

Chapter 15 Architecture

- Architecture is dependent on two things environment and technology
 - Environment: the landscape and characteristics of the local site
 - Technology: materials and methods available to a given culture

Postmodern Architecture

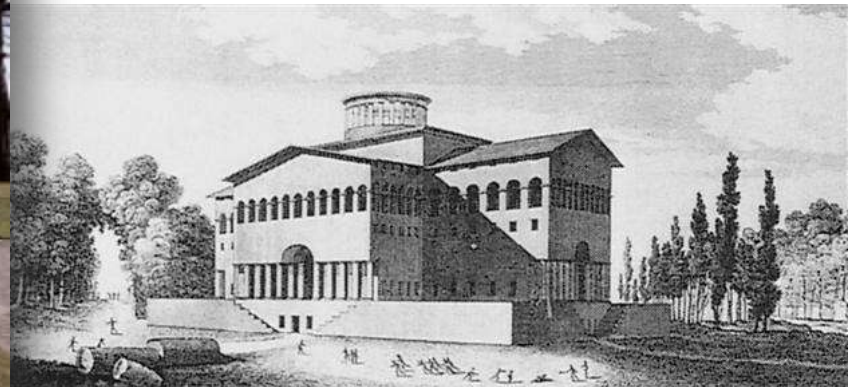


Title: College of Architecture, University of Houston

Artist: Philip Johnson and John Burgee

Date: 1983-85

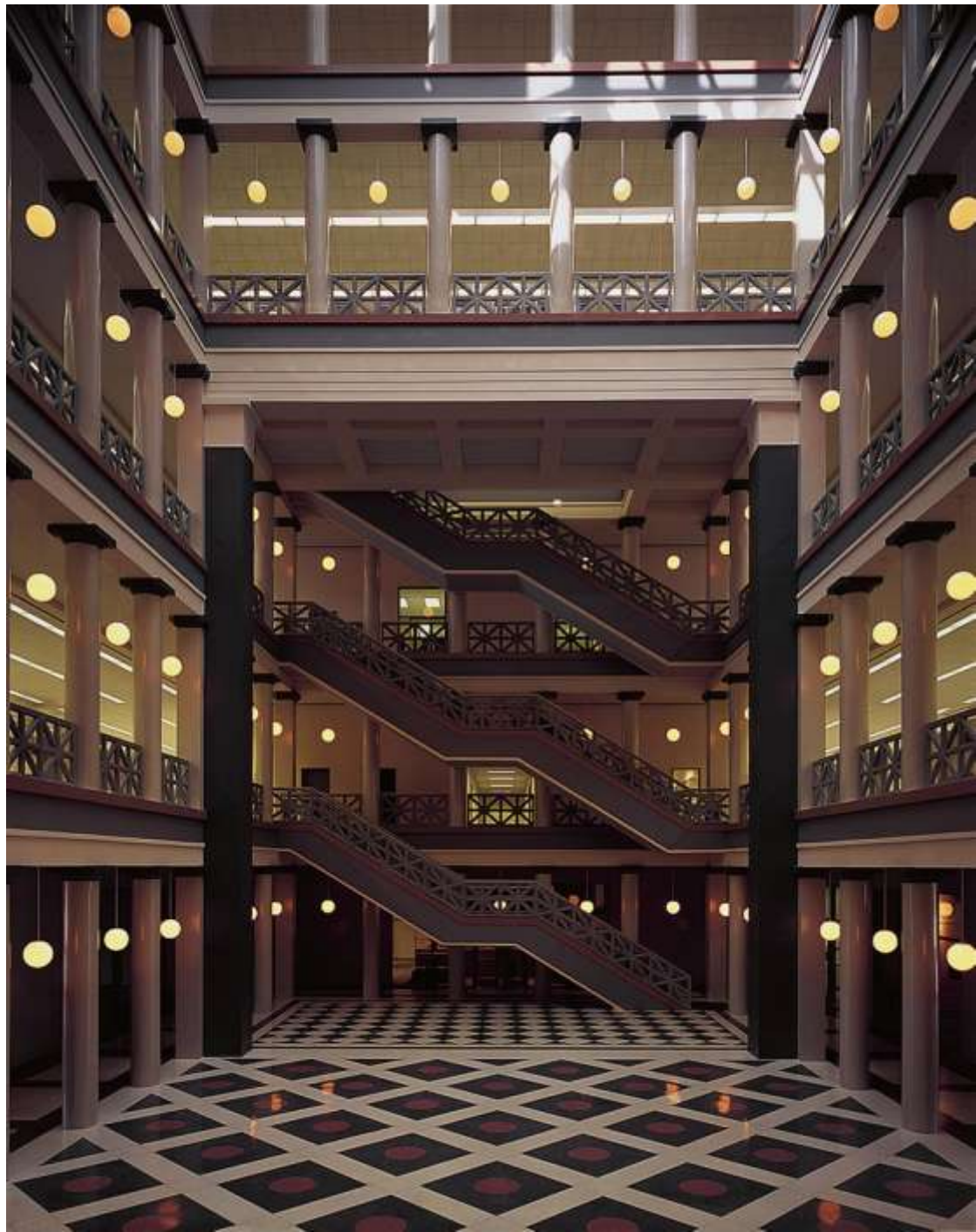
1. Greek Temple and Italian Villas
2. Chaux France Utopian Society
3. History of Architecture



Title: House of Education

Artist: Claude-Nicolas Ledoux (klawd-nee coo law leh-DOO)

Date: 1983-85



Title: College of Architecture, University of Houston

Artist: Philip Johnson and John Burgee

Date: 1983-85

Environment and Culture

- Climate
- Materials
- Beliefs
- Rituals

Culture and Their Topography

1. Topography
2. Rays of the Sun
 1. Pharaoh would climb to heaven on rays of the sun
3. Originally they were encased in smooth limes stone
4. God of RE, the sun itself
5. Pyramids were originally encased in plaster that would reflect all the rays of the sun
6. Made of limestone



Title: Pyramids of Menkaure, Khafre, and Khufu

Artist: n/a

Date: Menkaure (c. 2470 BCE), Khafre (c. 2500 BCE), Khufu (c. 2530 BCE)

Source/Museum: SuperStock, Inc.

Medium: n/a

Size: Original height of Pyramid of Khufu 480 ft, length of each side at base 755 ft.

Culture and Their Topography



1. Topography
 1. Mountains and foothills around the site
2. Ziggurats: mimic the foothills that led to mountains
 1. Mesopotamian people (Sumerians) believed that the gods lived on the mountains and that the mountains were the source of water
 2. Artificial mountain

Title: Ziggurat, Ur

Artist: n/a

Date: c. 2100 BCE

Source/Museum: Hirmer Fotoarchive.

Medium: n/a

Size: 210 x 150 ft. at base

Culture and Climate

1. High thatched roof
 1. Hot air rises
 2. Same house construction that was used in West Africa



Title: View of Mulberry House and Street, c. 1800

Artist: Thomas Coram

Date: c. 1800

Culture and Topography

1. Mesa Verde National Park in Colorado
 1. Anasazi People
 2. Culture: Religion
(believed in being close to nature)
 3. Security : protection from invaders



Title: *Spruce Tree House*

Artist: n/a

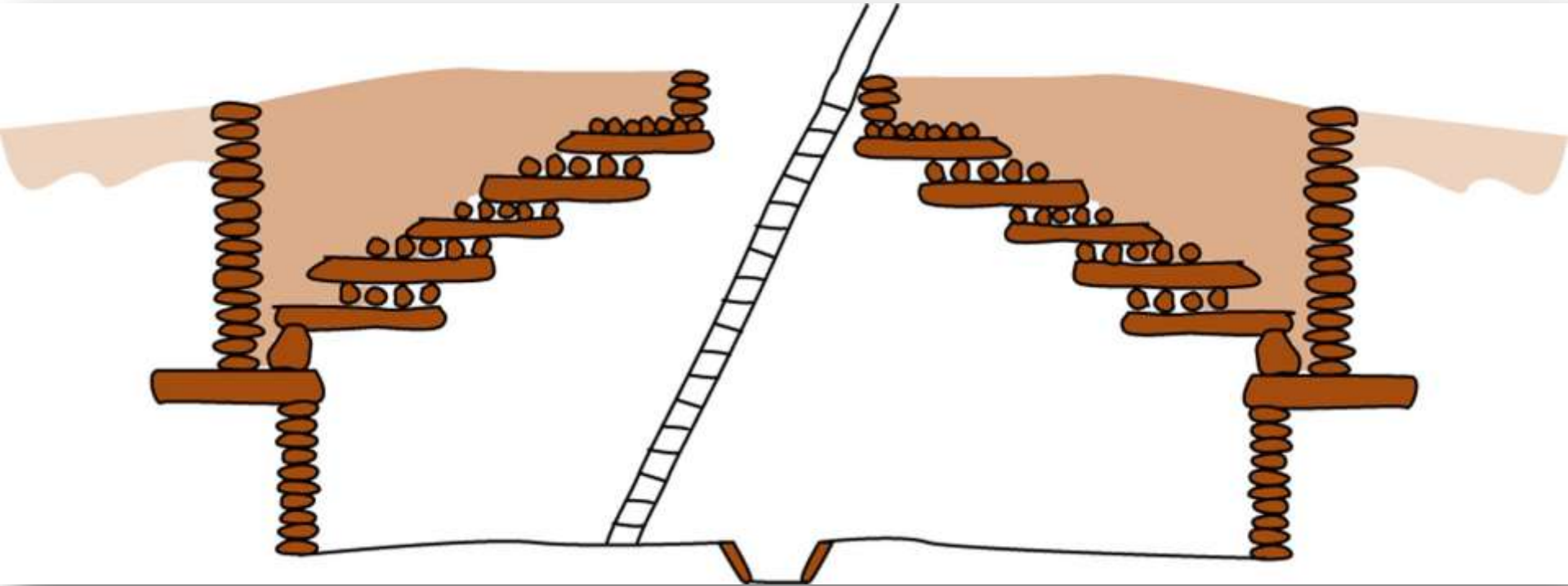
Date: c. 1200-1300 BCE

Source/Museum: Mesa Verde, John Deeks/Photo Researchers, Inc.

Medium: Courtyard formed by restoration of the roofs over two underground kivas

Size: n/a

Kiva



1. Kiva: round covered hole in the central plaza used as a communal area
2. Sipapu: small hole inside the kiva that was a representation of the creation myth
 1. Fissures of water

Title: Cribbed roof construction of a kiva

Artist: n/a

Date: n/a

Source/Museum: After a National Park Service pamphlet.

