bilbao, Spain. 1997

Who is one of the well known contemporary
Canadian-born American architect.



The Guggenheim Museum Bilbao, Spain. 1997 /a new computer advanced technology CATIA (Computer Aided Three Dimensional Interactive Application)



The Guggenheim Museum Bilbao, Spain. 1997 /a new computer advanced technology CATIA (Computer Aided Three Dimensional Interactive Application)

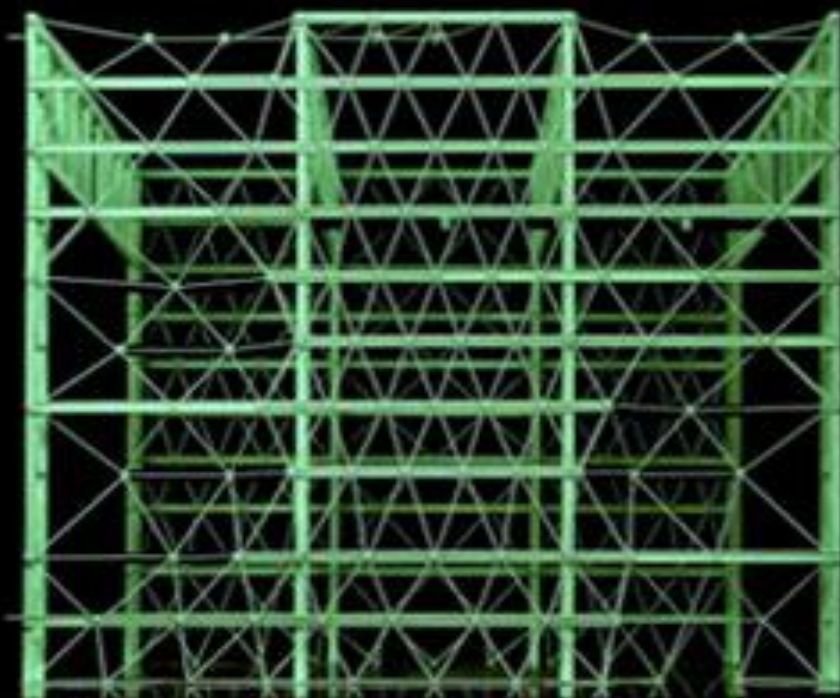


Media-ICT, Barcelona, Spain. 2007, designed by Enric Ruiz-Geli

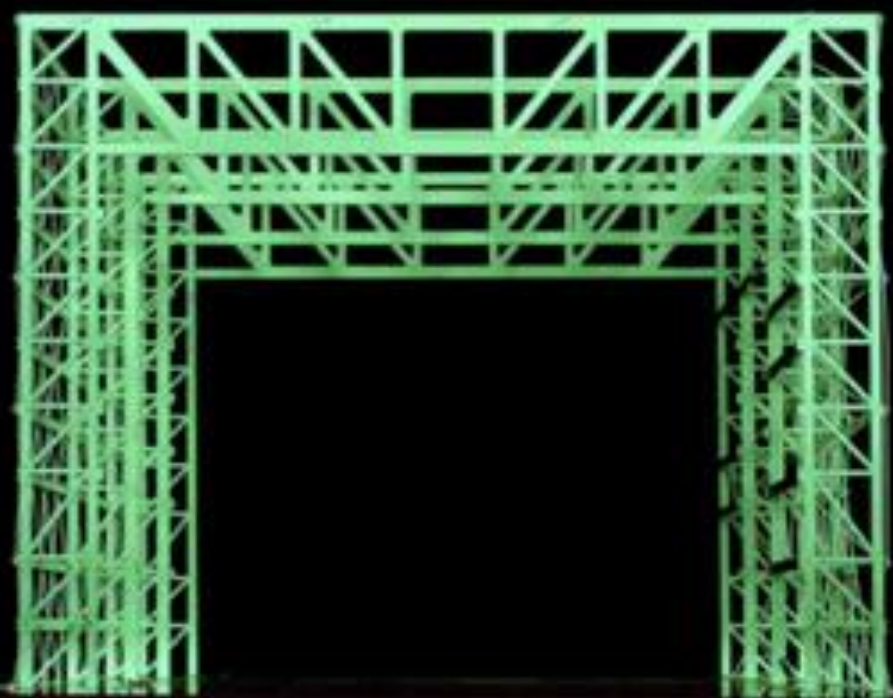


Won a price of European Award for Steel Strucrure 2009

Side Structure



Front Structure

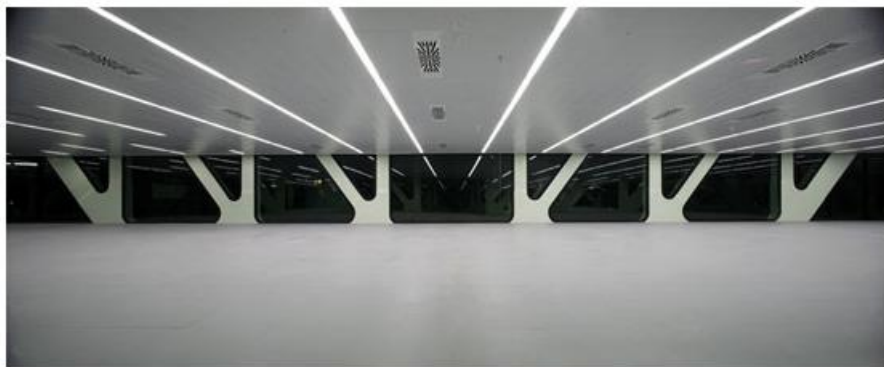


Media-ICT, Barcelona, Spain. 2007, designed by Enric Ruiz-Geli



- *The of frame of the building is made of steel and with suspended each double store floor.
- *Column free interior space (36-40m more space created)

Media-ICT, Barcelona, Spain. 2007, designed by Enric Ruiz-Geli



Media-ICT, Barcelona, Spain. 2007, designed by Enric Ruiz-Geli



*South-east facade is made of ETFE cushions. The ETFE cushions are inflatable and embedded with sensors reading the heat and the angle of the sun.

*The building has intelligence system employing 300 sensors controlling interior lighting temperature and the quality of air humidity.

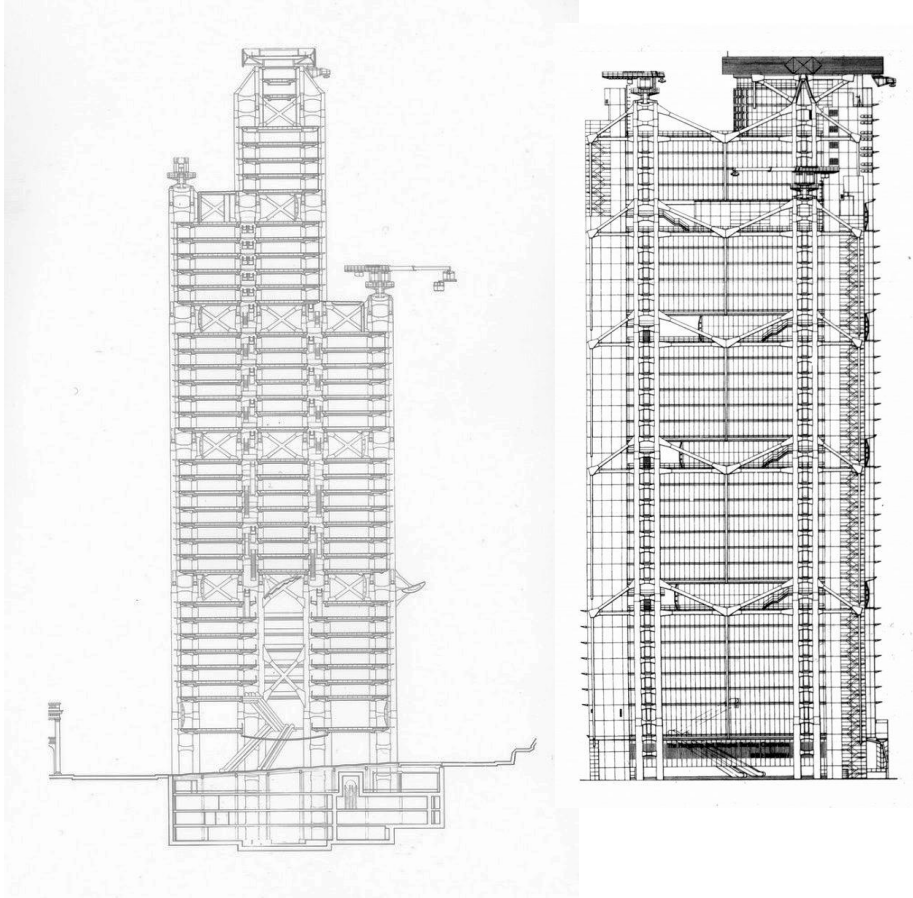
Sir Norman Foster (01.06.1935)

