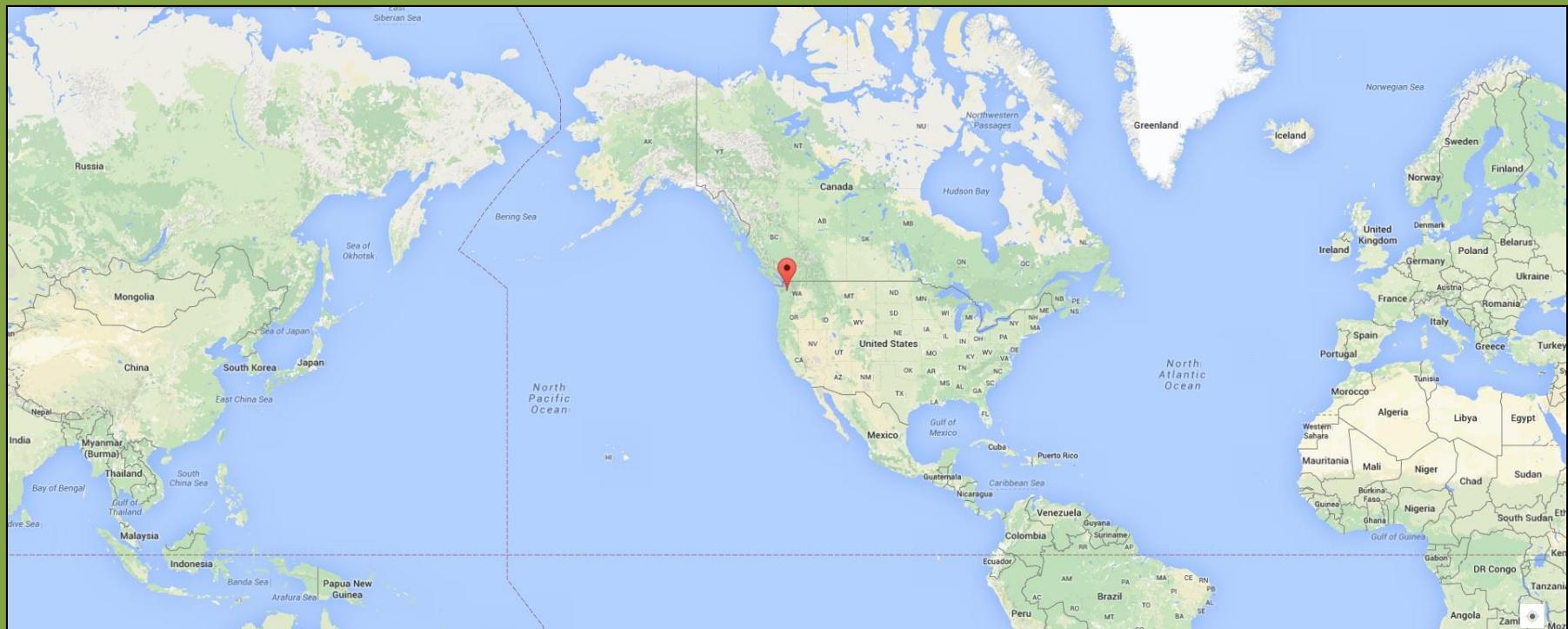
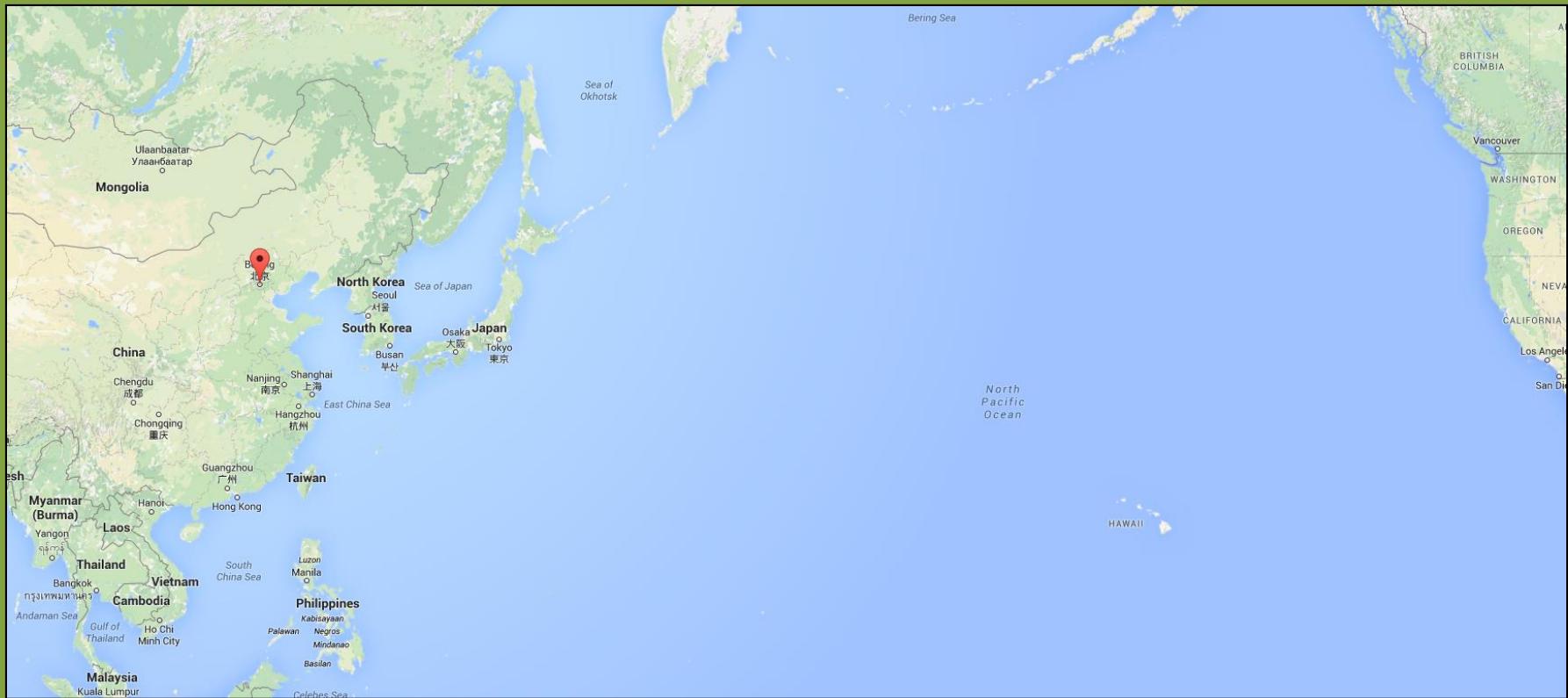


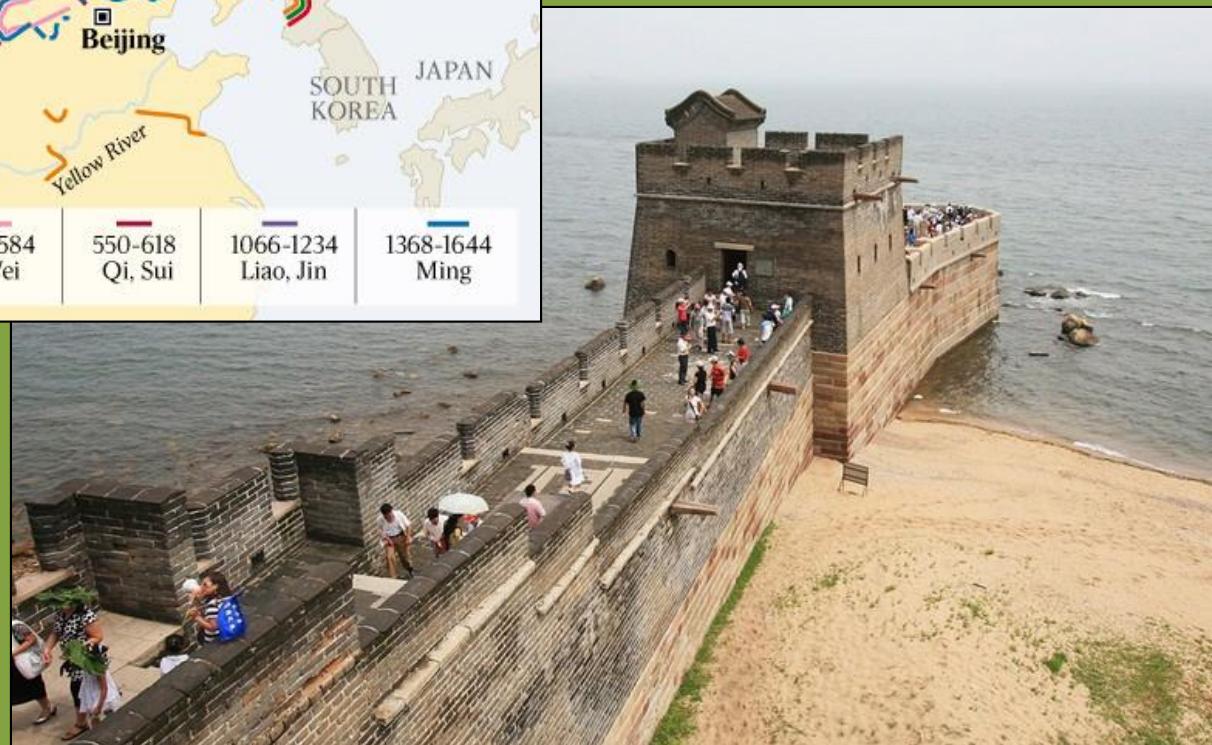
WEEK 6: Asian and Byzantine Architecture