Medium: n/a

Size: n/a



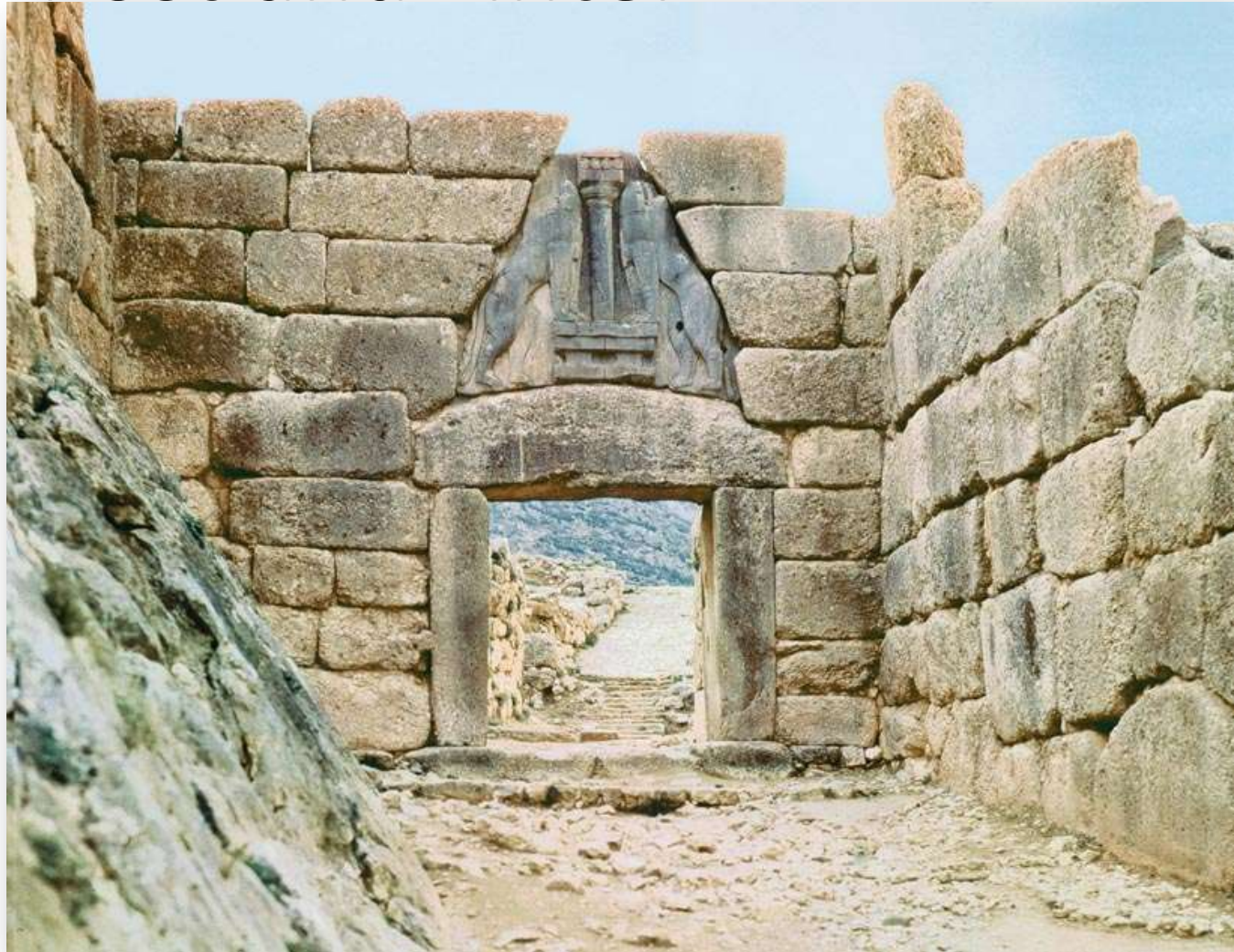
Interior of a reconstructed kiva at Mesa Verde National Park.

Technology

- Shell system
- Skeleton-and-skin system
- Tensile strength
 - A material's ability to span a given length without breaking

Load Bearing Construction and Post and Lintel

1. Technology
2. Load Bearing Construction
 1. Pyramids, Ziggurat, Anasazi house
3. Post and lintel
 1. The lion gate
 2. Balance between weight bearing and structural support
 3. Cyclopean masonry
 1. Built by Cyclops
 2. 13ft tall



Title: The Lion Gate

Artist: n/a

Date: 1250 BCE

Source/Museum: Mycenae, Greece, Hirmer Fotoarchiv.

Medium: n/a

Size: n/a



Athens Acropolis



Post and Lintel

1. Acropolis: center of city life, usually on the highest point in the city
2. Drums: the individual pieces or the Drums
3. Fluting: carving of the columns
4. Entasis: optical illusion that makes the columns appear perfectly vertical
5. Columns: versions of the giant Atlas carrying the world on his shoulders
6. Colonnade: a row of columns

Title: Corner of the First Temple of Hera

Artist: n/a

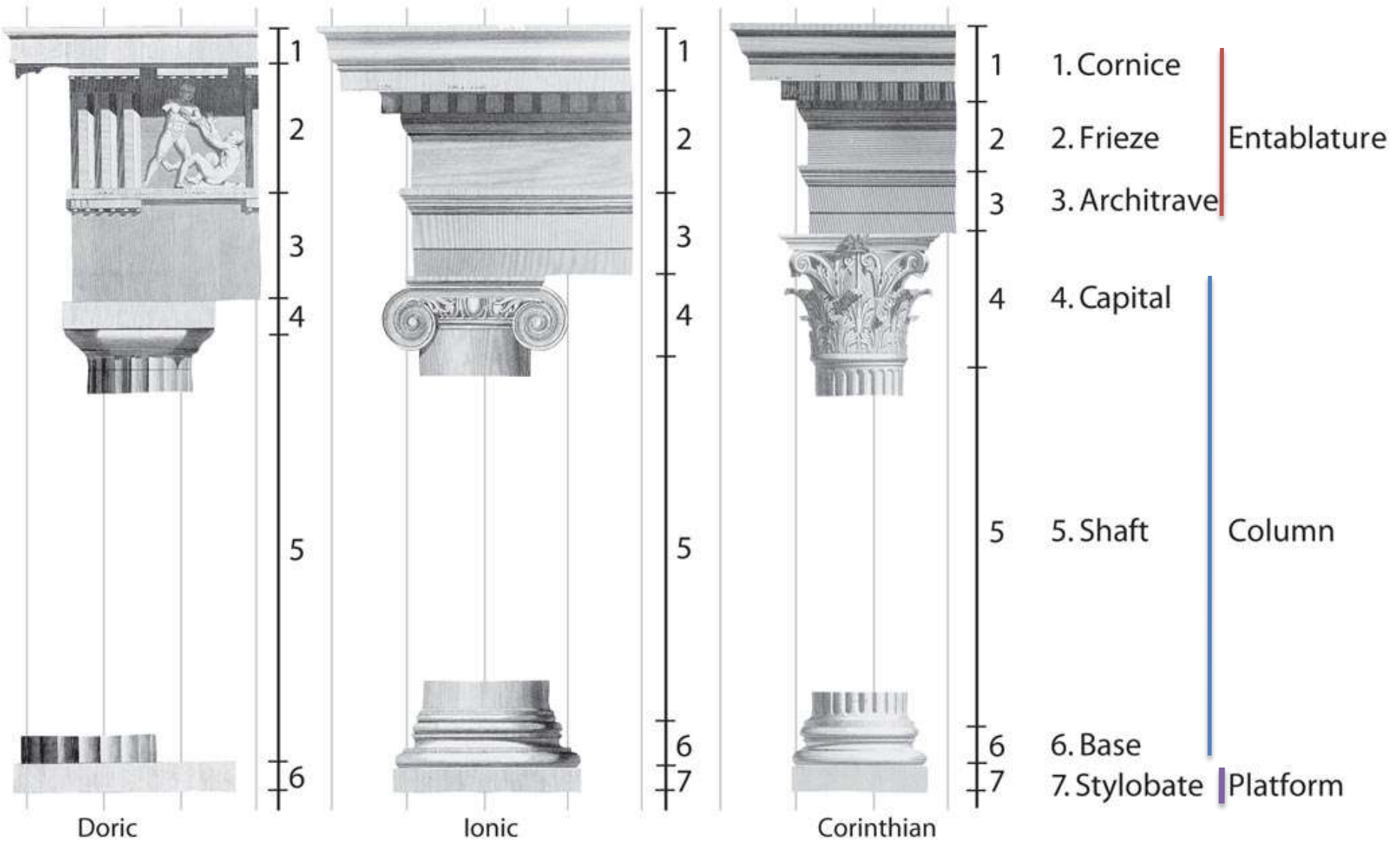
Date: c. 550 BCE



Source/Museum: Paestum, Italy, Canali Photobank.

Medium: n/a

Size: n/a



Title: *The Greek orders*
Artist: From James Stuart
Date: 1794

Source/Museum: *The Antiquities of Athens*, London. Courtesy of The Library of Congress.

Medium: n/a

Size: n/a





Title: Temple of Athena Nike

Artist: n/a

Date: 427-424 BCE

Source/Museum: Acropolis, Athens, Vanni/Art Resource, New York.

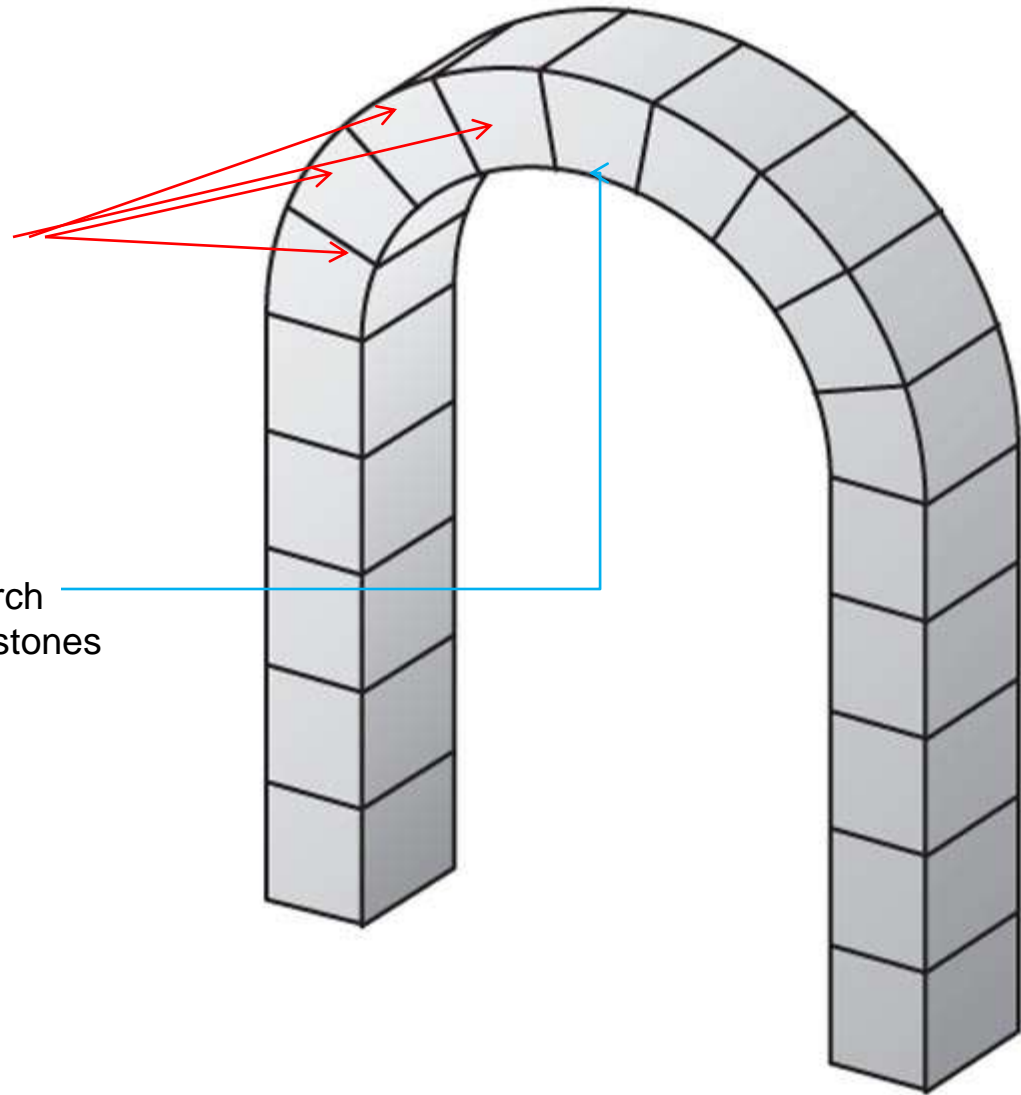
Medium: n/a

Size: n/a

Arches, Vaults, and Domes

1. Voussoirs: semi circular cut stones

2. Key Stone: stabilizing stone on top of arch
3. Weight is distributed evenly over the stones and down the posts



Title: Arch

Artist: n/a

Date: n/a

Source/Museum: n/a

Medium: n/a

Size: n/a

The Roman Arch and Masonry Skills

1. 50km or 31 miles
2. Carried water from Uzes to Nimes
3. Lower level has a road
4. Water was carried on the top level (5 million gallons daily)
5. No mortar was used therefore the stones were cut precisely to fit



Title: Pont du Gard

Artist: n/a

Date: Late 1st century BCE,

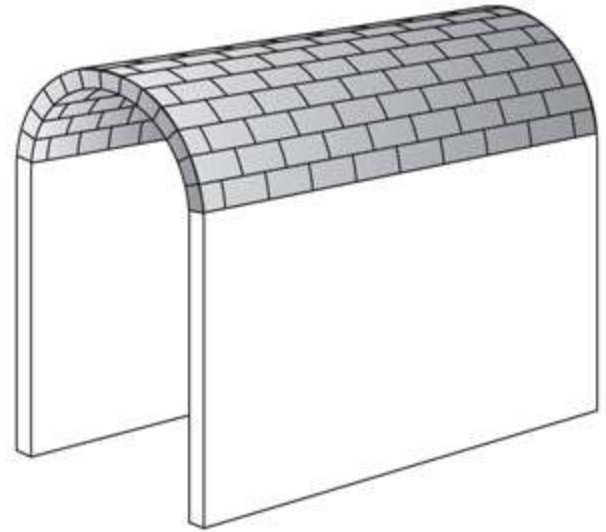
Source/Museum: Near Nimes, France, Joelle Burrows.