HSBC Main Building, Hong Kong, China. 1983 - 85

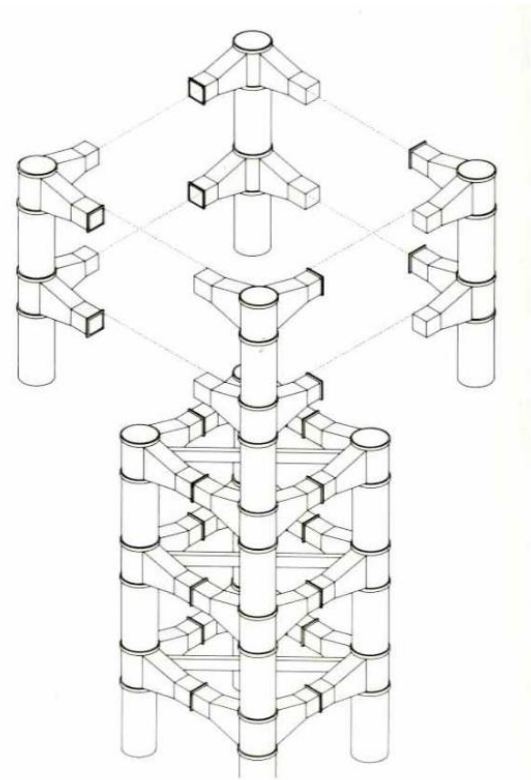
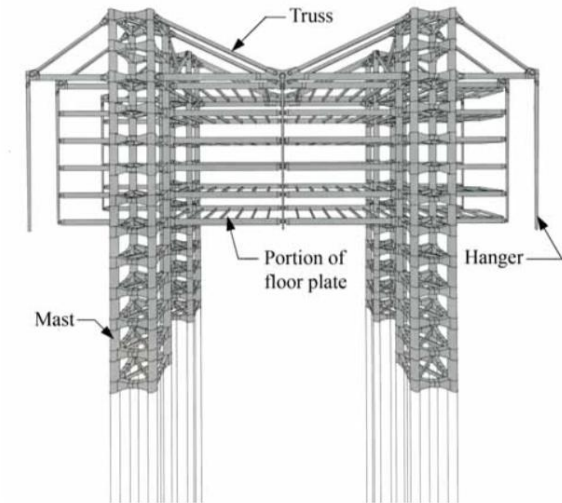
Who is one of the world's well known british architect, the founder of Foster + Partners, an international design practice famous for high-tech architecture.



HSBC Main Building, Hong Kong, China.1983 - 85



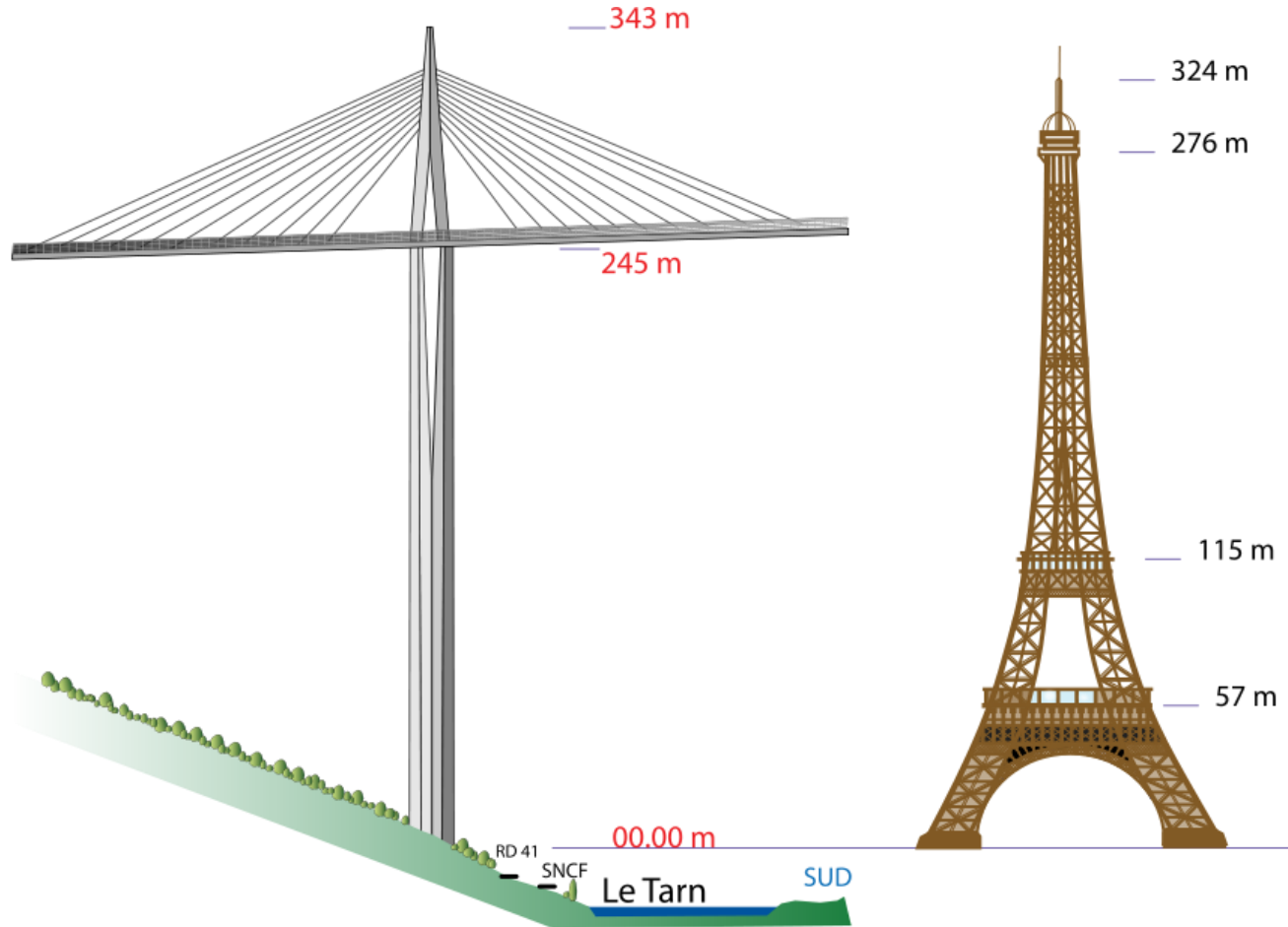
HSBC Main Building, Hong Kong, China.1983 - 85



Millau Viaduct, France. 2004, designed by Sir Norman Foster
Tallest bridge in the World



Millau Viaduct, France. 2004, designed by Sir Norman Foster Tallest bridge in the World