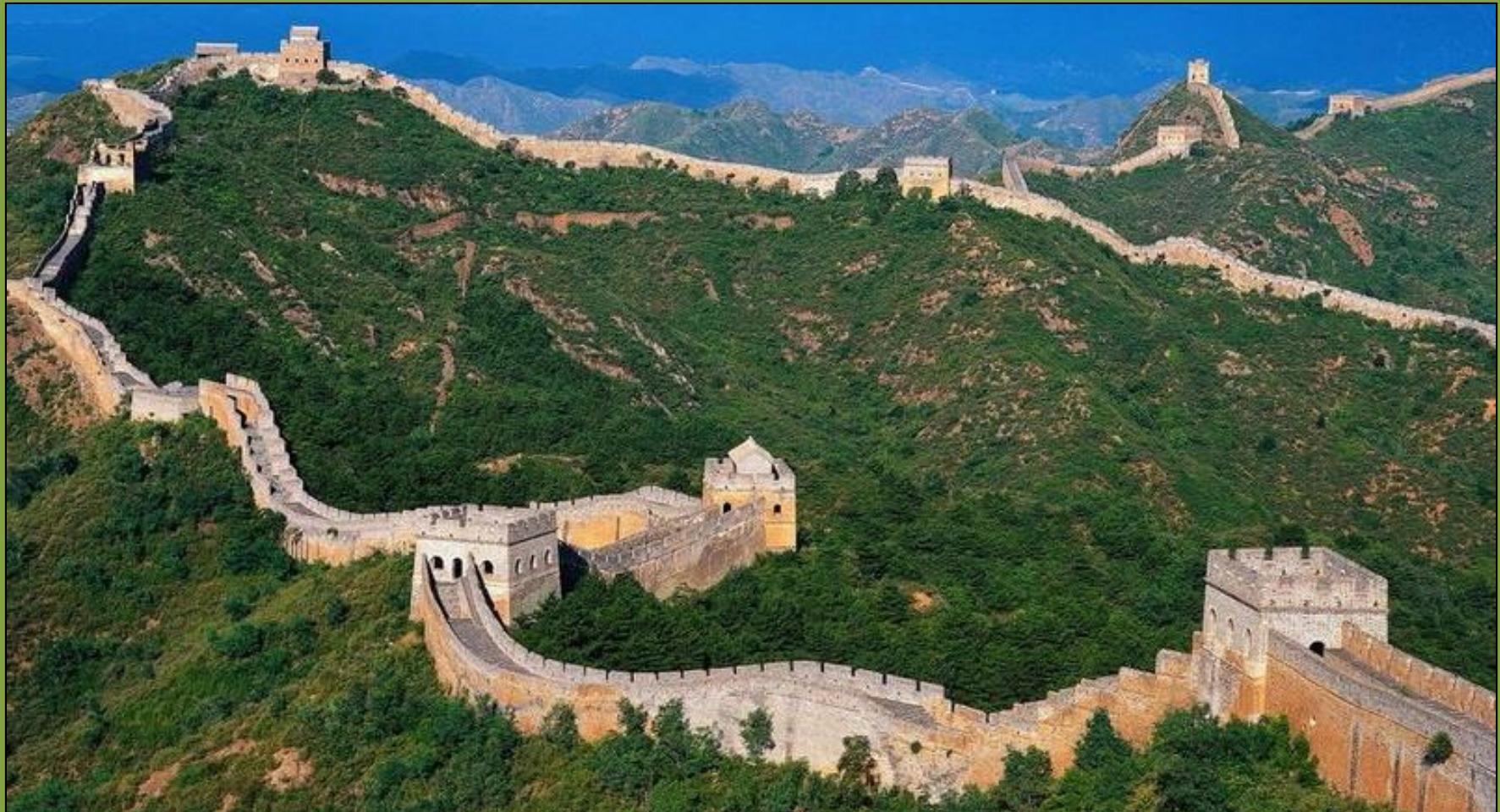
GREAT WALL & FORBIDDEN CITY OF CHINA



Great Wall of China; Started around 221 BC - Over 13,000 miles long (includes trenches, hills, rivers, earth walls), 1600 miles of the stone and brick portion survives



Great Wall of China; Follows the contours of the land



Great Wall of China; Spans rivers



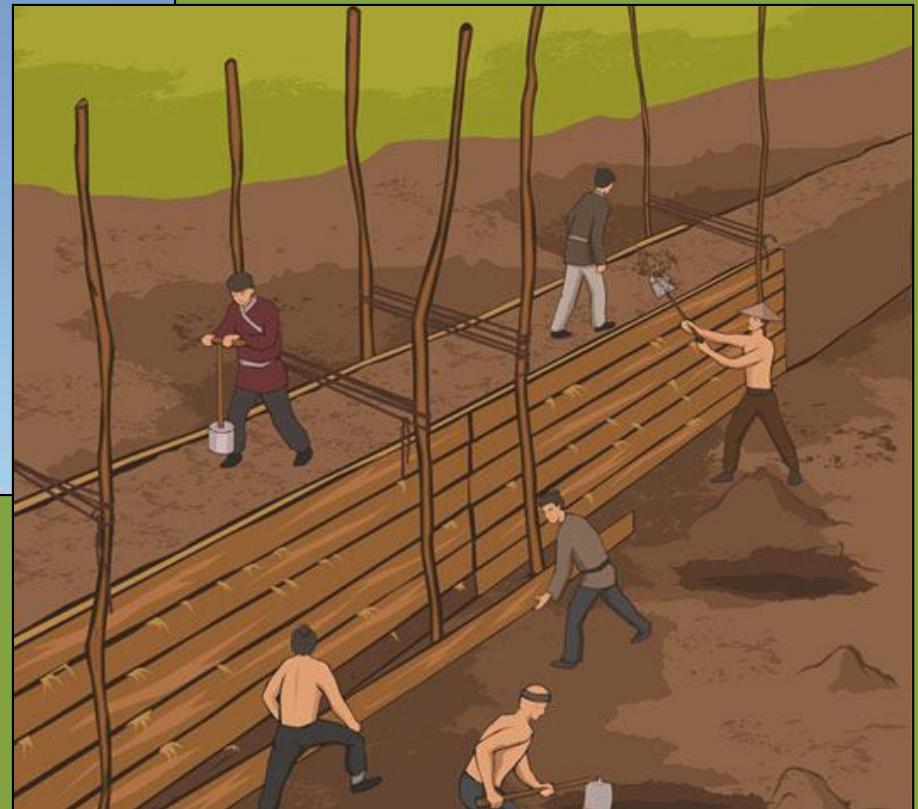
Great Wall of China; Remains of the oldest parts of the wall.