Medium: n/a

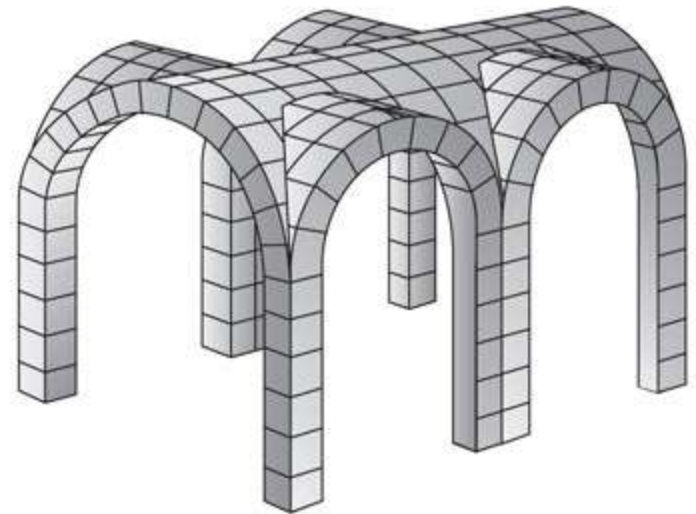
Size: n/a



1. Barrel/Tunnel vault



1. Barrel vault and groined vault



Title: Barrel vault (top) and groined vault (bottom) construction

Artist: n/a

Date: n/a

Source/Museum: n/a

Medium: n/a

Size: n/a

Barrel Vault



1. Amphitheater, double theater
2. Invested concrete

Title: The Colosseum (aerial view)

Artist: n/a

Date: 72-80 CE.

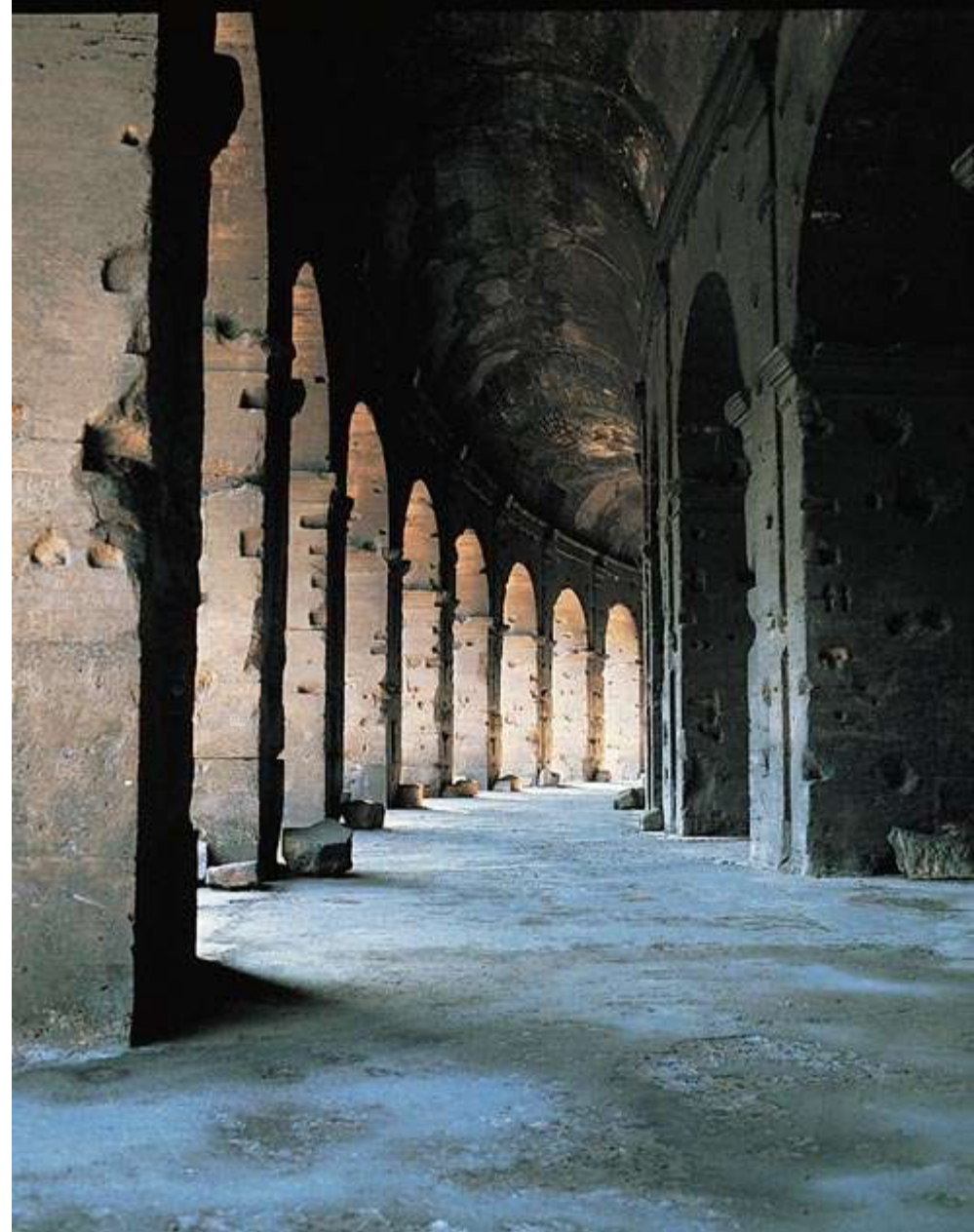
Source/Museum: Italian Government Travel Office .

Medium: n/a

Size: n/a

Roman Concrete

1. 50,000 Spectators
2. Gladiator games and sporting events
3. Invention of concrete:
 1. Added volcanic aggregate to the concrete which made it stronger and allowed to set faster
 2. Concrete Blocks held together with dowels



Title: Barrel-vaulted gallery, ground floor of the Colosseum

Artist: n/a

Date: n/a

Source/Museum: Rome, Scala/Art Resource.

Medium: n/a

Size: n/a

The Romans and the Dome

1. Temple to all the Roman Gods
2. Pantheon
 1. Pan: everyday
 2. Theos: gods
3. Geometric
 1. Dome and Cylinder
4. Springing: the section where the dome meets the support
 1. 20 feet thick
 2. Domes thins to 6 feet at the oculus
5. *Portico*: porch, entrance, doorway



Title: Exterior, Pantheon

Artist: n/a

Date: 117-125 CE.

Source/Museum: Photo: Marvin Tractenberg.

Medium: n/a

Size: n/a

The Eye of Jupiter

1. Dome
2. Oculus: eye

Title: Interior, Pantheon

Artist: n/a

Date: 117-125 CE.



Source/Museum: Photo: Henery Stierlin, Geneva

Medium: n/a

Size: n/a

Corinthian Columns with Acanthus leaves



Romanesque Architecture

1. Romanesque Architecture: used Roman methods and techniques
2. Barrel Vaults in Prayer
3. Symmetry and Geometry
 1. Rational
 2. Logical
 3. Divine



Title: Interior view of nave, St. Sernin

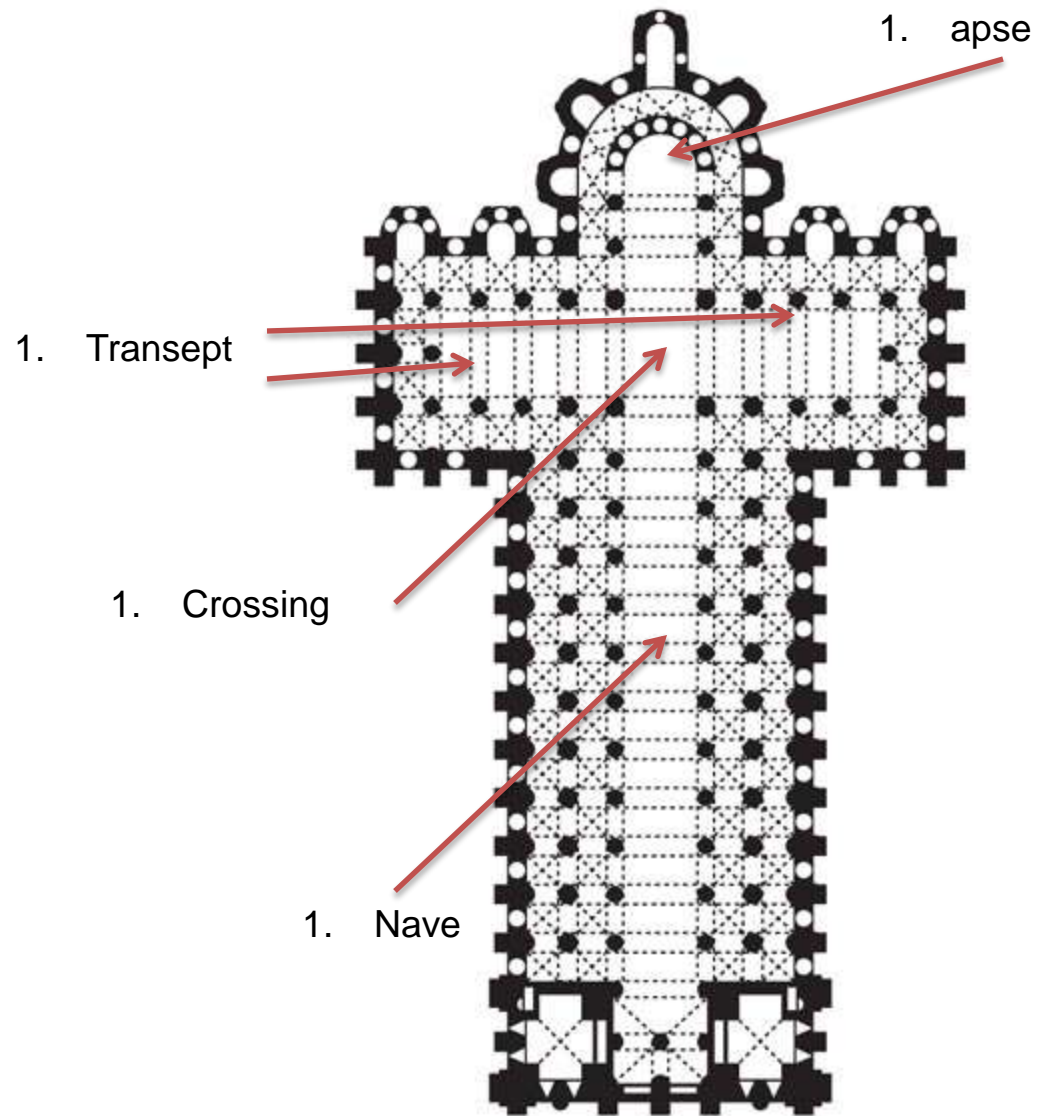
Artist: n/a

Date: c. 1080-1120

Source/Museum: Toulouse, France, Marburg/Art Resource, New York.