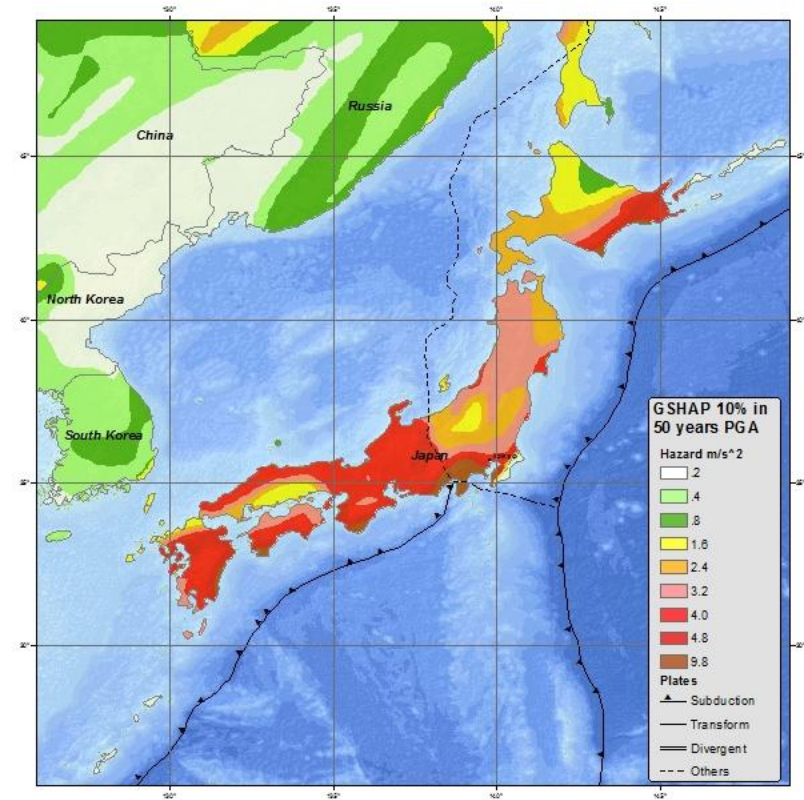
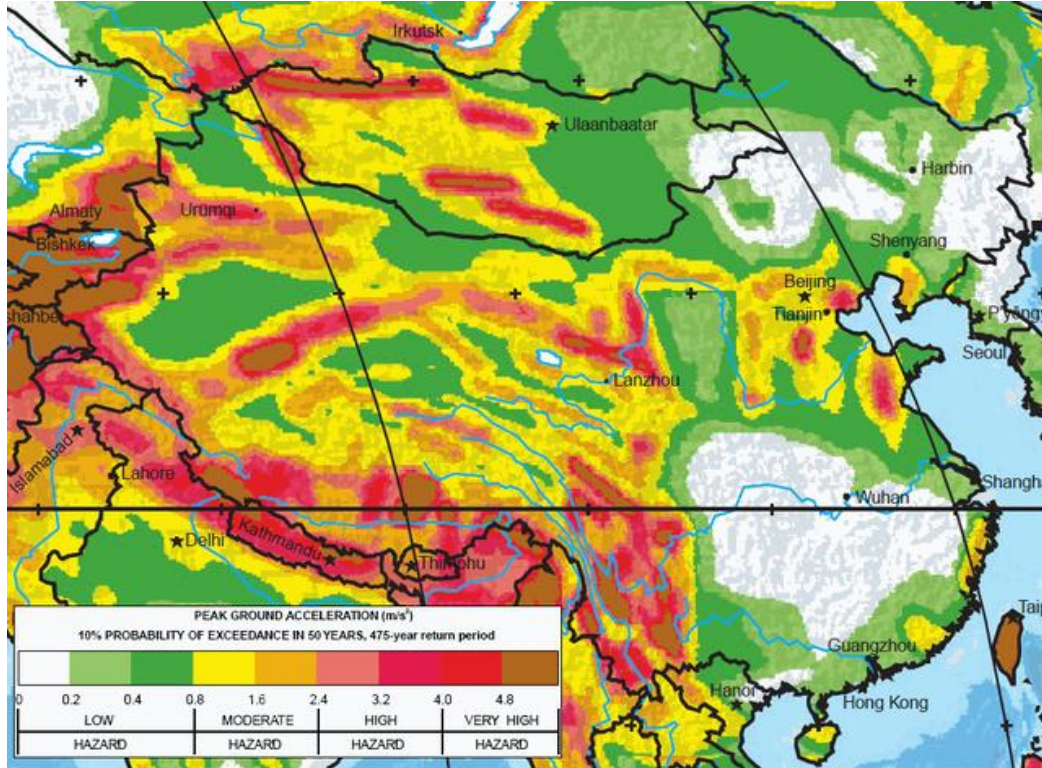


Millau Viaduct, France. 2004, designed by Sir Norman Foster
Tallest bridge in the World

Length of the bridge: 2.46km



Seismic hazard map Mongolia, China, and Japan.



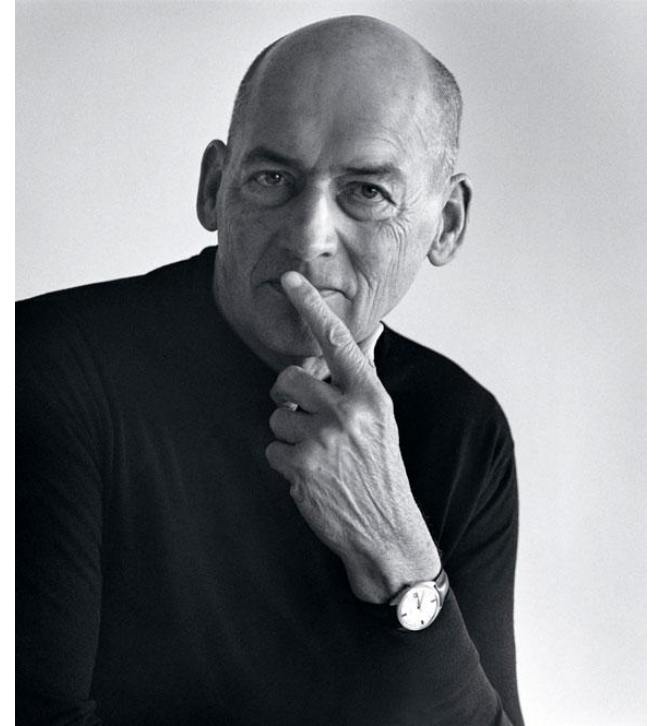
CCTV Headquarters, Beijing, China. 2012

Designed by Rem Koolhaas, OMA (Office for Metropolitan Architecture)