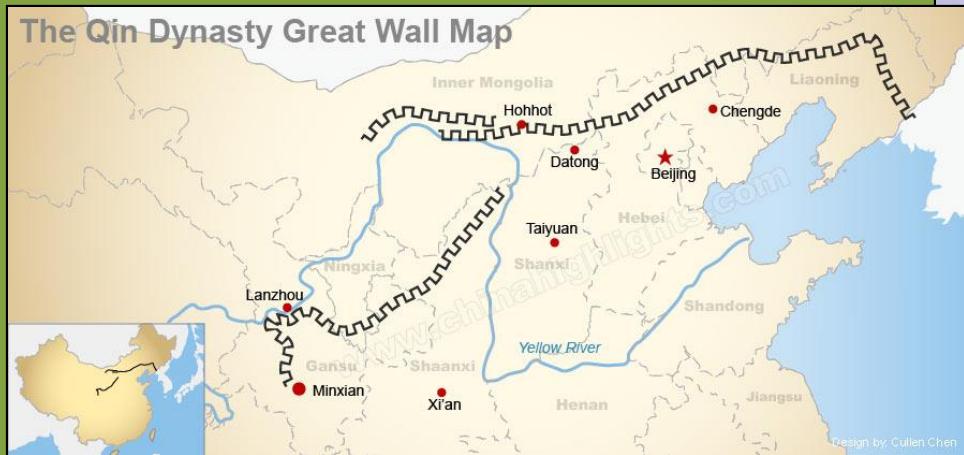
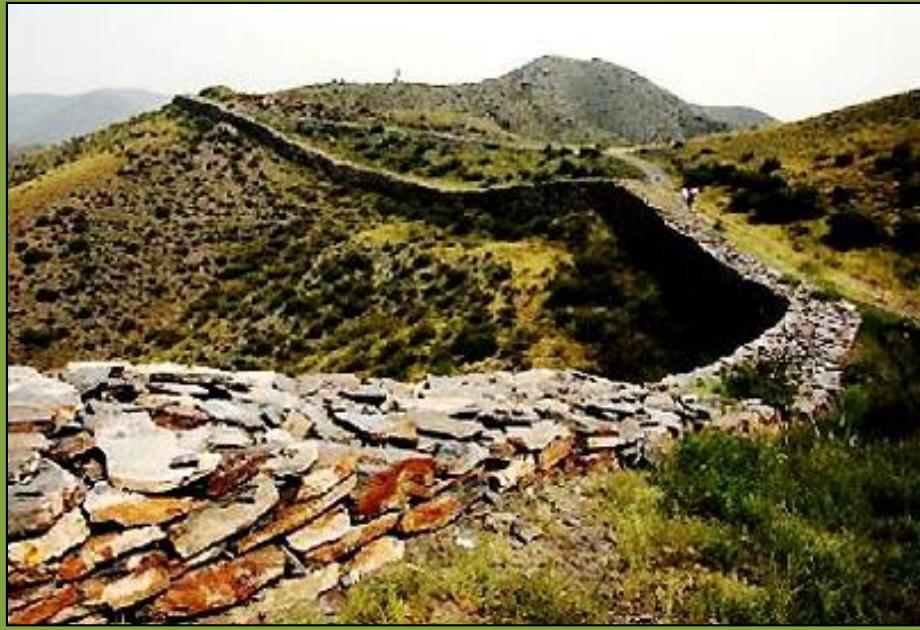
Great Wall of China; Started during the Qin Dynasty in 221 BC,
Stronger construction during Ming Dynasty (1338 – 1644)



Originally made of tamped earth



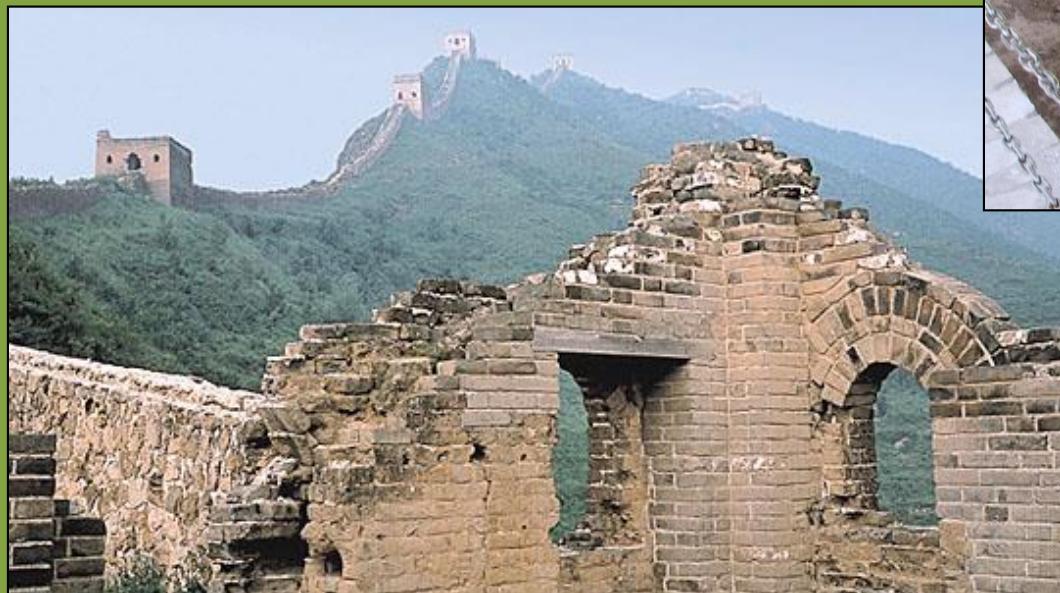
Great Wall of China; Started during the Qin Dynasty in 221 BC, Stronger construction during Ming Dynasty (1338 – 1644)



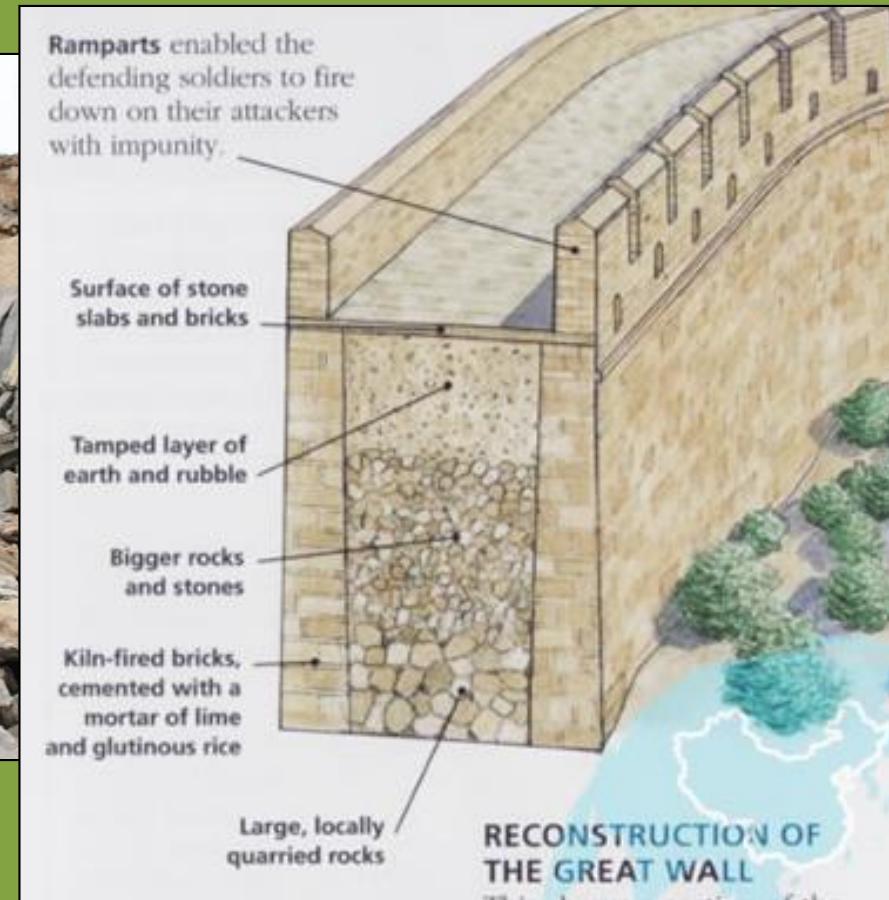
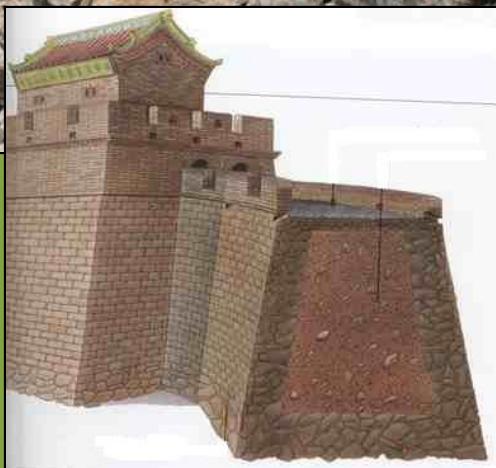
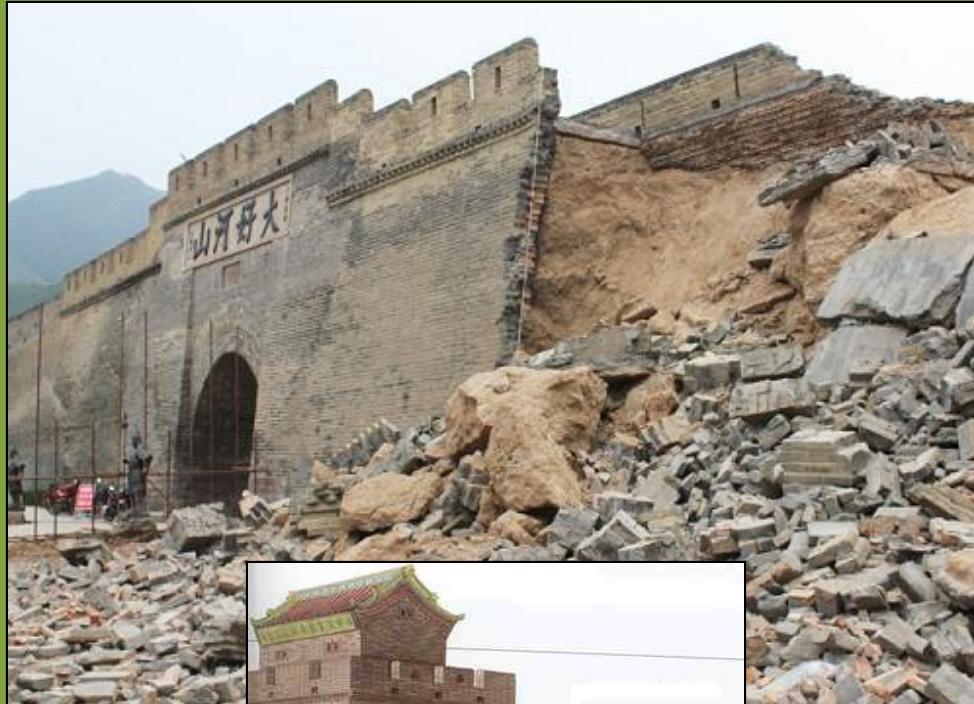
Great Wall of China; Stronger construction during Ming Dynasty (1338 – 1644)