Medium: n/a

Size: n/a



Title: Plan, St. Sernin

Artist: n/a

Date: n/a

Source/Museum: n/a

Medium: n/a

Size: n/a

Gothic Construction

1150CE

1. Incredible heights
2. Extensive used of stain glass and natural light
3. 142 feet high
 1. 26000 square feet of surface



Title: Amiens Cathedral

Artist: n/a

Date: Begun 1220

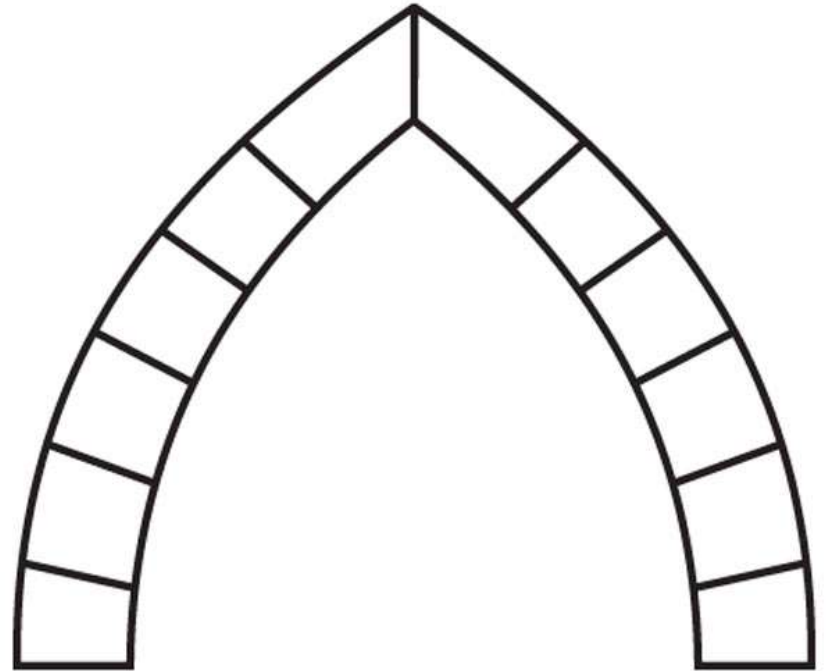
Source/Museum: Photo © Angelo Hornak, London.

Medium: n/a

Size: n/a

The Pointed Arch

1. More weight is distributed to the walls due to its pointed structure



Title: Pointed arch

Artist: n/a

Date: n/a

Source/Museum: n/a

Medium: n/a

Size: n/a

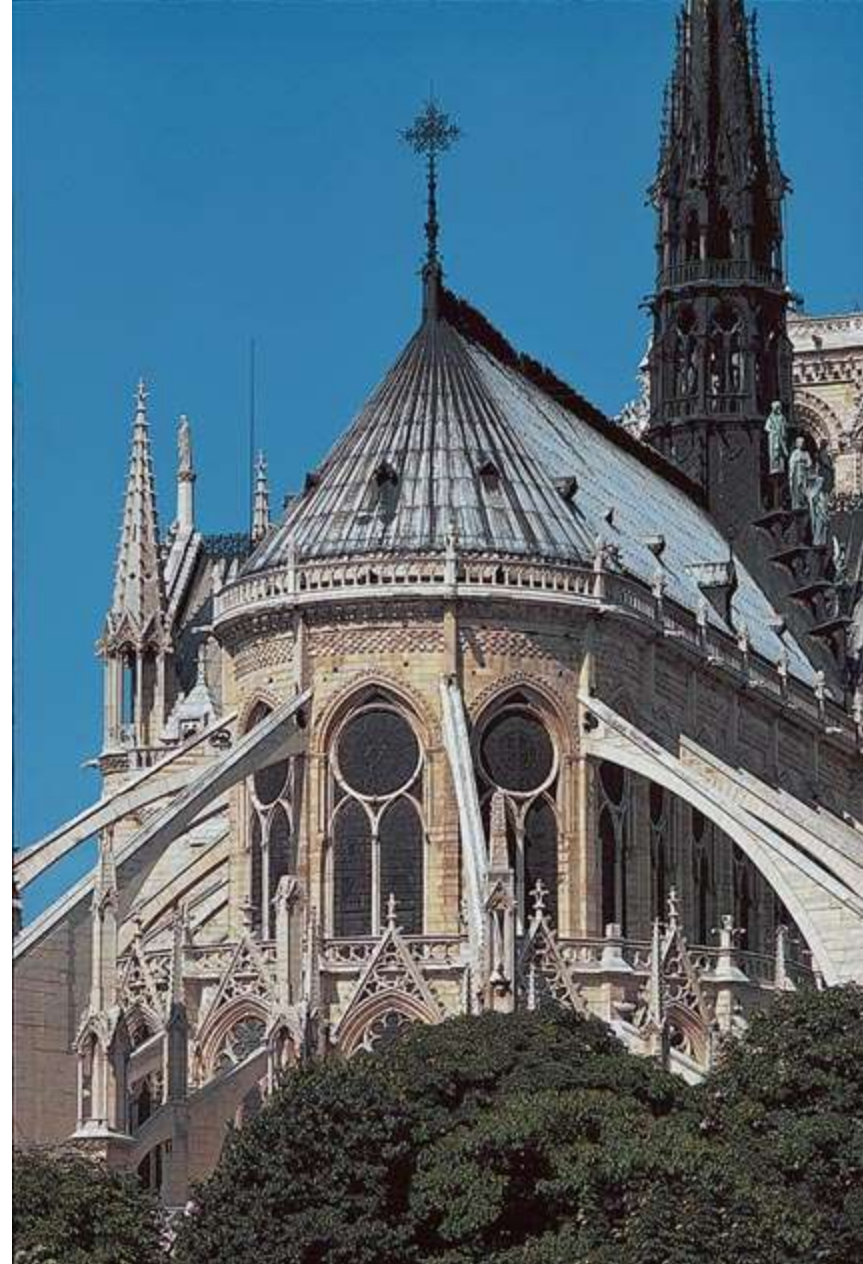
Gothic Cathedrals Reach the Heavens

1. Flying Buttresses: counteract the forces of the arches inside to keep the building stable and free from collapsing
2. Symbol of both the divine the human drive to exceed and evolve

Title: Flying buttresses

Artist: n/a

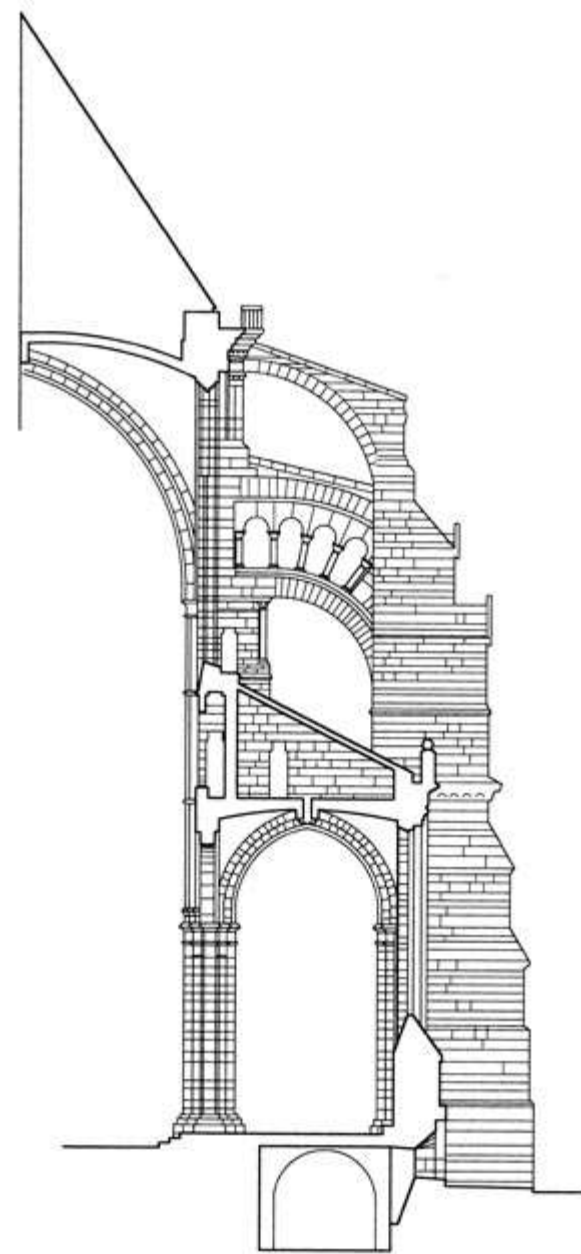
Date: n/a



Source/Museum: Notre-Dame, Paris. Jim Bryson/Photo Researchers, Inc.

Medium: n/a

Size: n/a



Title: Flying buttresses

Artist: n/a

Date: n/a

Source/Museum: n/a

Medium: n/a

Size: n/a

Technology: Wrought Iron

1. 19th Century
 1. Industrial Revolution
2. Wrought iron: worked iron
 1. flexible and pliable
 2. Aesthetics and pleasing
 1. Organic forms can be made



Title: Paris Métro entrance

Artist: Hector Guimard

Date: 1900

Source/Museum: H. Roger-Viollet, Paris. Getty Images, Inc.

Medium: n/a

Size: n/a

Technology: Cast Iron and Skeletal Structure

1. Cast iron
 1. Iron imbued with carbon
 2. More rigid and strong
2. Monument to industry in the Paris Exposition of 1889
 1. Girders: support sections that allow to make skeletal structures that can then be faces with other materials
3. 1000 feet tall
4. Function as a radio tower
 1. July 1, 1913 first radio sound heard around the world was transmitted from here
 1. Global electronics Network