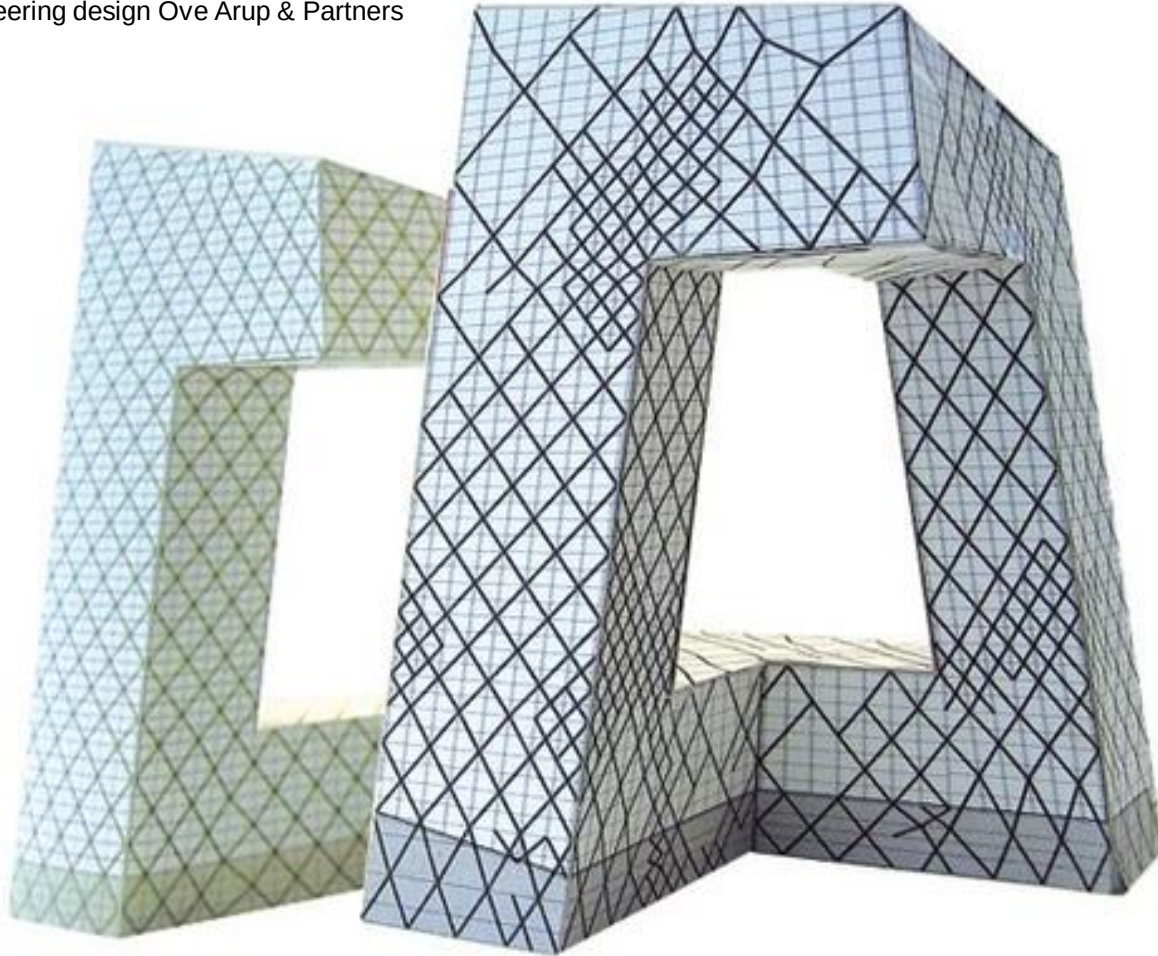
Rem Koolhaas (17.11.1944)

Who is one of the important a Dutch architect,
architectural theorist, urbanist and
Professor of Architecture and Urban Design.



CCTV Headquarters, Beijing, China. 2012

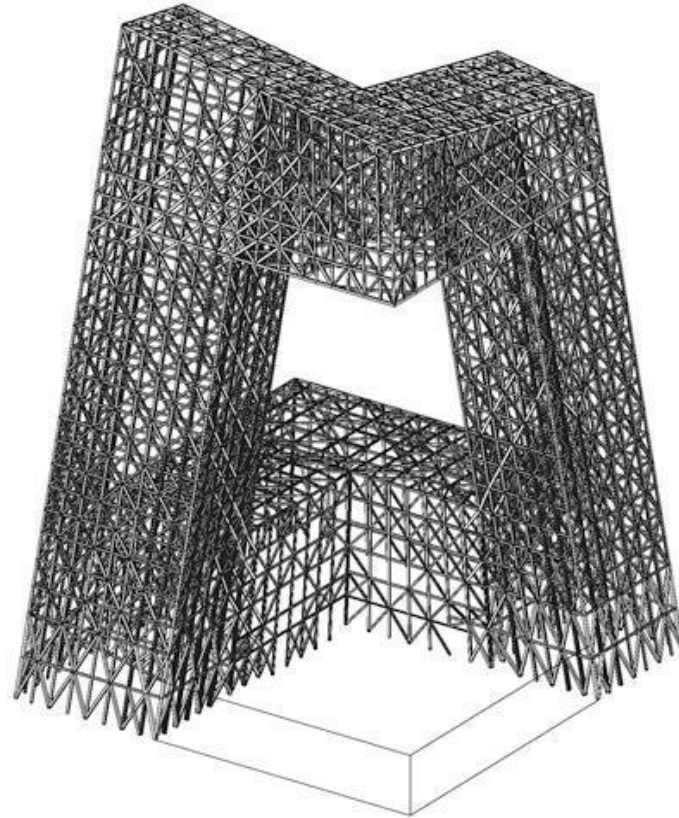
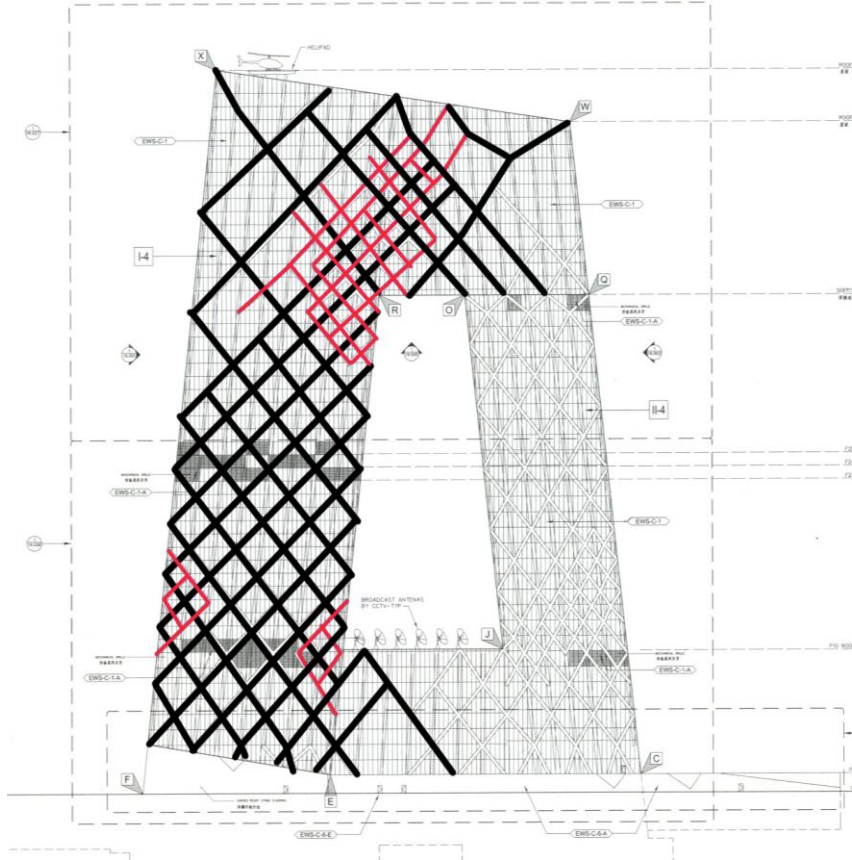
Structural engineering design Ove Arup & Partners