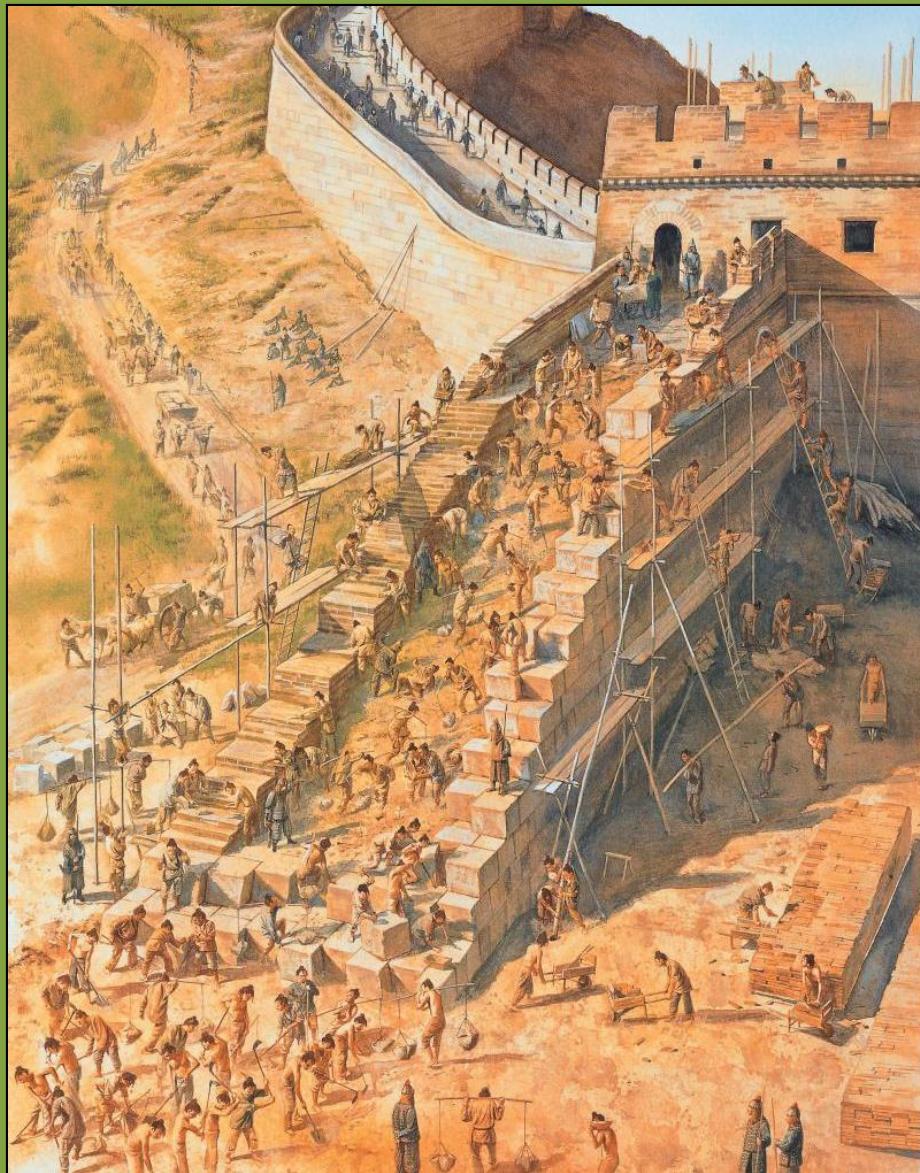
Brick kiln used during the construction of the wall



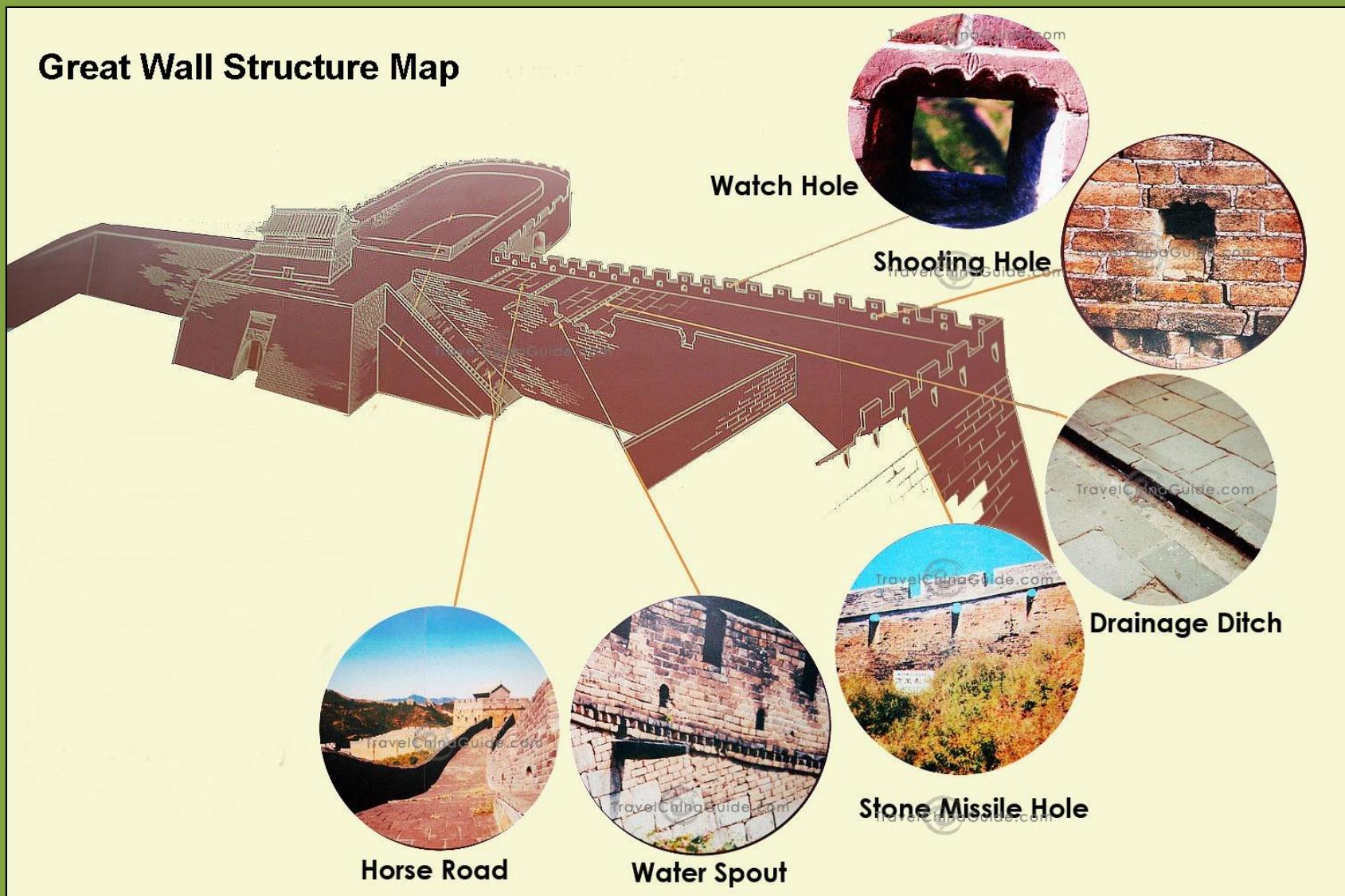
Great Wall of China; Construction during Ming Dynasty – Kiln fired bricks and stone on the exterior & rocks, rubble and tamped earth on the interior