Title: *Eiffel Tower*, seen from Champs de Mars

Artist: Gustave Eiffel

Date: 1887-1889



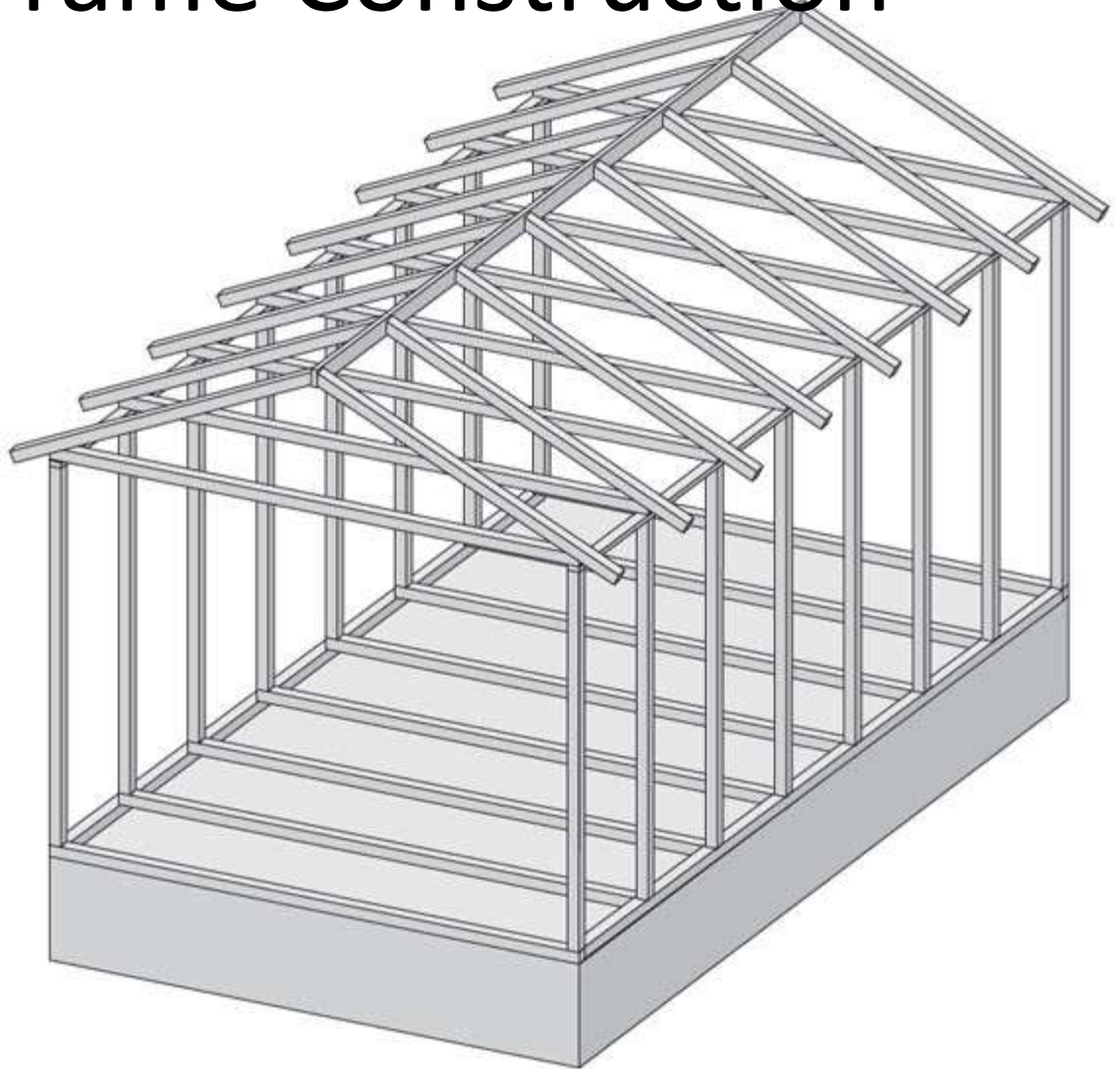
Source/Museum: Alain Evrard/Globe Press. Photo Researchers, Inc.

Medium: n/a

Size: Height of tower 1,051 ft.