CCTV Headquarters, Beijing, China. 2012

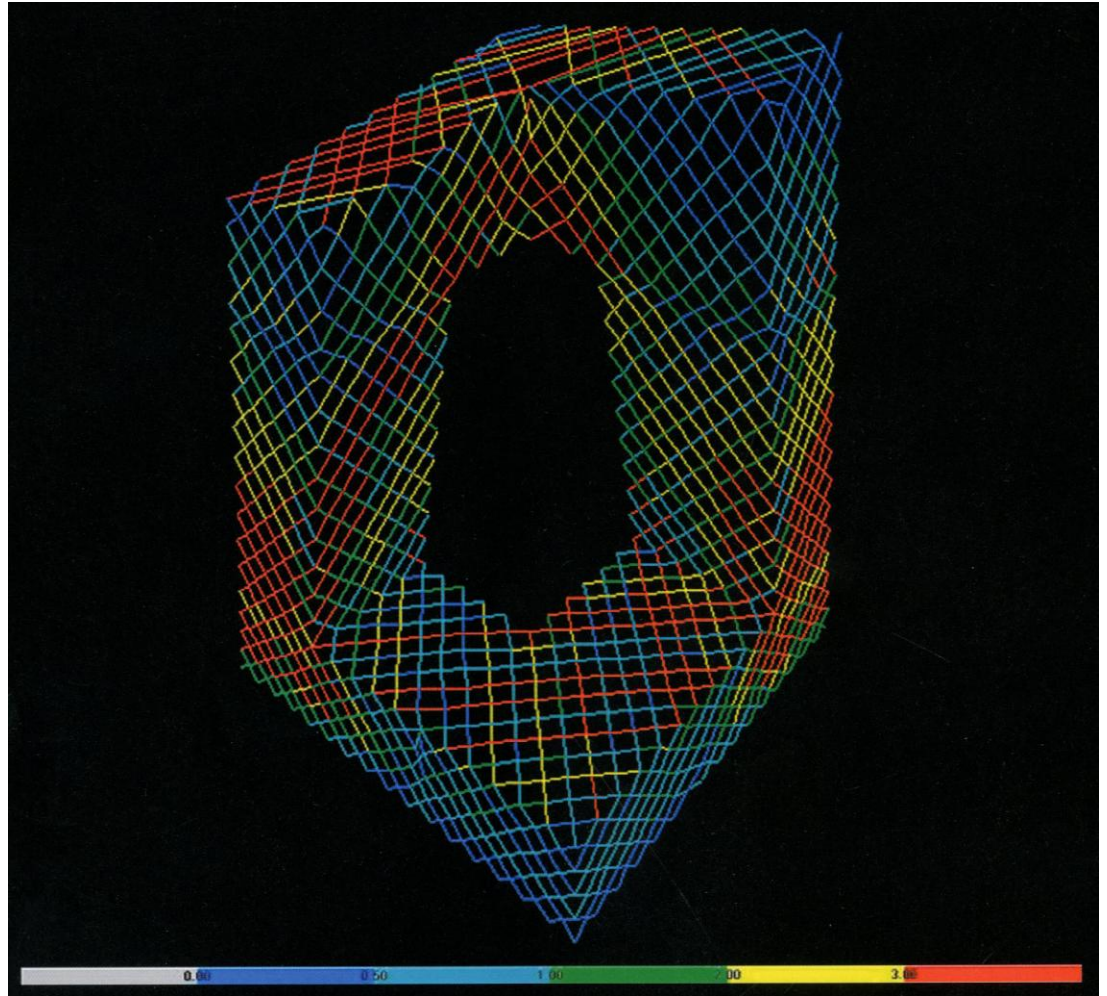
Structural engineering design Ove Arup & Partners

Structural challenges / Diagrid exoskeleton



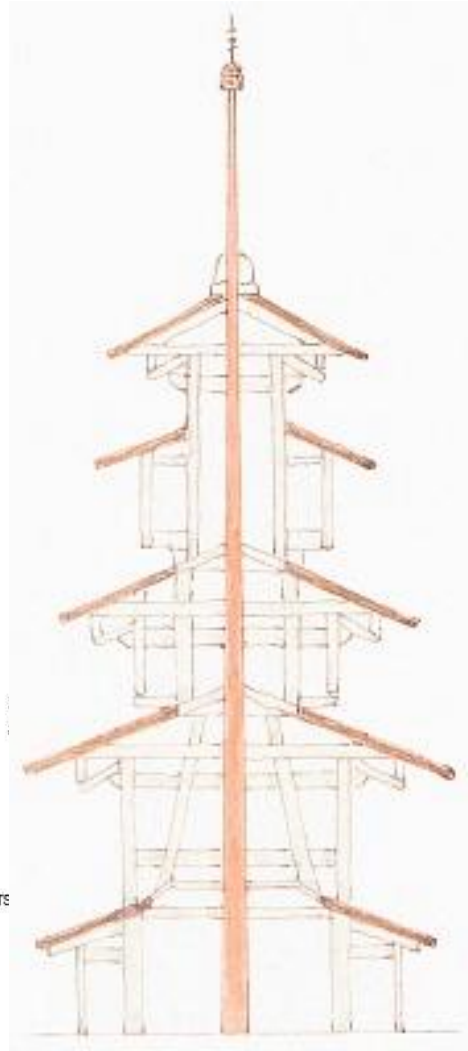
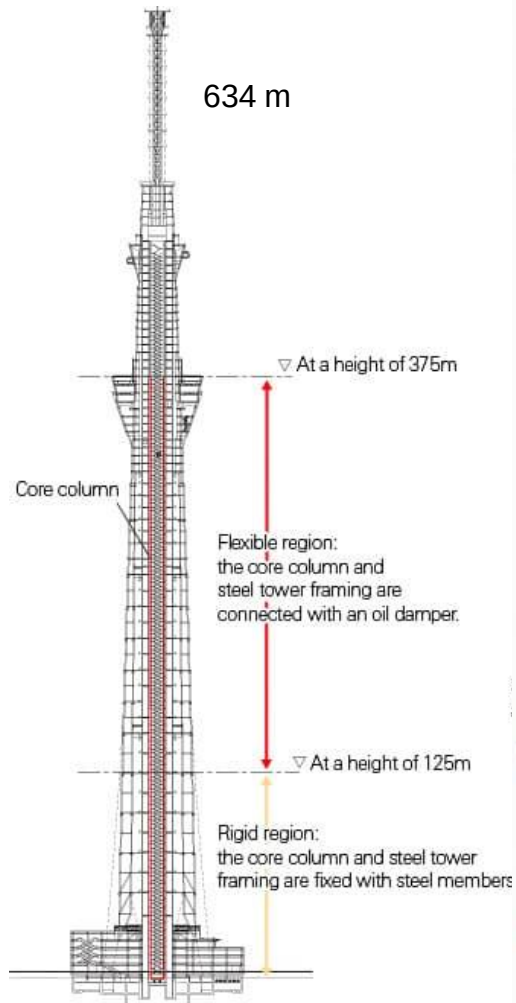
CCTV Headquarters, Beijing, China. 2012