Great Wall of China; Ming Dynasty Construction



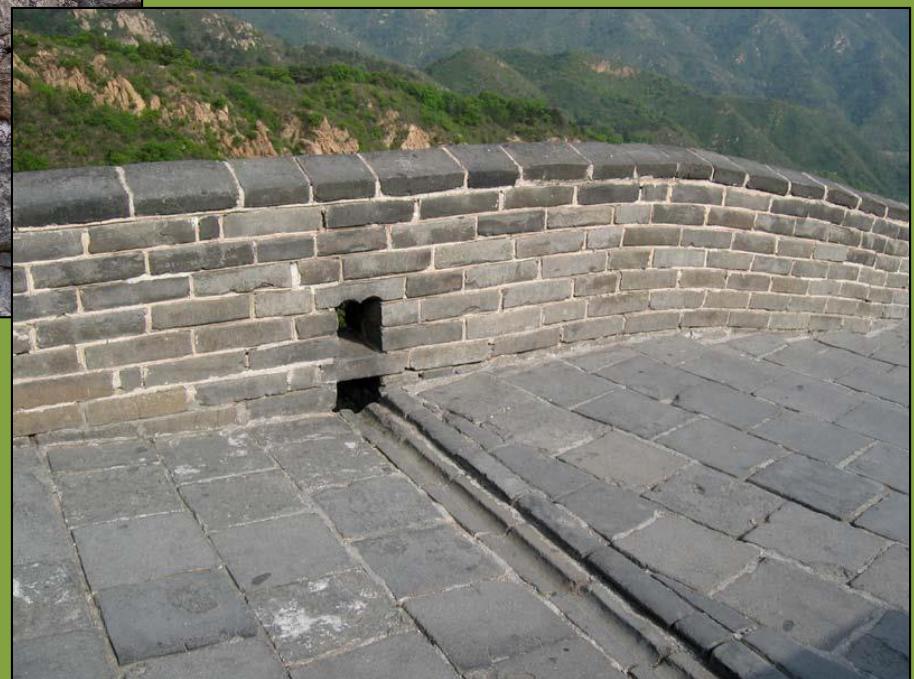
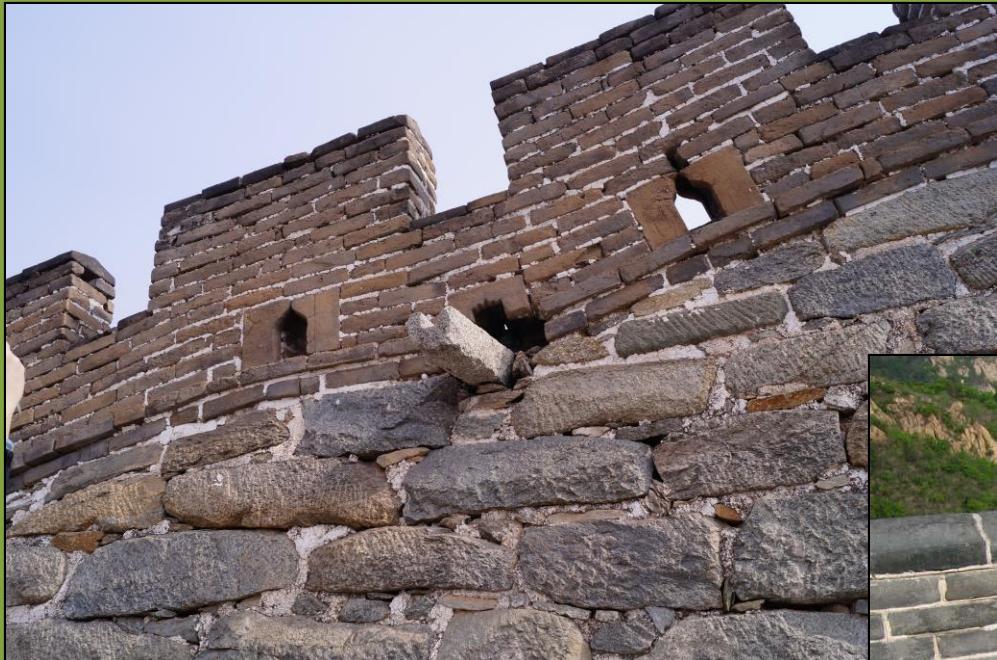
Great Wall of China; Ming Dynasty wall details



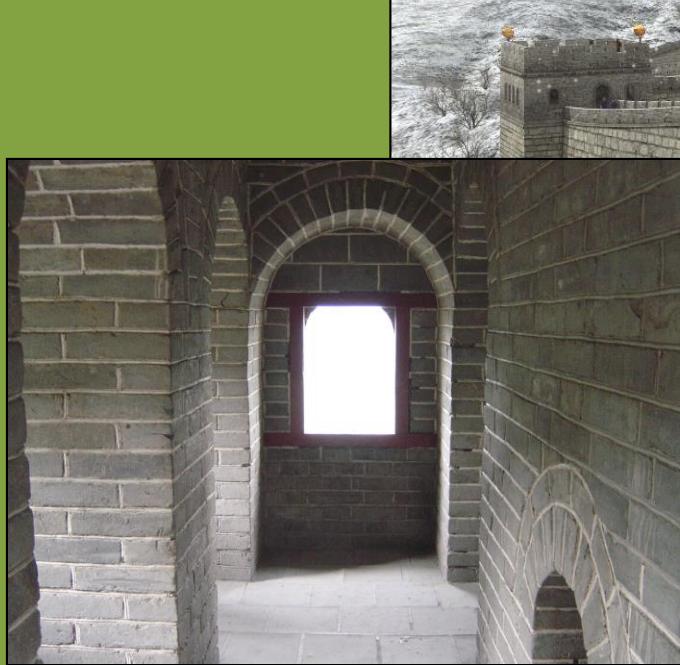
Great Wall of China; Watch Holes and Shooting Holes