Lumber Frame Construction

1. Frame construction in Chicago
1833
 1. Balloon-frame
 2. Skeleton system
 3. Inexpensive and easy to build



Title: Wood-frame Construction

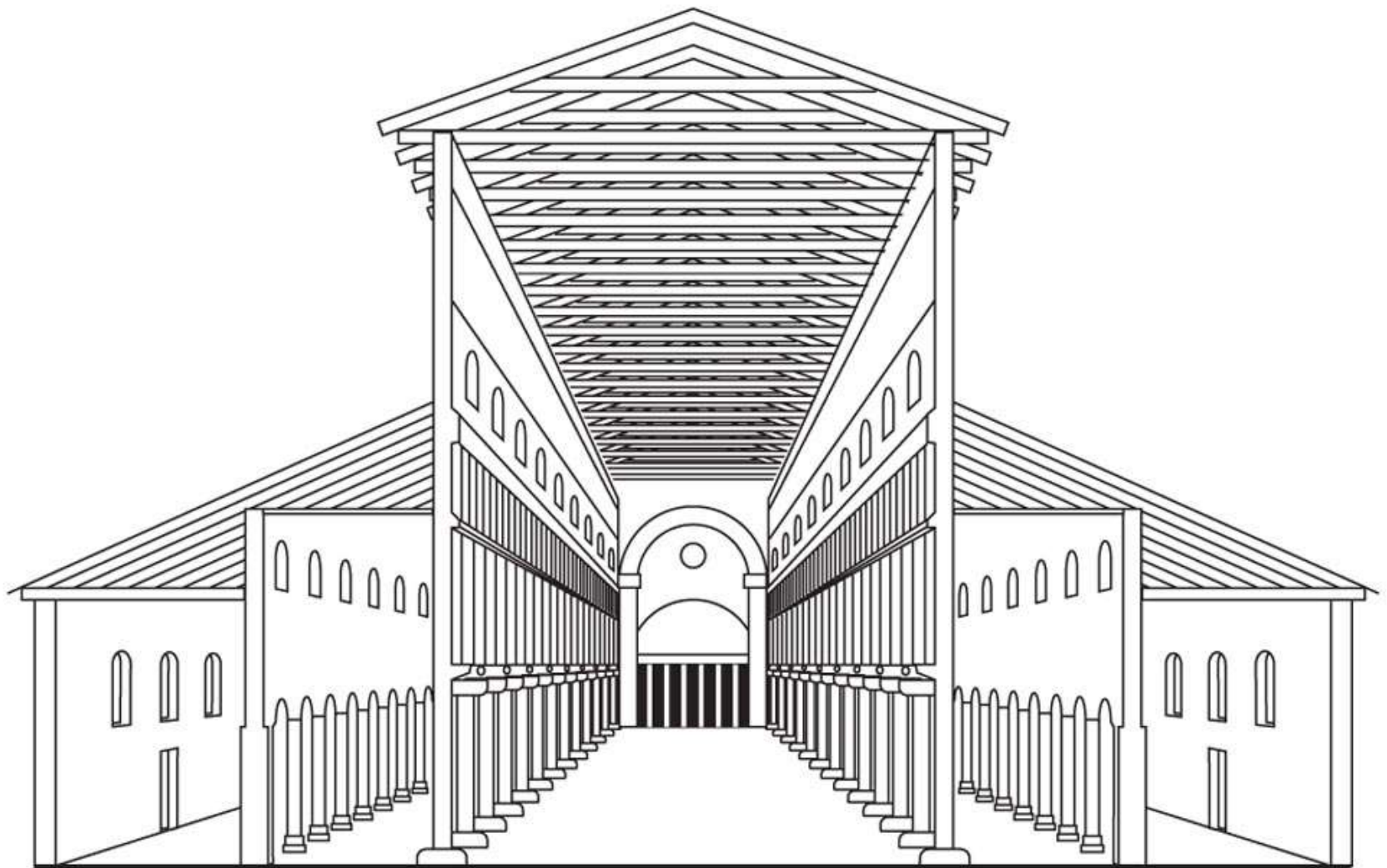
Artist: n/a

Date: n/a

Source/Museum: n/a

Medium: n/a

Size: n/a



Title: Model of Old St. Peter's Basilica

Artist: n/a

Date: c. 333-390

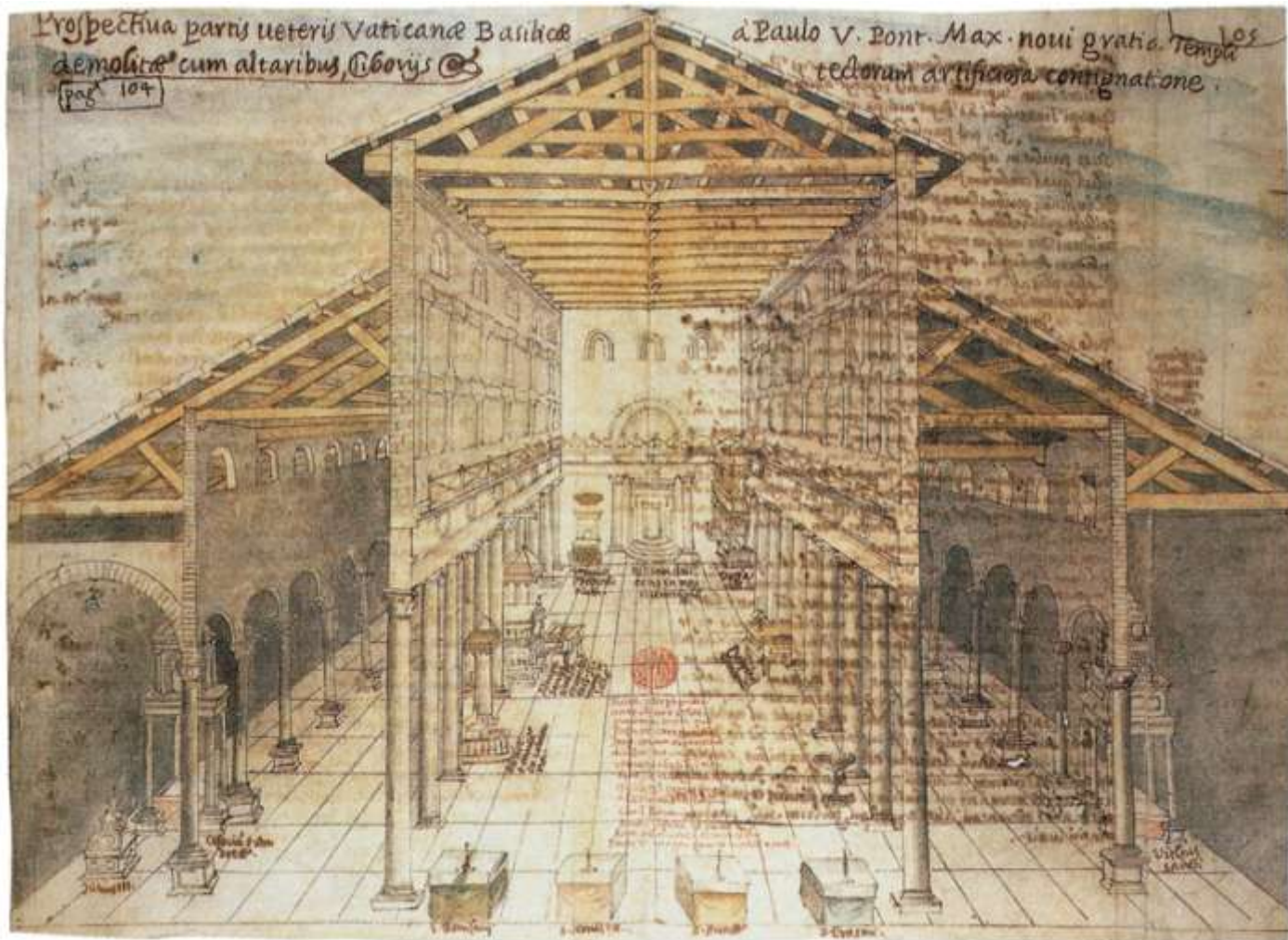
Source/Museum: Rome

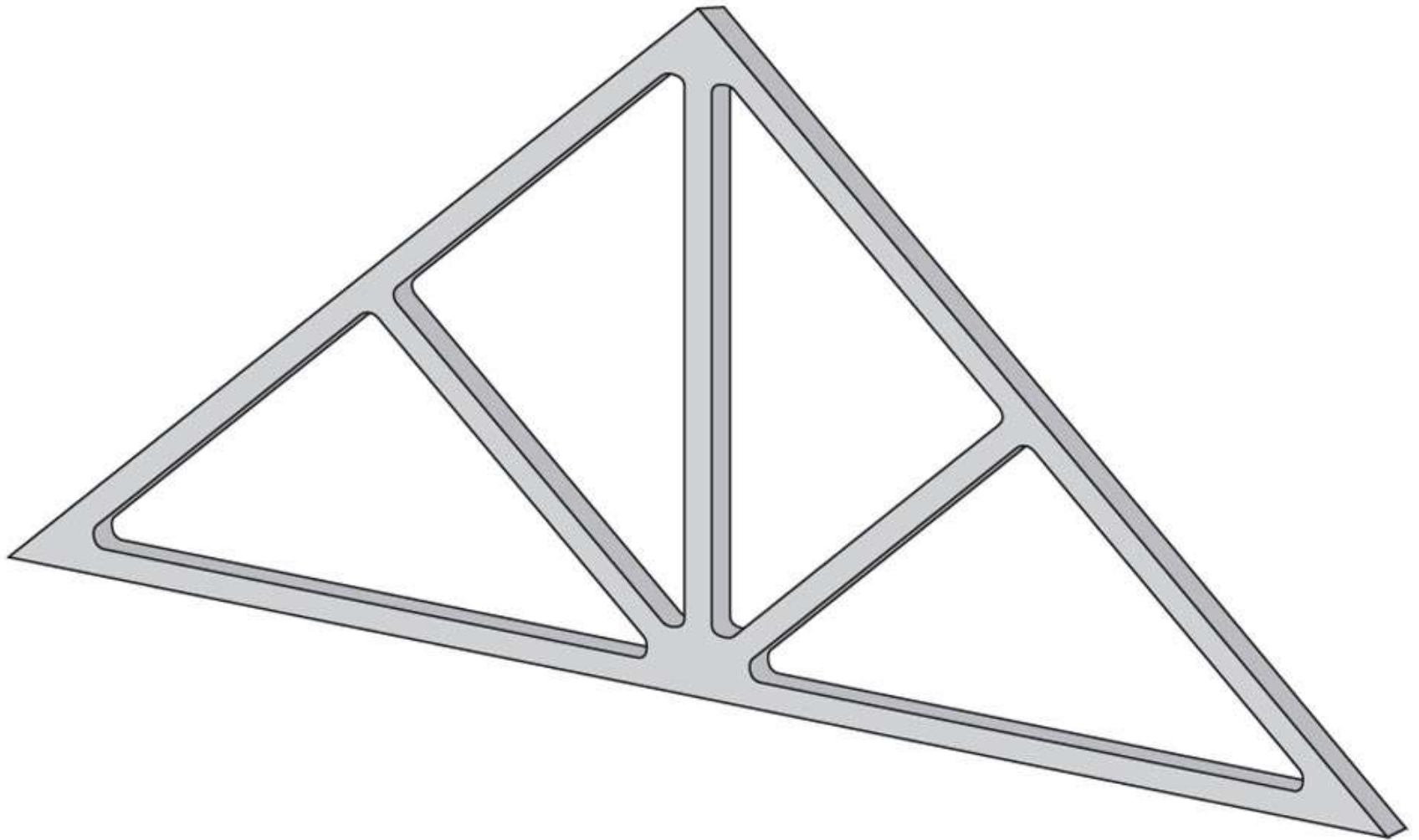
Medium: n/a

Size: n/a

Propectiva pars ueteris Vaticanae Basilicae
 demolita cum altaribus, Tiborijs &
 (pag 104)

a Paulo V. Pont. Max. noui gratia. Temp^{los}
 tectorum artificiosa conignatione.





Title: Truss

Artist: n/a

Date: n/a

Source/Museum: n/a

Medium: n/a

Size: n/a

First American Born Architect

1. Design for city dwelling
2. Brick Façade
 1. Insulation from harsh New England winters



Title: *Harrison Gray Otis House*

Artist: Charles Bulfinch

Date: 1795-96

Southern Architecture



Title: *Mansion at Parlange Plantation, New Roads, Louisiana*

Artist: unknown

Date: 1785-95

The American Bungalow



1. Bungalow: democratic (quality)
 1. For the masses
 2. Efficient
 3. Stone and shingles: natural surroundings
 4. Porches tied the inside to the outside environment

Title: *The Birch*

Artist: Christian Gladu

Date: 1998

Source/Museum: The Bungalow Company, North Town Woods, Bainbridge Island, Washington. Photo courtesy of The Bungalow Company.

Medium: n/a

Size: n/a

Steel and Reinforced Concrete Construction

1. Horizontal and massive
2. Reminiscent of Romanesque buildings



Title: *Marshall Field Wholesale Store, Chicago*

Artist: Henry Hobson Richardson

Date: 1885-1887

Source/Museum: © The Art Institute of Chicago. All rights reserved.

Medium: n/a

Size: n/a

Form Follows Function



Title: *Bayard (Condict) Building*, New York

Artist: Louis H. Sullivan

Date: 1887-1898



1. Skeletal steel frame
2. Lines guide you upwards
3. Foundation of the aesthetics is ornamentation
 1. To raise the spirit of those who work in it

Source/Museum: Schles/Art Resource, New York.

Medium: n/a

Size: n/a

Sullivan's System of Ornament

1. Ornament as the spirit of the building
 1. Used to elevate the spirit of those within the building



Prairie House

1. 1st modern architect
2. Of the land not on it
 1. Reminiscent of a prairie
 2. Built from materials from around the site (oak)
3. *Cantilever*: forms jetting out from the structure which used reinforced concrete for stability
 1. Rebar



Title: *Robie House, exterior*, Chicago

Artist: Frank Lloyd Wright

Date: 1909

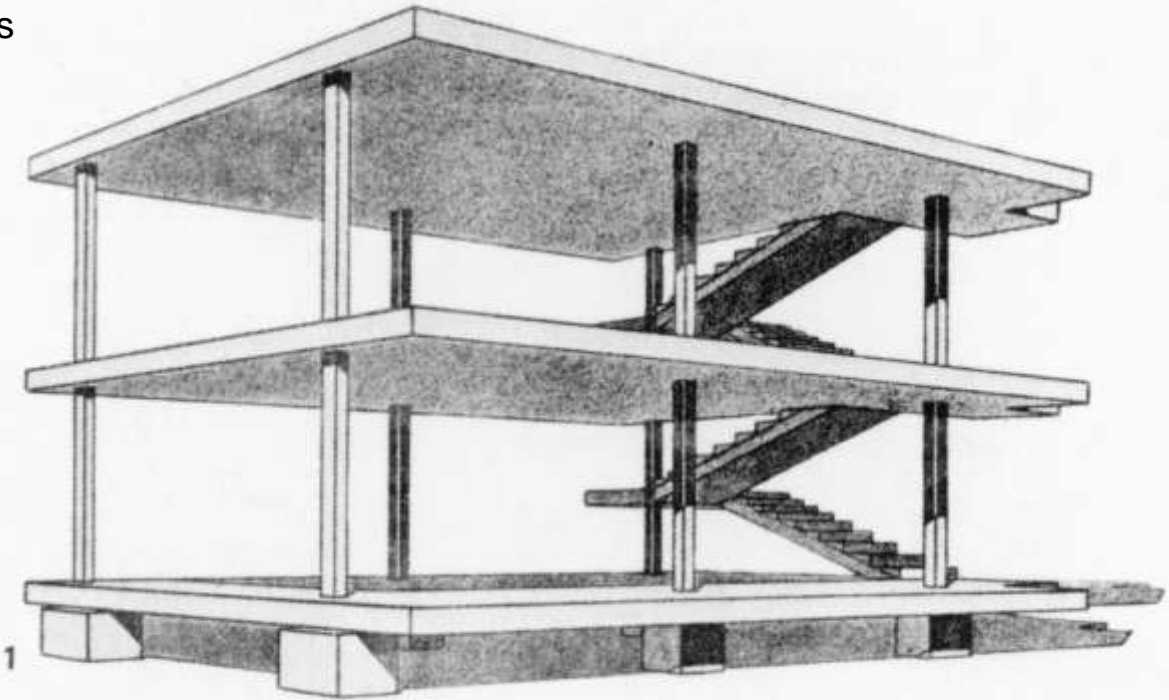
Source/Museum: Photo: Ezra Stoller. © Esto. All rights reserved. Esto Photographics, Inc.

Medium: n/a

Size: n/a

The Cage: Steel Beams with Reinforced Concrete

1. International Style:
 1. Deals with Volume and Not mass
 2. Planes and Space
 3. Airy and Sophistication
 4. Lightness
 5. Primary Forms
 6. “a machine for living in”
 1. Functional and precise



Title: Perspective drawing for Domino Housing Project

Artist: Le Corbusier

Date: n/a

Source/Museum: © 2003 Artists Rights Society (ARS), New York/ADAGP, Paris/FLC.

Medium: n/a

Size: n/a

Imagination



Title: Drawing for *Fallingwater*, Kaufmann House

Artist: Frank Lloyd Wright

Date: 1936

Source/Museum: Bear Run, Pennsylvania. The Frank Lloyd Wright drawings are copyright © 1997 The Frank Lloyd Wright Foundation, Scottsdale, Arizona. © 2003 Artists Rights Society (ARS), New York.

Medium: n/a

Size: n/a

Bear Run



Title: *Fallingwater*, Kaufmann House

Artist: Frank Lloyd Wright

Date: 1936

Source/Museum: Bear Run, Pennsylvania. M. E. Warren/Photo Researchers, Inc.

Medium: n/a

Size: n/a



Title: *Fallingwater Scaffolding*

Artist: Frank Lloyd Wright

Date: n/a



Source/Museum: From the Fallingwater Collection at the Avery Architectural and Fine Arts Library, Columbia University, New York. © 2003 Artists Rights Society (ARS), New York.

Medium: n/a

Size: n/a



International Style



Title: *Villa Savoye*

Artist: Le Corbusier and Jeanneret

Date: 1928-1930

Source/Museum: Poissy-sur-Seine, France. © Anthony Scibilia Solidus. Art Resource, New York. © 2003 Artists Rights Society (ARS), New York/ADAGP, Paris/FLC.

Medium: n/a

Size: n/a

International Style and Nature



Title: Farnsworth House, Fox River

Artist: Ludwig Mies van der Rohe

Date: 1950

Source/Museum: Plano, Illinois. Bill Hedrich/Hedrich-Blessing.

Medium: n/a

Size: n/a

International Style Skyscraper

1. Geometric Simplicity
2. At night the electricity activates the building
3. During the day the windows reflect the life that surrounds it



Title: *Seagram Building, New York City*

Artist: Mies van der Rohe and Philip Johnson

Date: 1958

Source/Museum: Photo: Ezra Stoller. © Esto. All rights reserved. Esto Photographics, Inc. (2003) Artists Rights Society (ARS), New York/VG Bild-Kunst, Bonn.

Medium: n/a

Size: n/a

Mass Vs. Volume



Title: TWA Terminal, John F. Kennedy Interantional Airport,
New York

Artist: Eero Saarinen

Date: 1962



Title: *TWA Terminal, Kennedy International Airport, New York*

Artist: Eero Saarinen

Date: 1962

Source/Museum: Photo: Ezra Stoller. © Esto. All rights reserved. Esto Photographics, Inc.

Medium: n/a

Size: n/a

Contemporary Architecture

1. 54 stories high
 1. Tallest building in Sweden
2. 9 Cubes



Title: *Turning Torso residential tower*

Artist: Santiago Calatrava

Date: 2000-2005

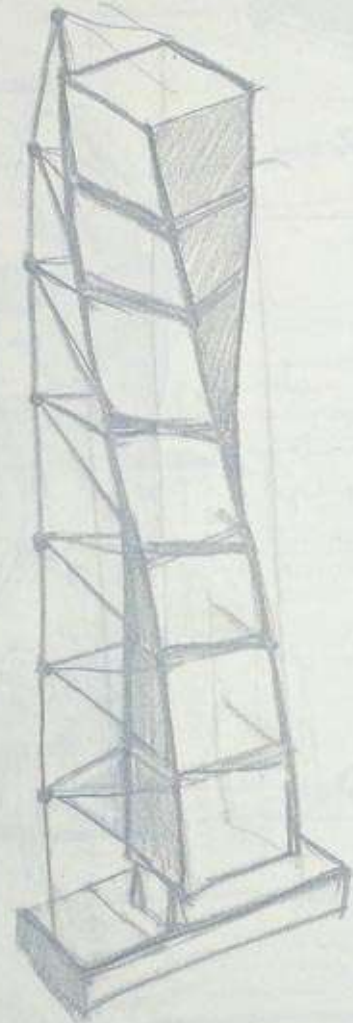
Source/Museum: Malmö, Sweden. Courtesy Santiago Calatrava.