Structural engineering design Ove Arup & Partners

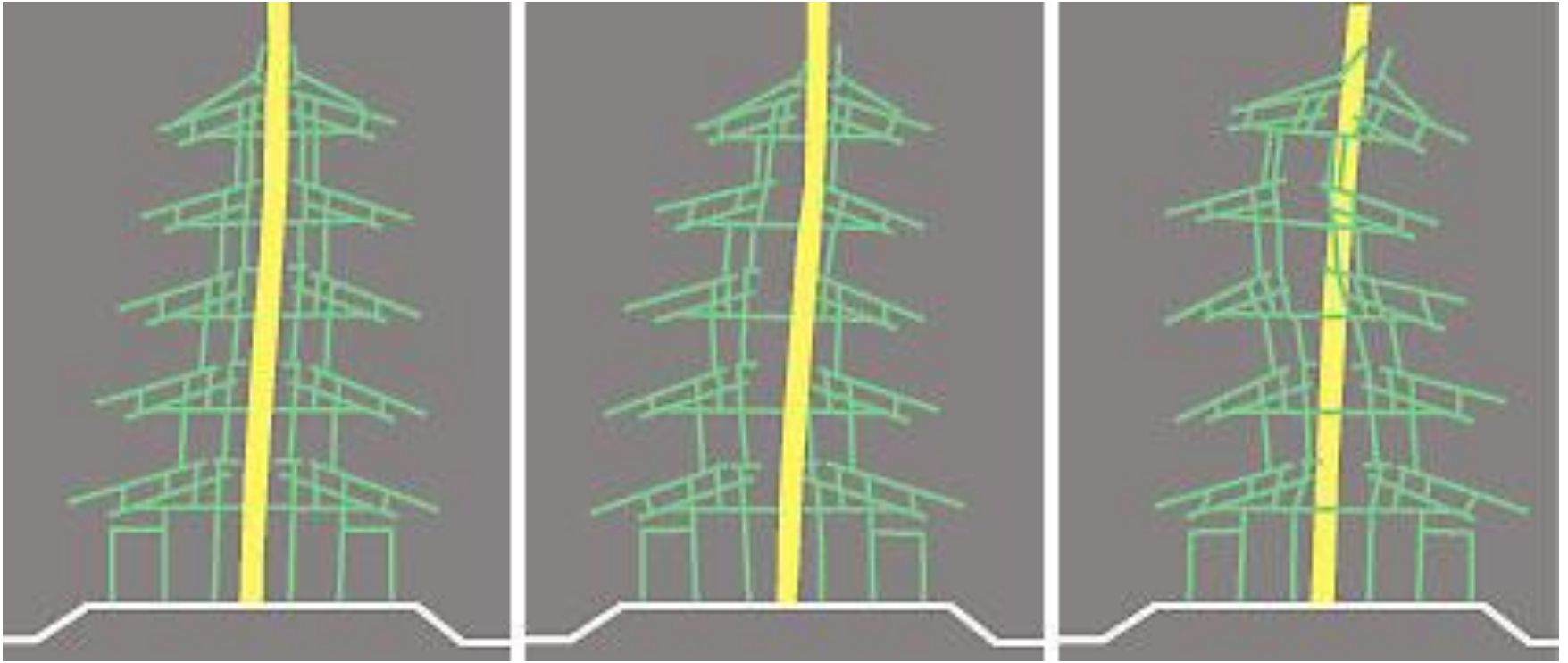




Tokyo Skytree, Tokyo, Japan. 2012 designed by Architect, NikkenSekkei, the World's tallest tower with seismic proofing.

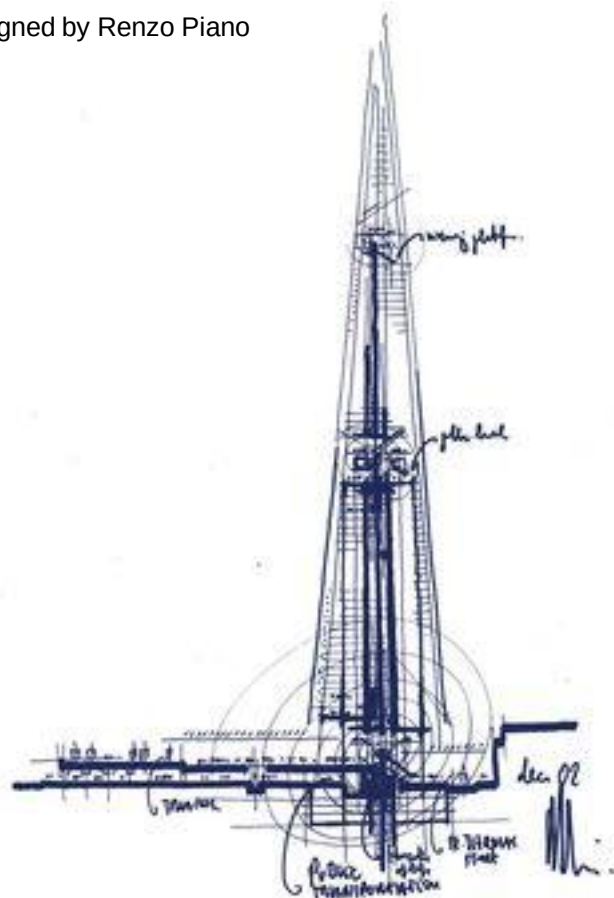


Ancient Japanese Pagoda, wooden structure with free standing centre wooden pillar.



Shard, London, England. 2013

Designed by Renzo Piano



Renzo Piano (14.09.1937)

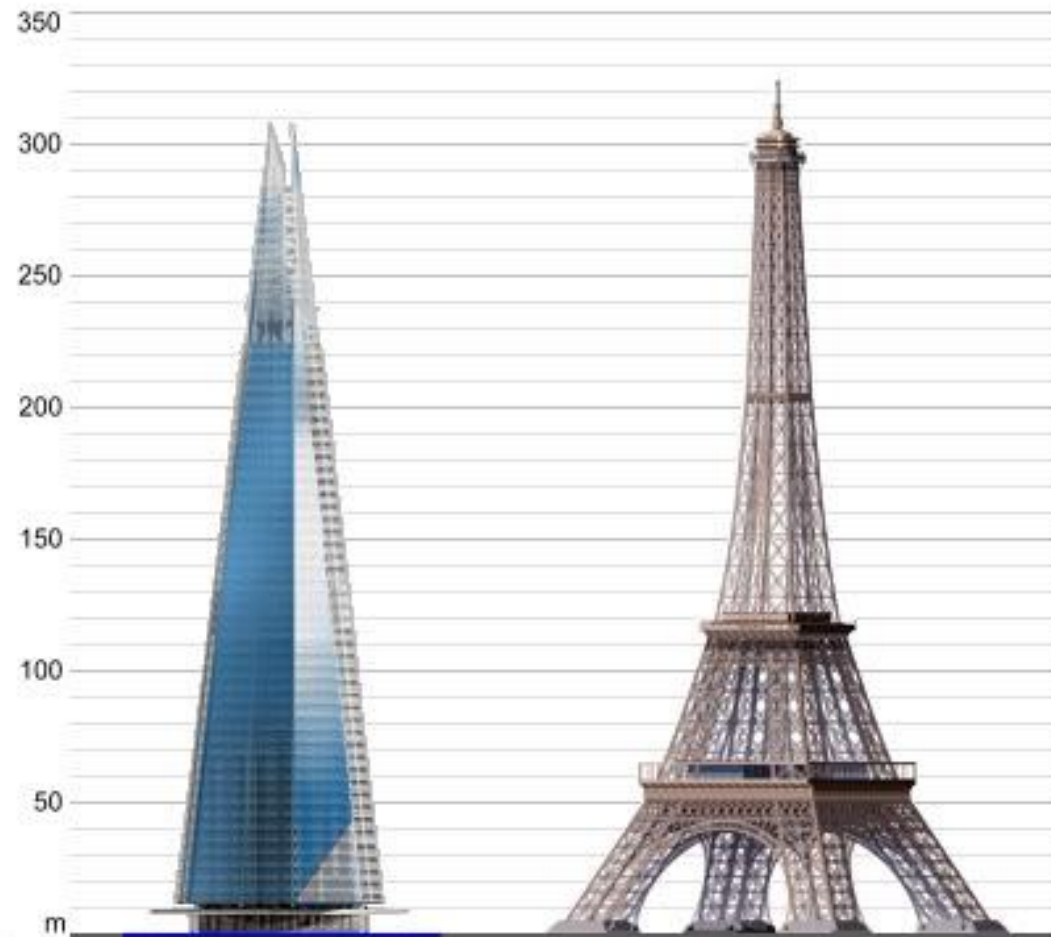
Well known Italian architect.





Shard, London, England. 2013

Designed by Renzo Piano



A vertical city

Schedule of Levels

Shard	
Description	Floors
Spire	75 – 87
Viewing Galleries	68 – 72
Apartments	53 – 65
Spa	52
Hotel	34 – 50
Restaurants	31 – 33
Offices	4 – 28

London Bridge Place

Description	Floors
Offices	1 – 17

Schedule of Areas

Restaurants, retail and viewing gallery		
Floor	sq m	sq ft
Upper	758	8,159
Middle	2,901	31,226
Lower	2,102	22,627
Total	5,761	62,012