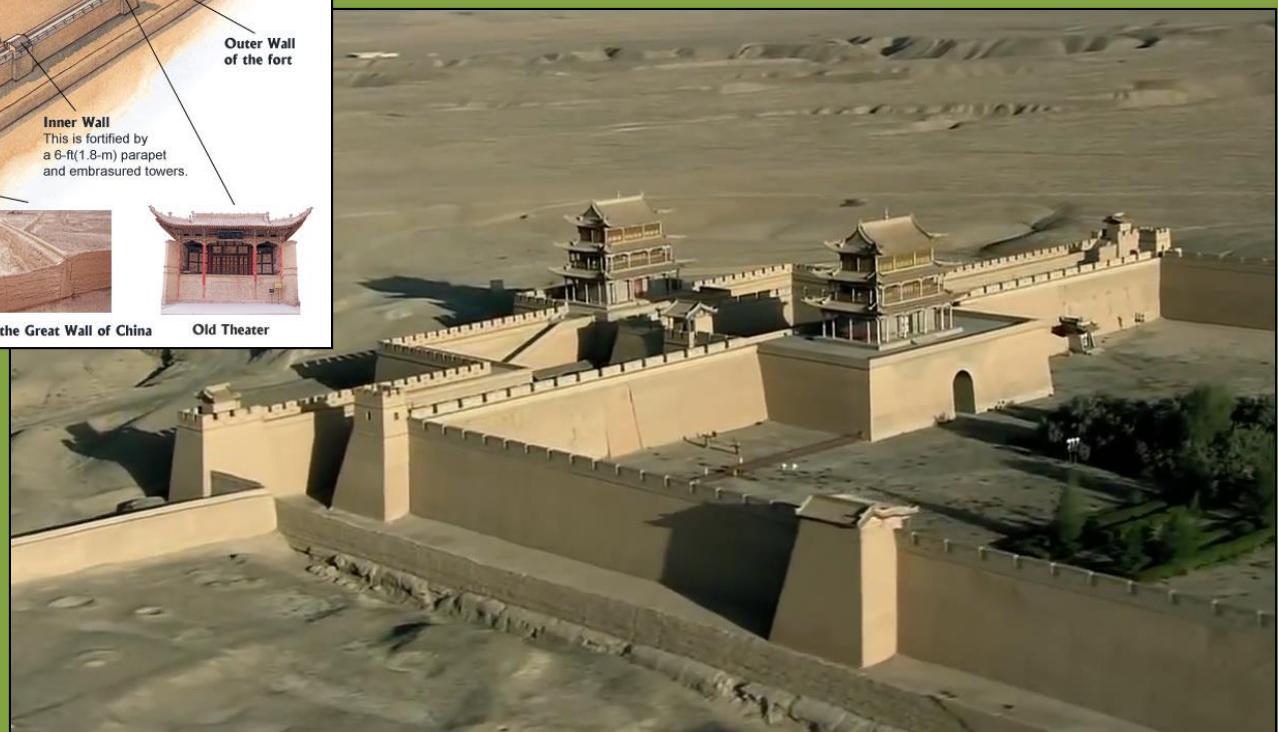
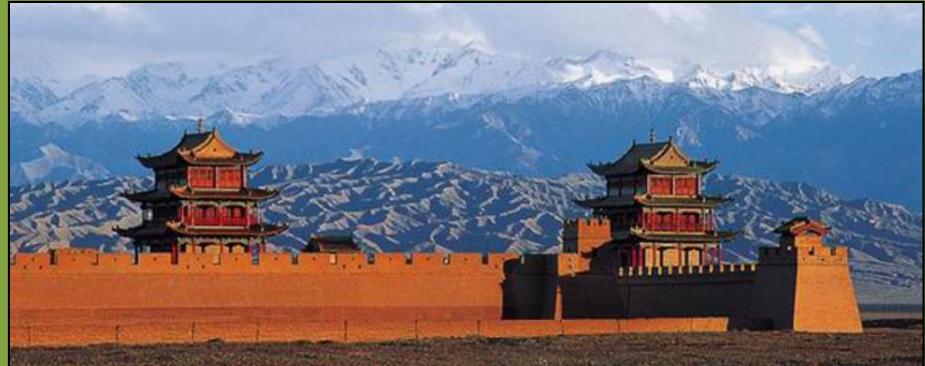
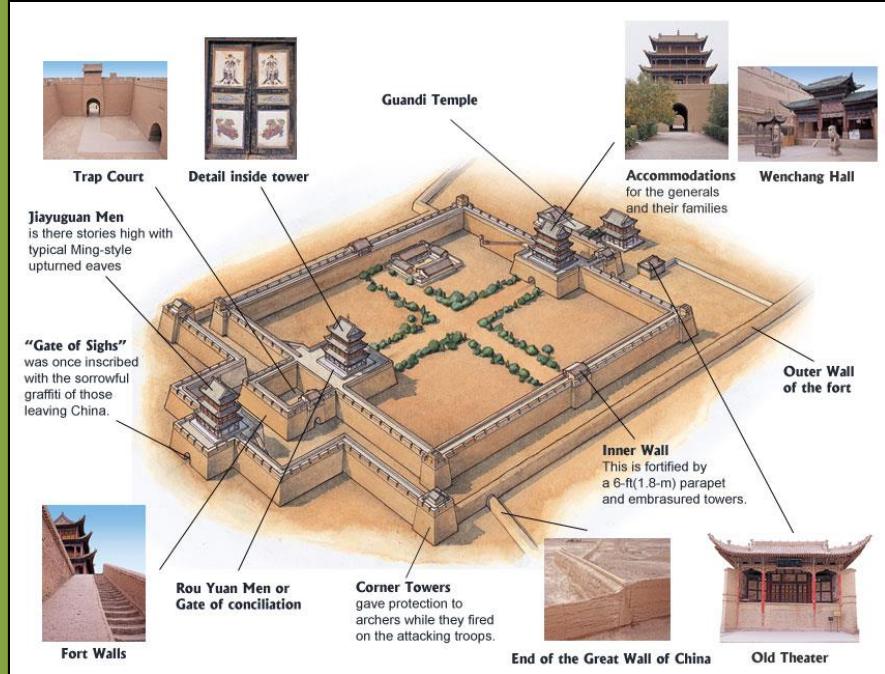
Great Wall of China during Ming Dynasty (1338 – 1644); Drainage System with water spouts and drainage ditches



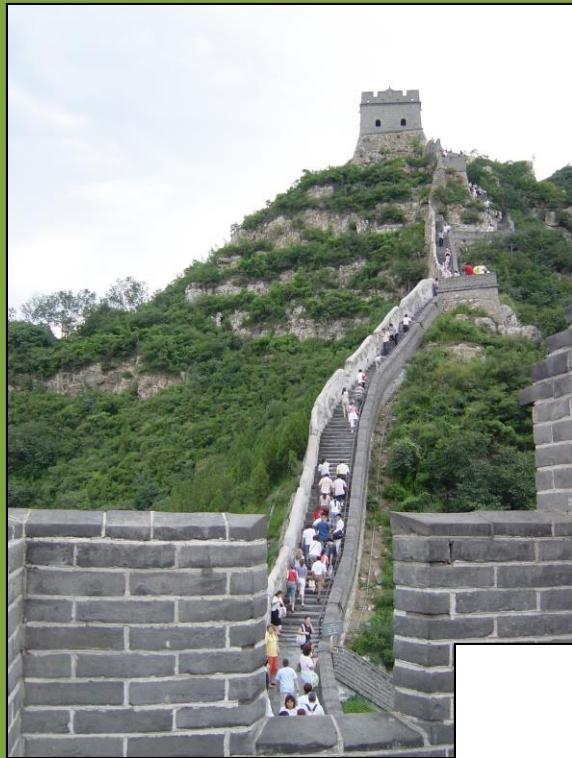
Great Wall of China; Originally there were approximately 25,000 Watchtowers