Medium: n/a

Size: n/a

Escultura ③

torso discoidal



Title: *Turning Torso residential tower*

Artist: Santiago Calatrava

Date: c. 2000

Source/Museum: Malmo, Sweden. Courtesy Santiago Calatrava.

Medium: Drawing

Size: n/a



Title: Jean Nouvel with b720 Arquitectos, Torre Agbar

Artist: Jean Nouvel/Ateliers

Date: 2005

Source/Museum: Barcelona. Lighting design by Yann Kersalé.
Photo © Roland Halbe.

Medium: n/a

Size: n/a



Title: OMA, *New Headquarters, Central Chinese Television CCTV*

Artist: Rem Koolhaas

Date: 2002

Source/Museum: Beijing, China. Photo courtesy of the Office for Metropolitan Architecture. The Netherlands.

Medium: Competition drawing

Size: n/a



Title: OMA, New Headquarters, Central Chinese Television CCTV, Beijing, China

Artist: Rem Koolhaas and Ole Scheeren

Date: 2008

Tallest Building in the World

1. Completed January 4, 2010
2. Renamed Burj Kalifa



Title: *Burj Dubai*

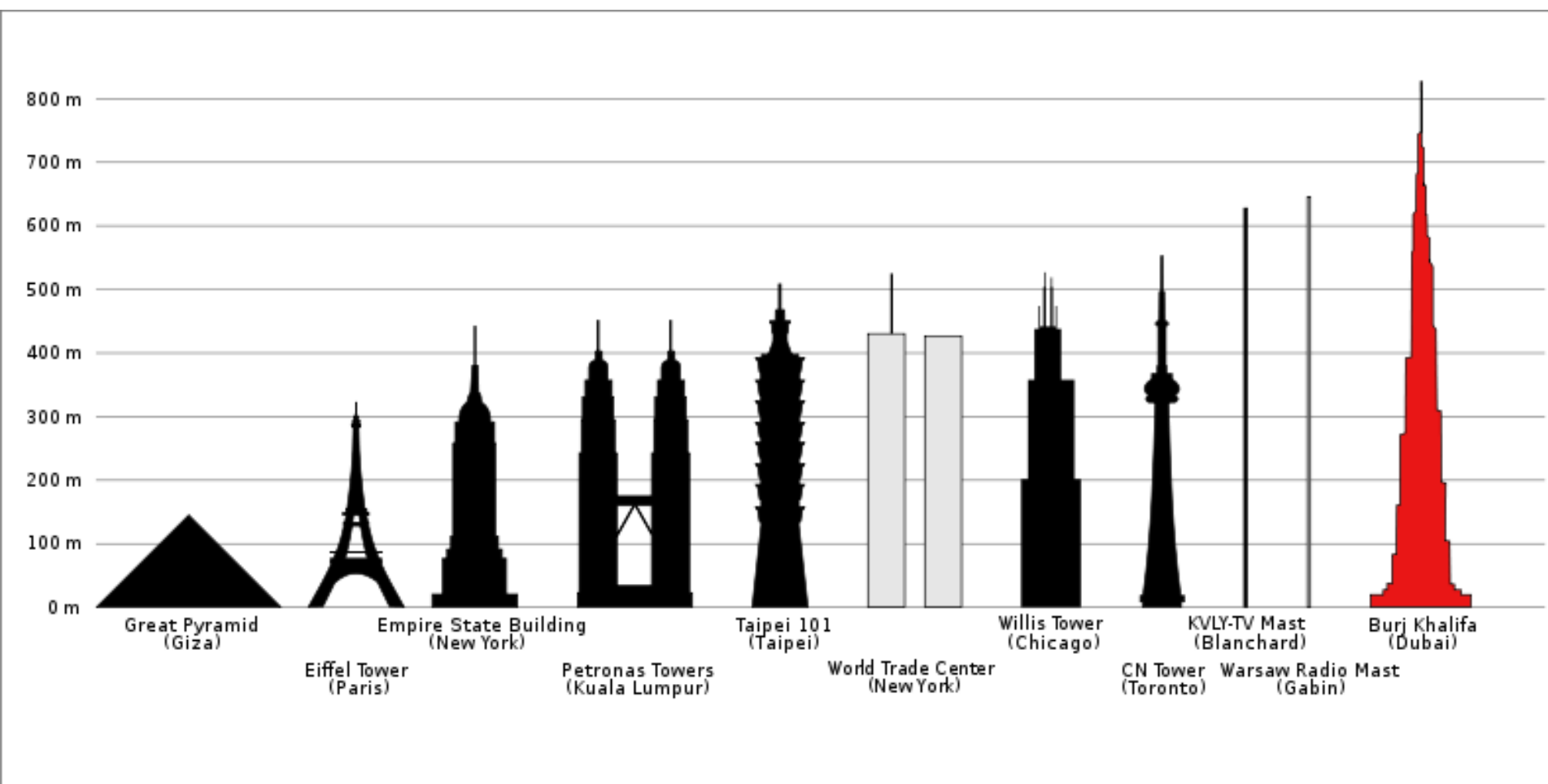
Artist: Adrian Smith, and Skidmore, Owings & Merrill

Date: October 26, 2008

Completion: Under Construction

Dubai, United Arab Emirates



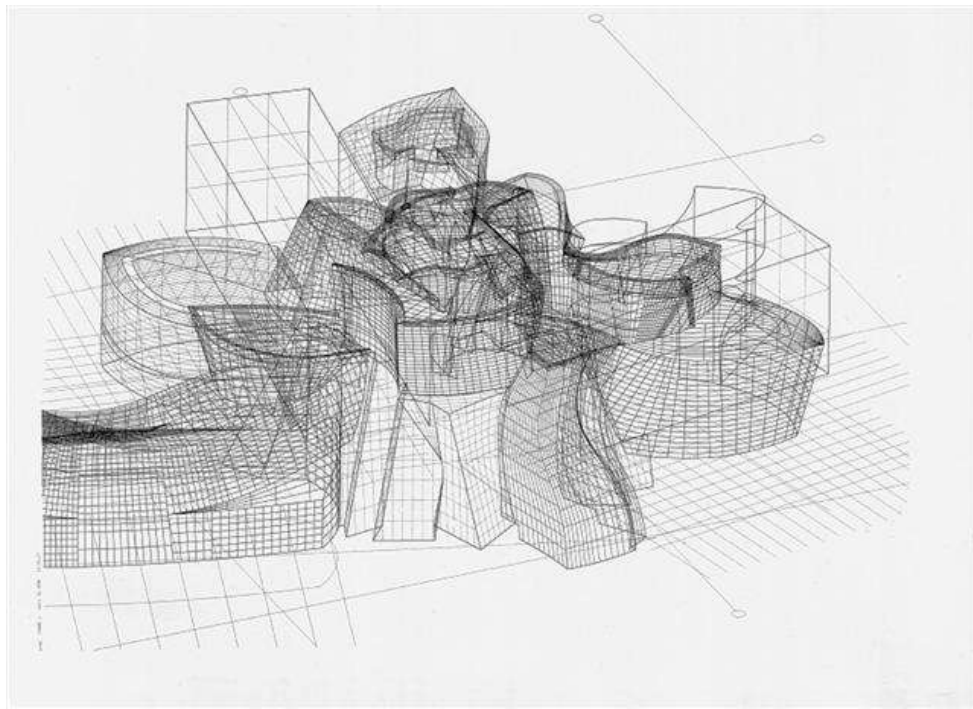
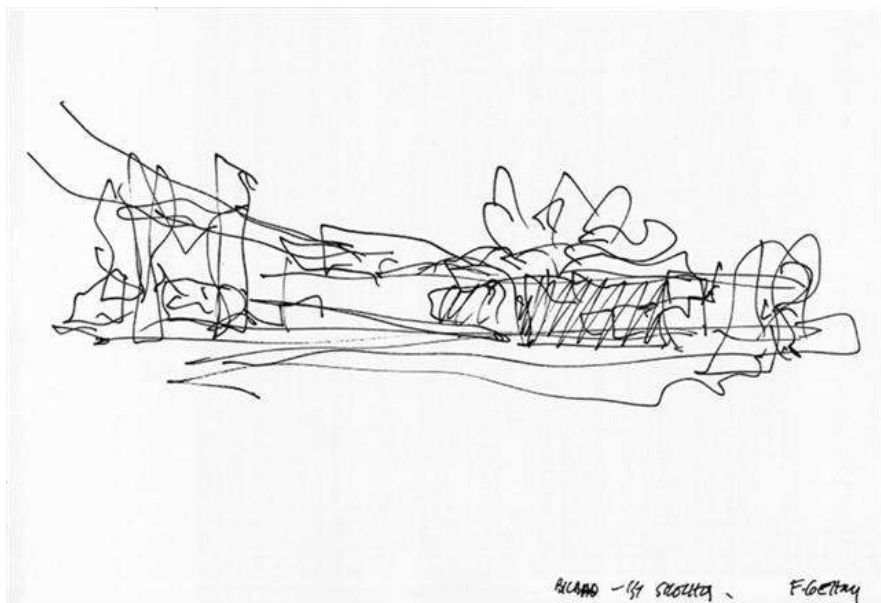