Apartments

Floor	sq m	sq ft
Total	5,772	62,129

Hotel let to Shangri-La

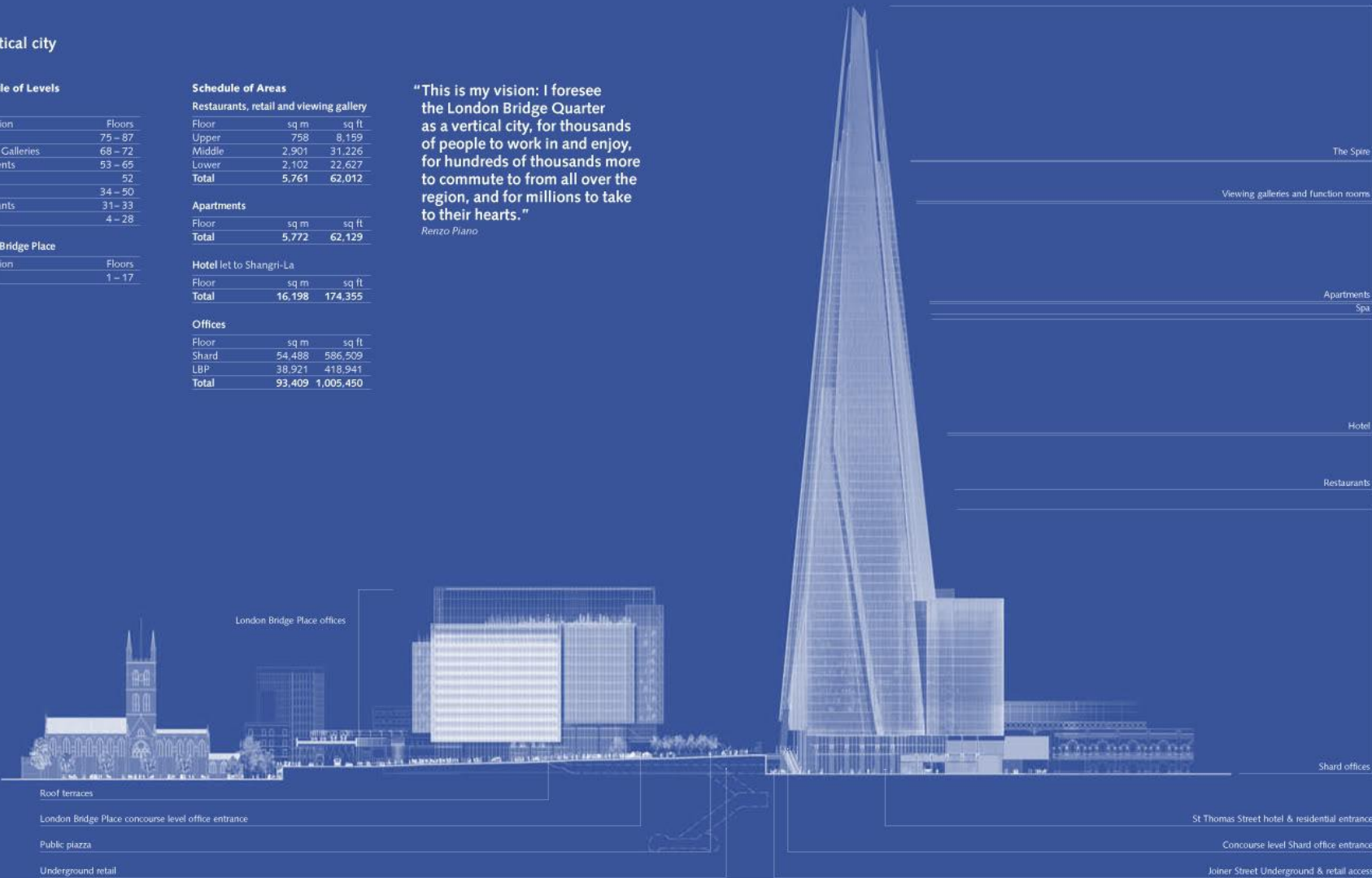
Floor	sq m	sq ft
Total	16,198	174,395

Offices

Floor	sq m	sq ft
Shard	54,488	586,509
LBP	38,921	418,941
Total	93,409	1,005,450

“This is my vision: I foresee the London Bridge Quarter as a vertical city, for thousands of people to work in and enjoy, for hundreds of thousands more to commute to from all over the region, and for millions to take to their hearts.”