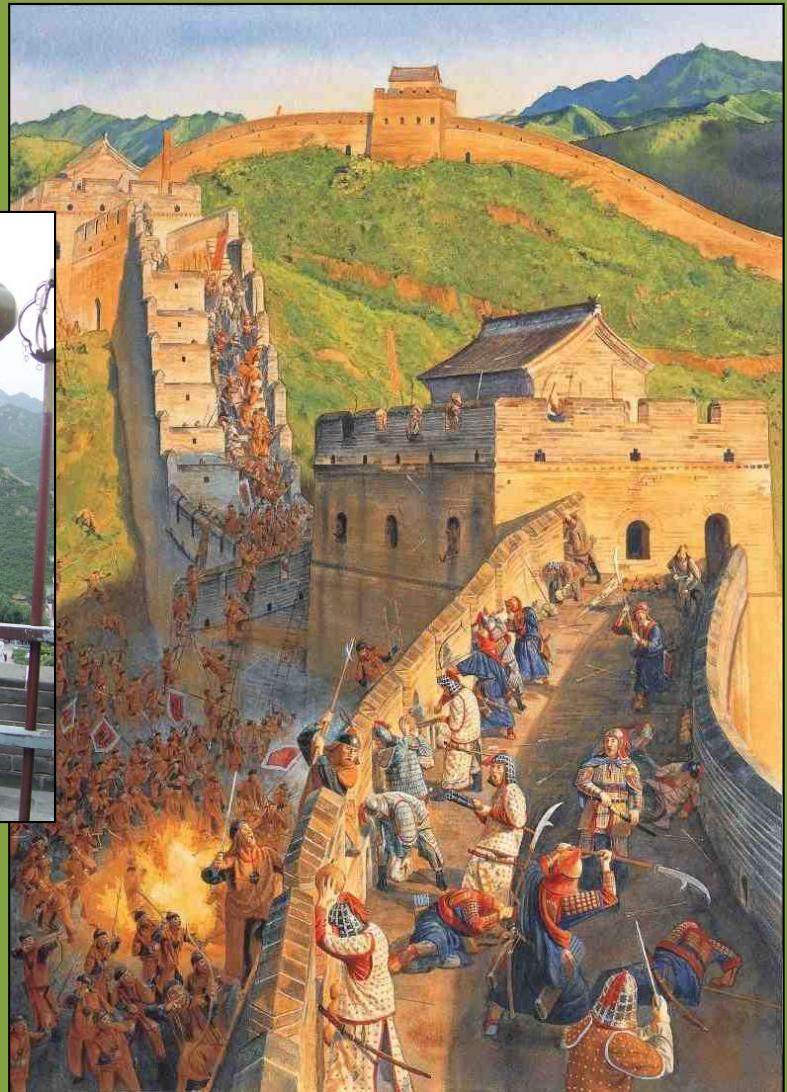
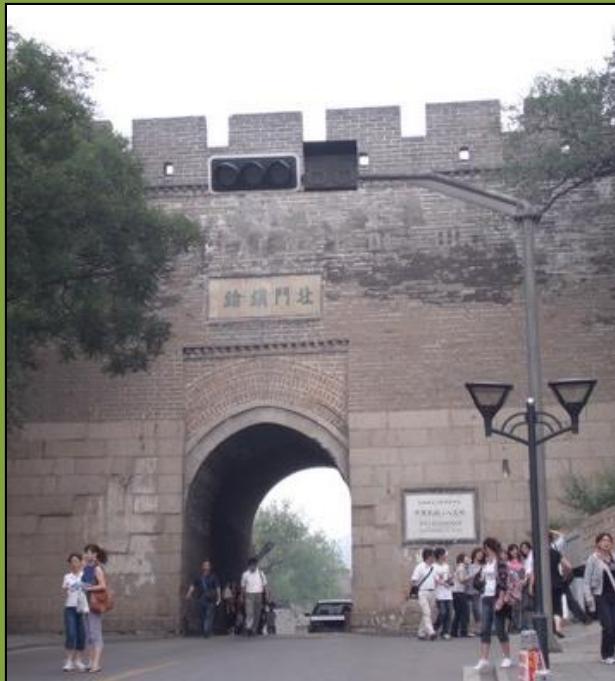
Great Wall of China; The Garrisons of the Ming Dynasty along the wall would hold up to 10,000 soldiers



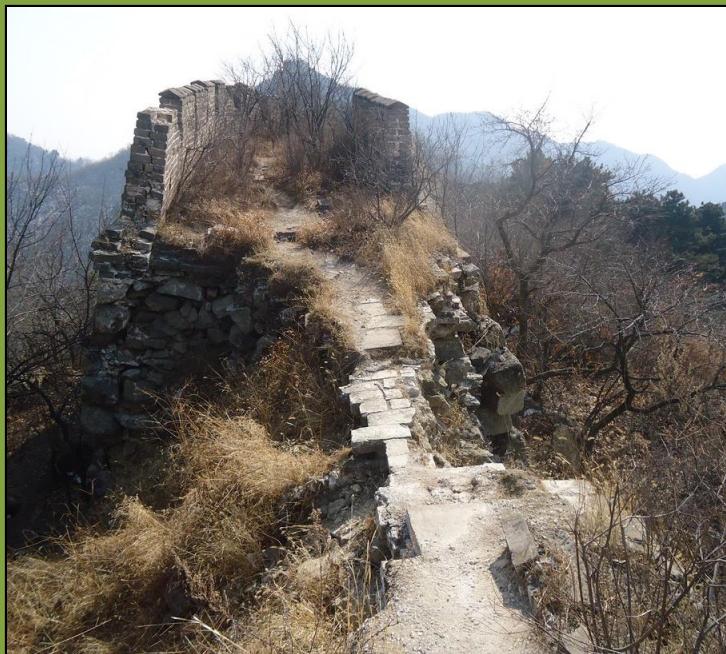
Great Wall of China; Over a million people died over the course of construction from Qin to Ming Dynasties



Great Wall of China; The Ming Dynasty ended in 1644 when the Manchu's conquered China and formed the Qing Dynasty (1644 –1912)



Great Wall of China; Parts that are not restored



Great Wall of China; Parts that are not restored



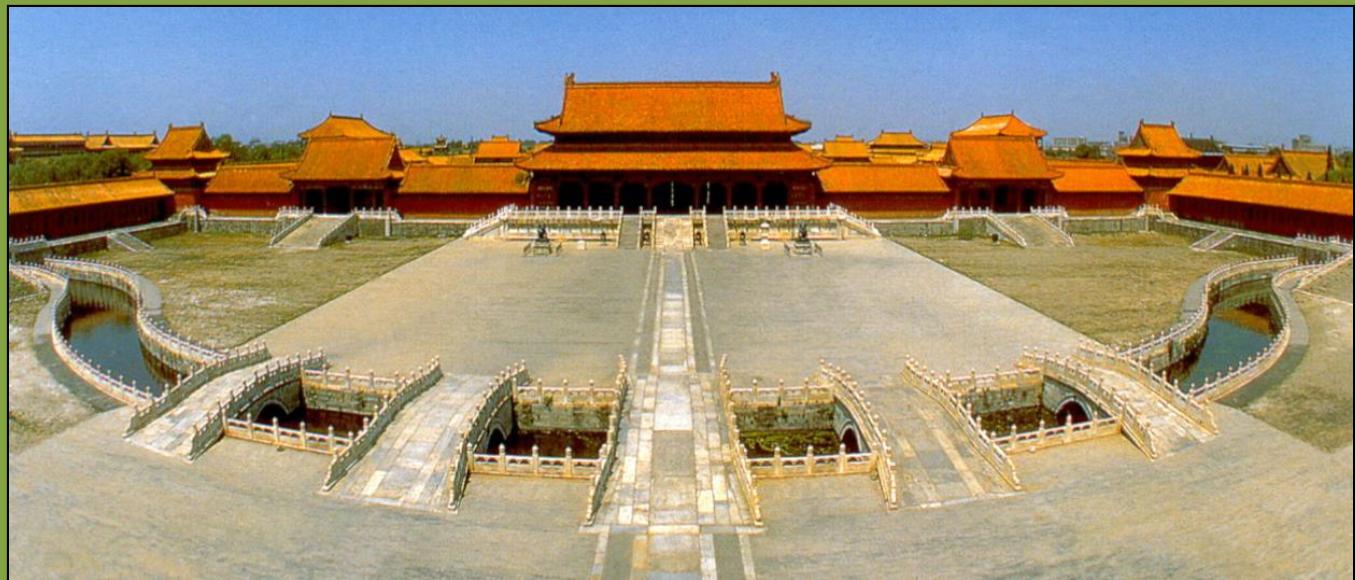
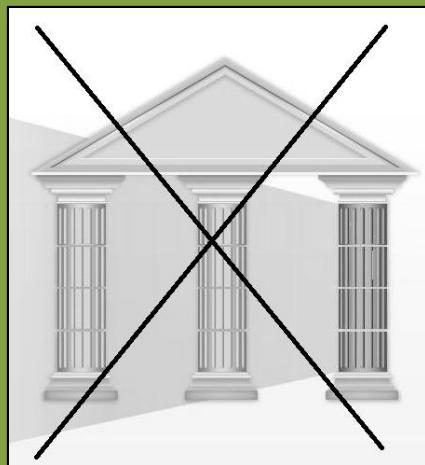
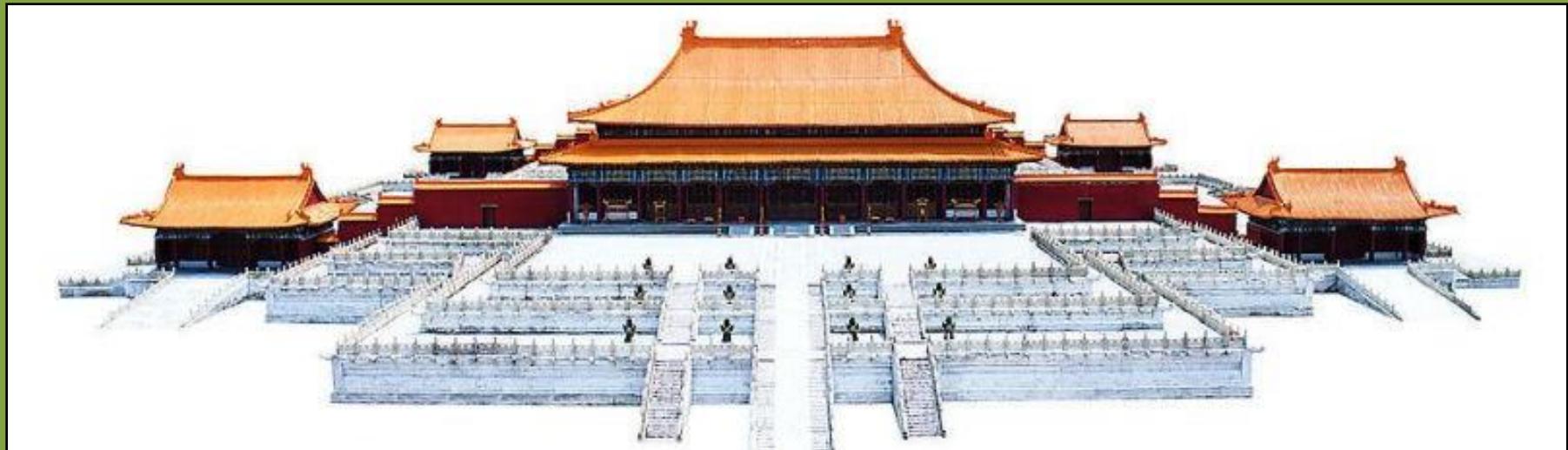
FORBIDDEN CITY; Beijing – Completed in 1420