Title: *Burj Al-Arab*

Artist: Tom Wills-Wright

Date: 1999





Green Architecture

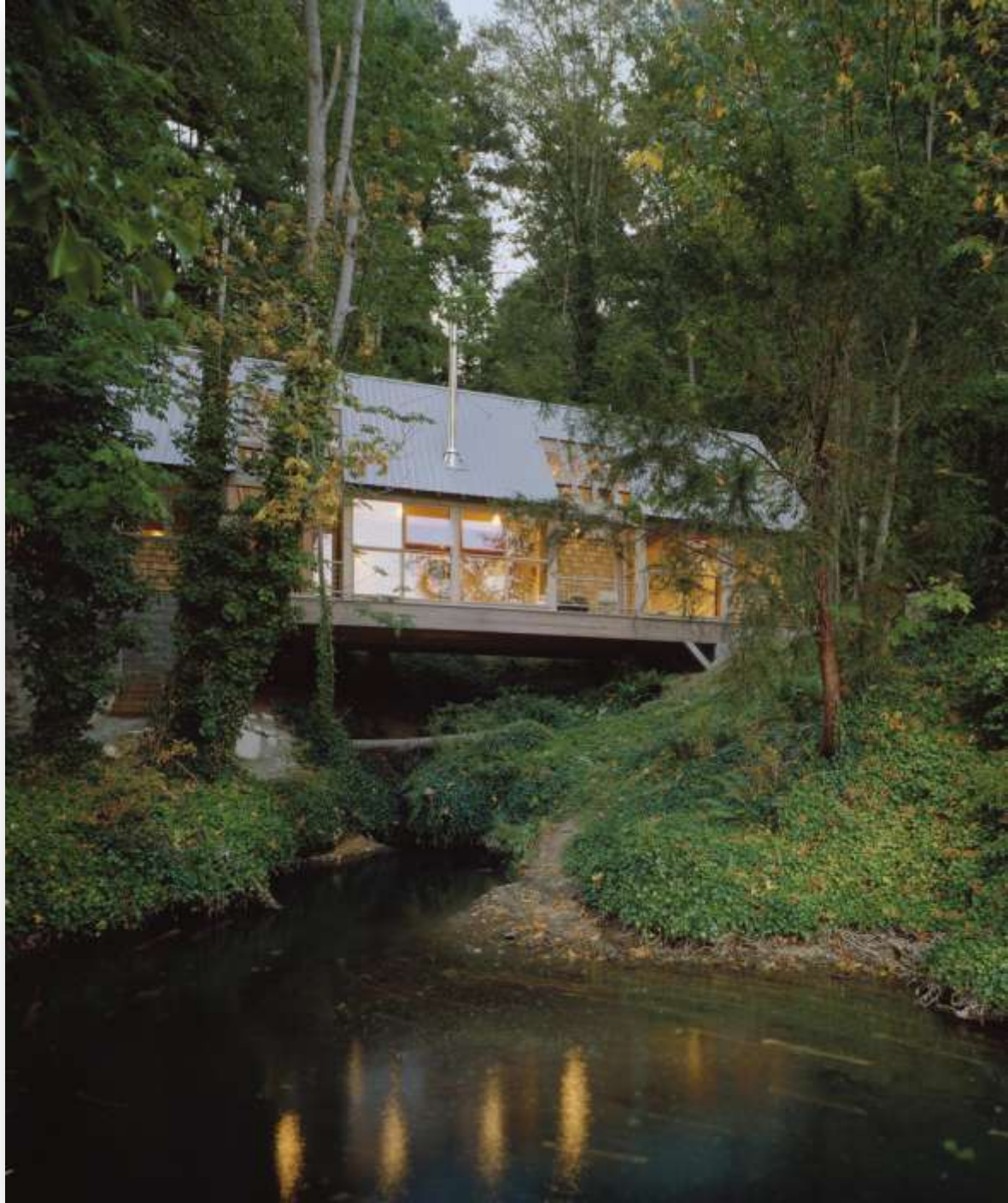
- Smaller Buildings
- Integration and compatibility with the natural environment
- Energy Efficient and Solar orientation
- Use of Recycled, reusable and sustainable materials



Title: *Brunsell Residence, Sea Ranch California*

Artist: Obie Bowman

Date: 1987



Title: *Bridge House*

Artist: James Cutler

Date: 1987

Title: ACROS Building (*Fukuoka Prefectural International Hall*)

Artist: Emilio Ambasz

Date: 1989-95



Community Life

Tension: Urbanization vs. Nature



Title: *Antheneum, New Harmony*

Artist: Richard Meier

Date: 1979

Source/Museum: Indiana. Digital imaging project. Photo © Mary Ann Sullivan, sullivanm@bluffton.edu.

Medium: n/a

Size: n/a

Man Made Nature



Title: *Central Park, aerial view, New York City*

Artist: Frederick Law Olmsted and Calvert Vaux

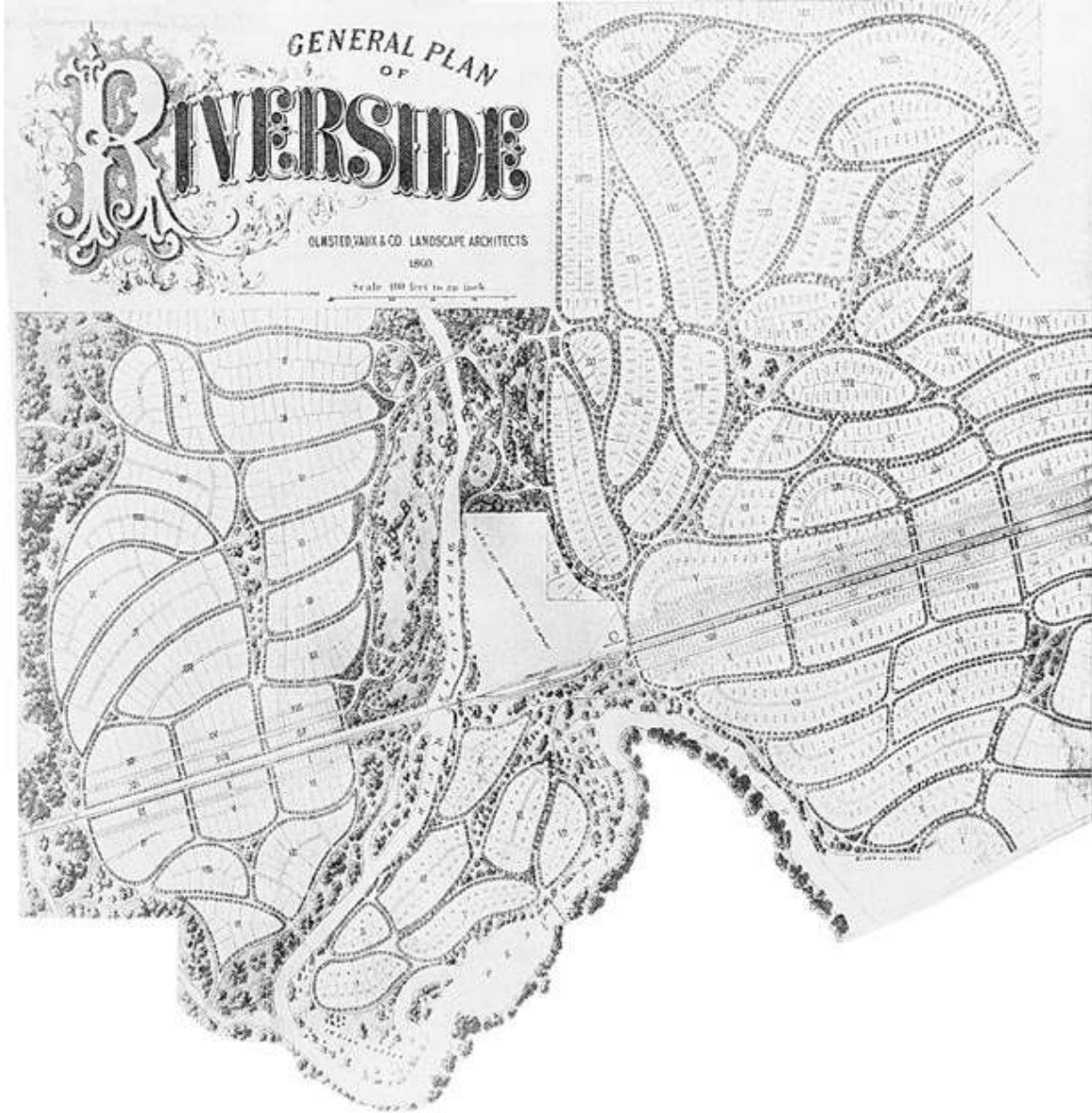
Date: 1857-1887

Source/Museum: Steve Proehl/Getty Images, Inc.

Medium: n/a

Size: n/a

Birth of the Suburb



Title: *General plan of Riverside, Illinois*

Artist: Olmsted, Vaux & Co., landscape architects

Date: 1869

Source/Museum: Frances Loeb Library, Graduate School of Design, Harvard University.

Medium: n/a

Size: n/a



Title: *Los Angeles Freeway Interchange*

Artist: n/a

Date: n/a

Source/Museum: Photo courtesy of California Division of Highways, Sacramento

Medium: n/a

Size: n/a



Title: *Fresh Kills Landfill, daily operation*

Artist: Mierle Laderman Ukeles

Date: n/a

Source/Museum: Courtesy Ronald Feldman Fine Arts, New York.

Medium: n/a

Size: n/a



Title: *Fresh Kills Landfill, aerial view*

Artist: Mierle Laderman Ukeles

Date: n/a

Source/Museum: Courtesy Ronald Feldman Fine Arts, Inc., New York.

Medium: n/a

Size: n/a



Title: *Port Authority Trans Hudson (PATH) Station, World Trade Center Site 2004*

Artist: Santiago Calatrava

Date: 2004





Title: *Skyline View, World Trade Center Plan*

Artist: Studio Daniel Libeskind

Date: 2002

Source/Museum: Courtesy Studio Daniel Libeskind/Lower Manhattan Development Corporation (LMDC).

Medium: n/a

Size: n/a

Title: *Wedge of Light, World Trade Center Plan*

Artist: Studio Daniel Libeskind

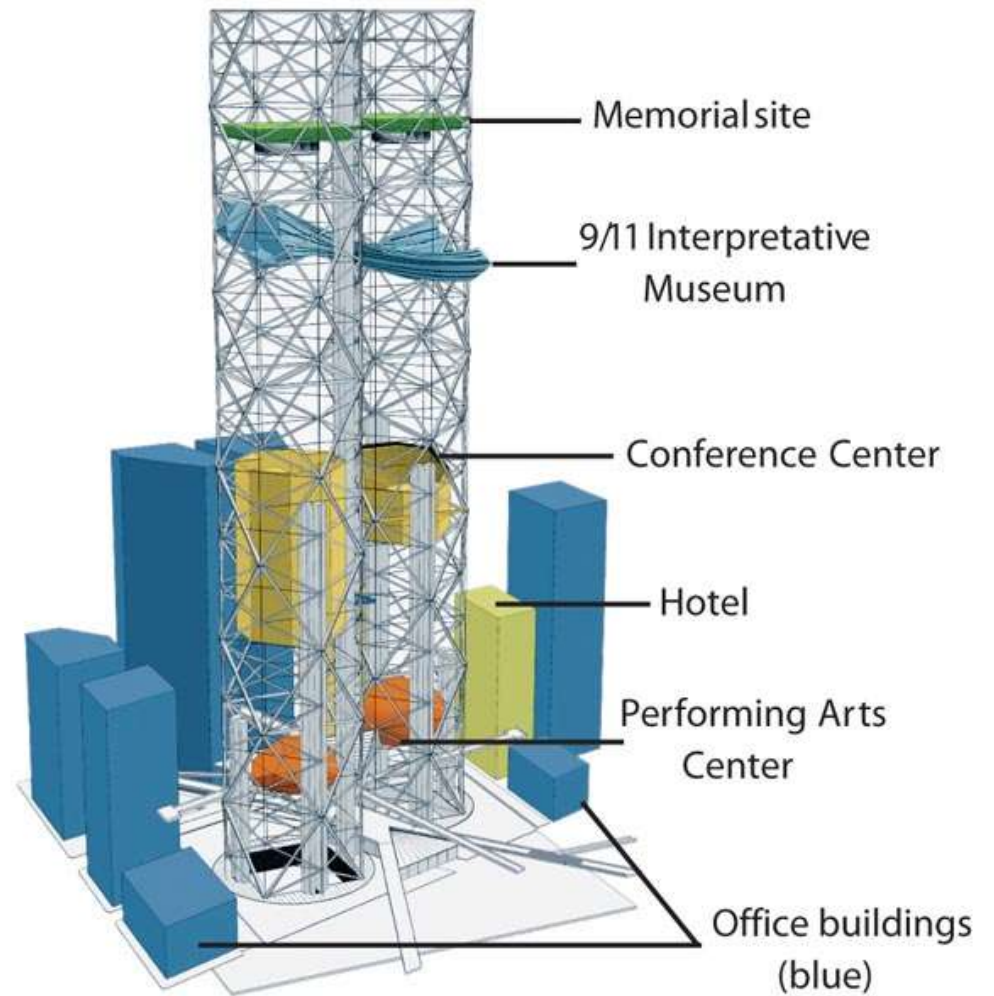
Date: 2002



Source/Museum: © Archimation. Courtesy Studio Daniel Libeskind/Lower Manhattan Development Corporation (LMDC).

Medium: n/a

Size: n/a



Title: *Plan for a World Cultural Center at the Site of the World Trade Center, New York*

Artist: THINK design

Date: 2002-2003

Source/Museum: Courtesy THINK design and the Lower Manhattan Development Corporation (LMDC)

Medium: n/a

Size: n/a