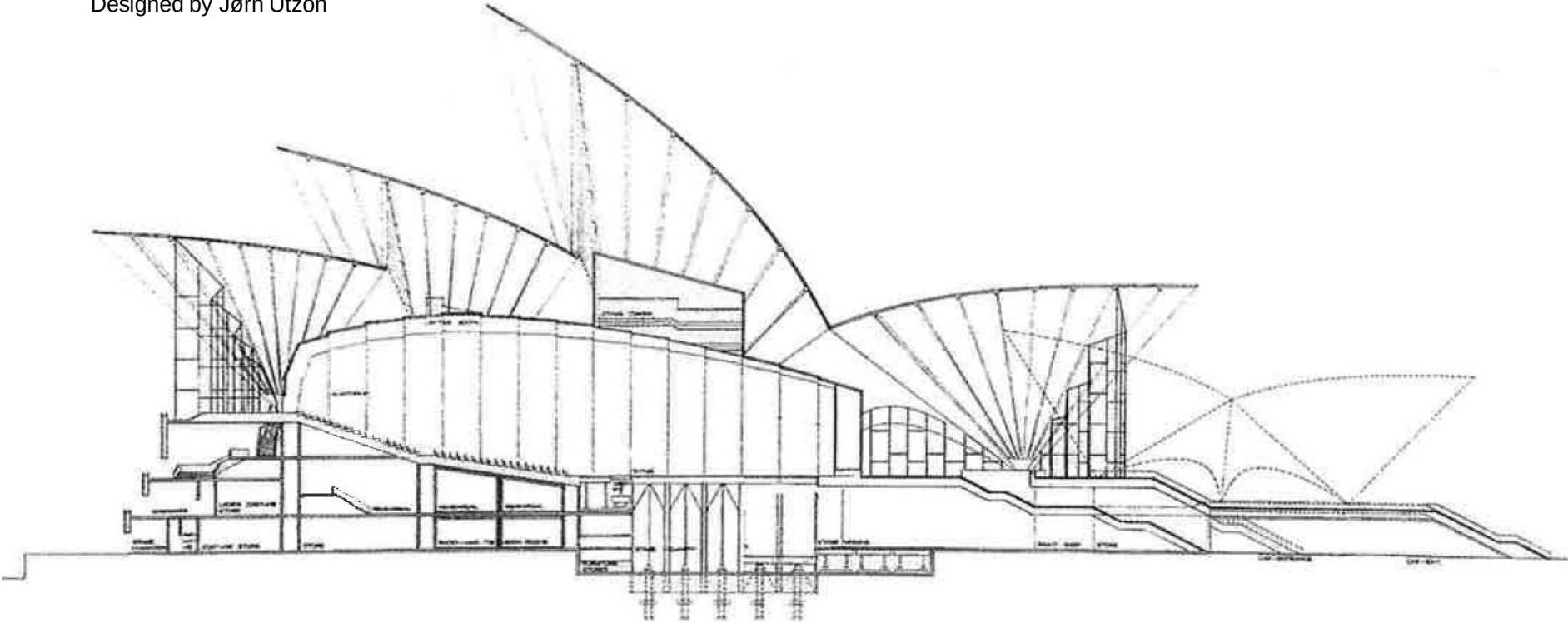
Renzo Piano





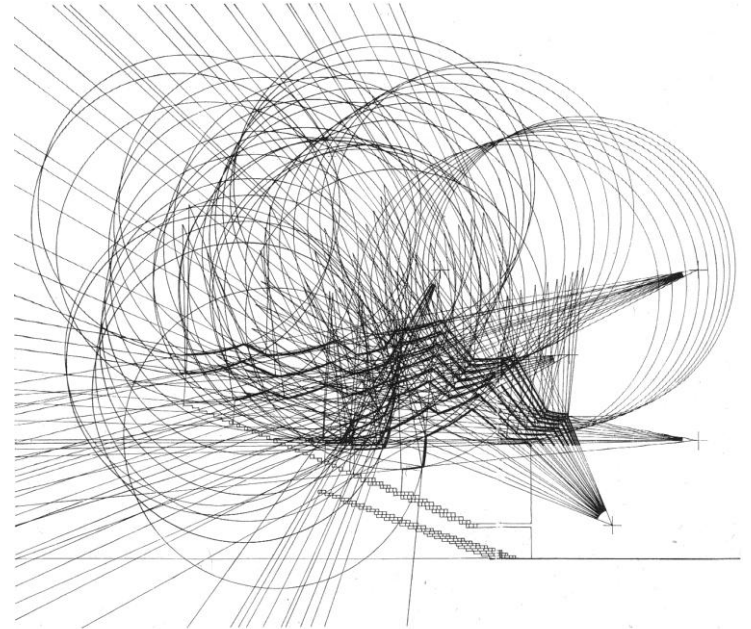
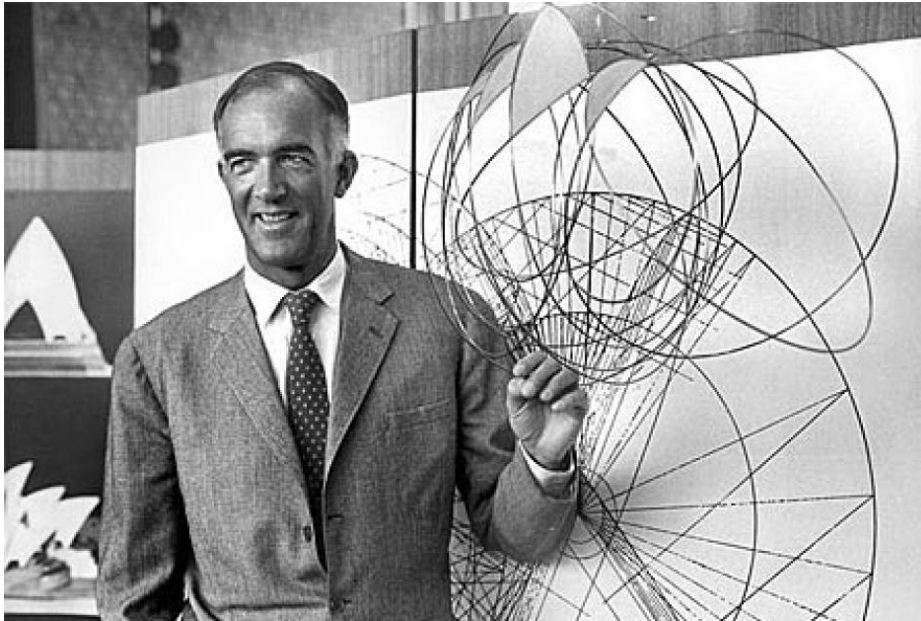
Sydney, Opera House, Sydney, Australia. 1973

Designed by Jørn Utzon



Jørn Utzon (09.04.1918 – 29.11.2008)

Who was a Danish architect.





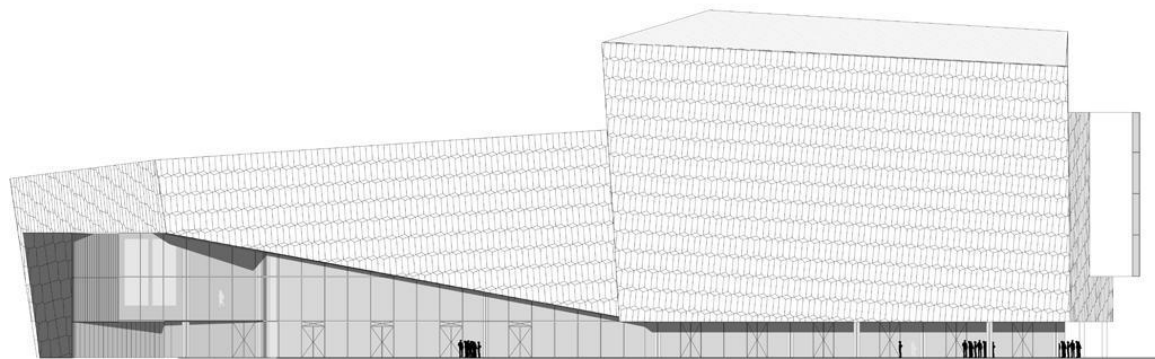
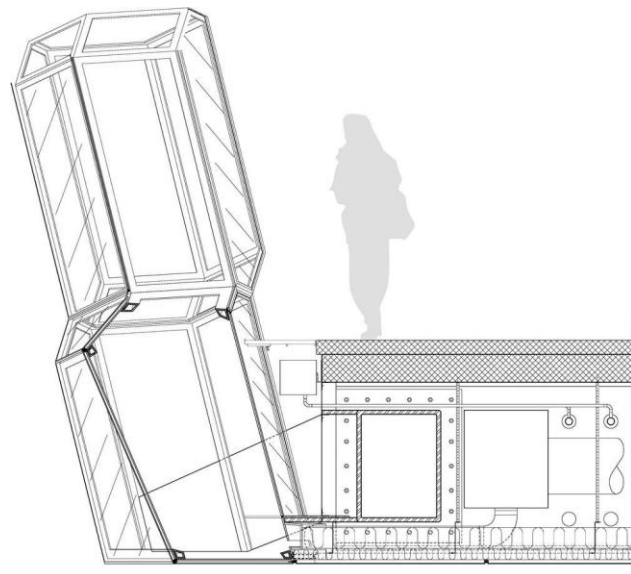




Harpa Concert Hall and Conference Centre, Reykjavik, Iceland.

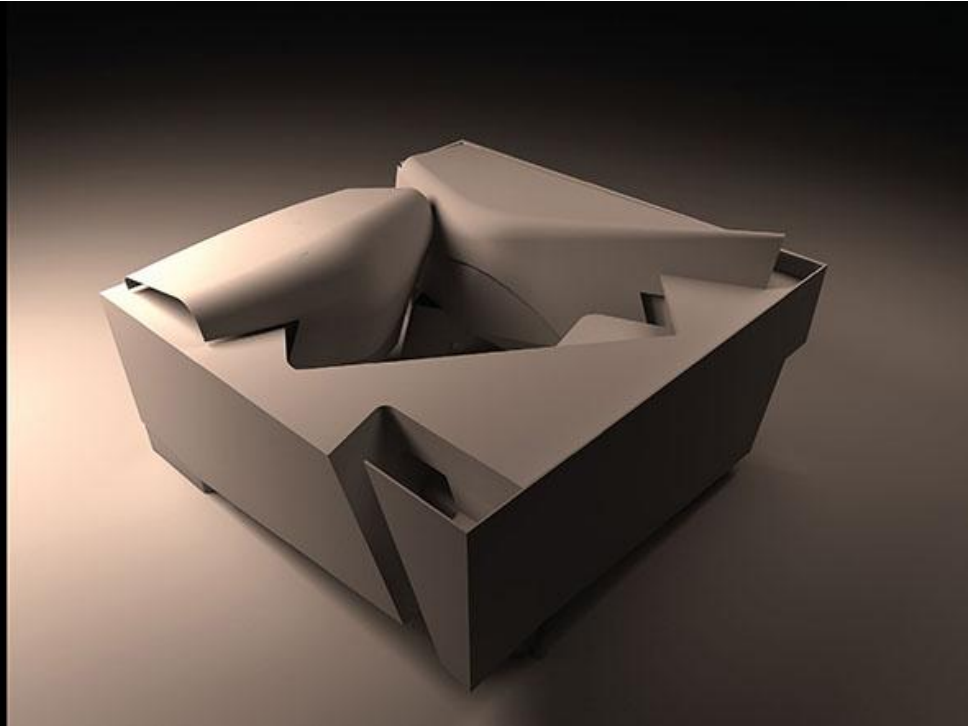
2011

Designed by the Danish architectural firm Henning Larsen Architects



Italian Pavilion Milan Expo 2015, Milan, Italy. 2015

Designed by the Nemesi & Partners





Italian Pavilion Milan Expo 2015, Milan, Italy. 2015

Designed by the Nemesi & Partners



Nemesi used a unique geometric design to create this outer "skin". The full 9,000m² of the façade of Palazzo Italia is clad in more than 700 i.active BIODYNAMIC concrete panels with Italcementi's patented TX Active technology. When the material comes into contact with light, it can "capture" pollution in the air, transforming it into inert salts and reducing smog levels.

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