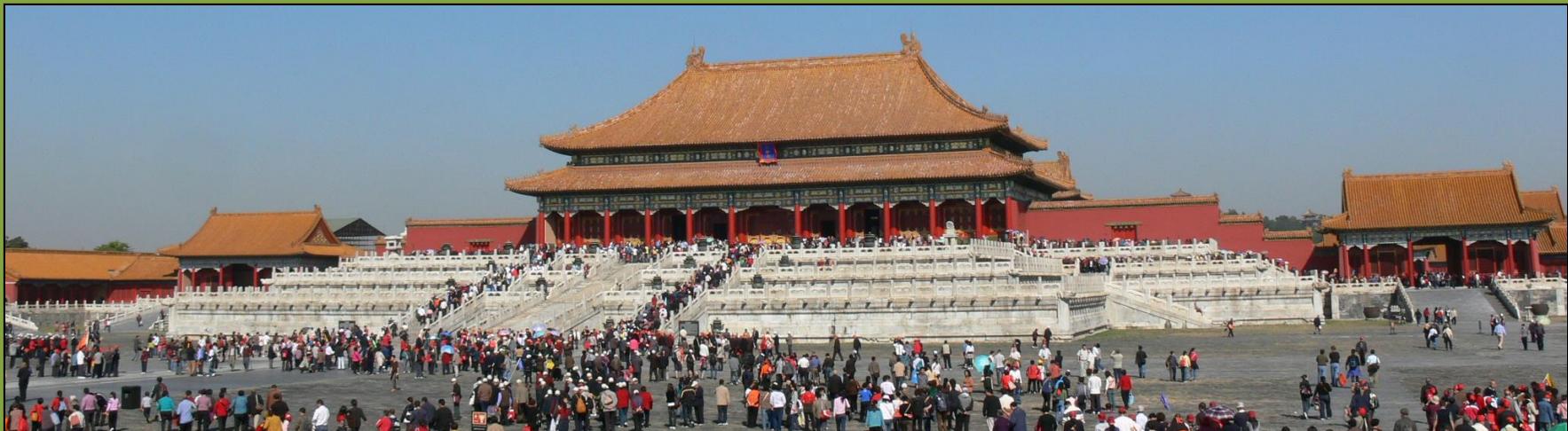
Chinese Palatial
Architecture; Buildings
connected by
courtyards, made of
timber, colorful, with an
emphasis on symmetry



Forbidden City in Beijing, 1420; Symmetry



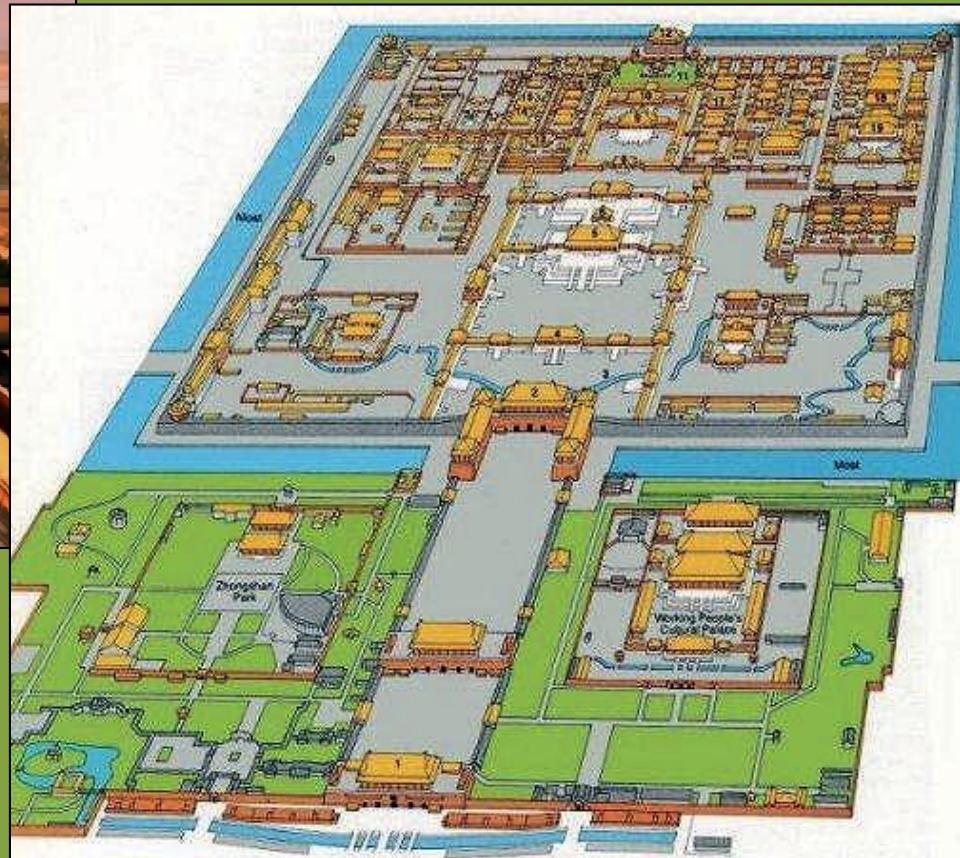
Forbidden City in Beijing, 1420; Built by Emperor Zhu Di of the Ming Dynasty



Biggest
wooden
palace
complex in
the world

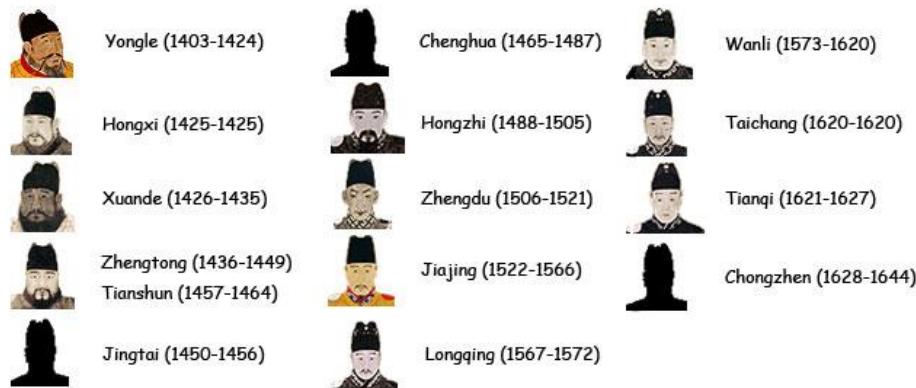


Forbidden City in Beijing, 1420; Former Palace, was considered by the Chinese to be the center of the world



Forbidden City in Beijing, 1420; Home to 24 Emperors from Ming (1403 – 1644) and Qing (1644 – 1912) Dynasties

Emperors of Ming Dynasty lived in Forbidden City

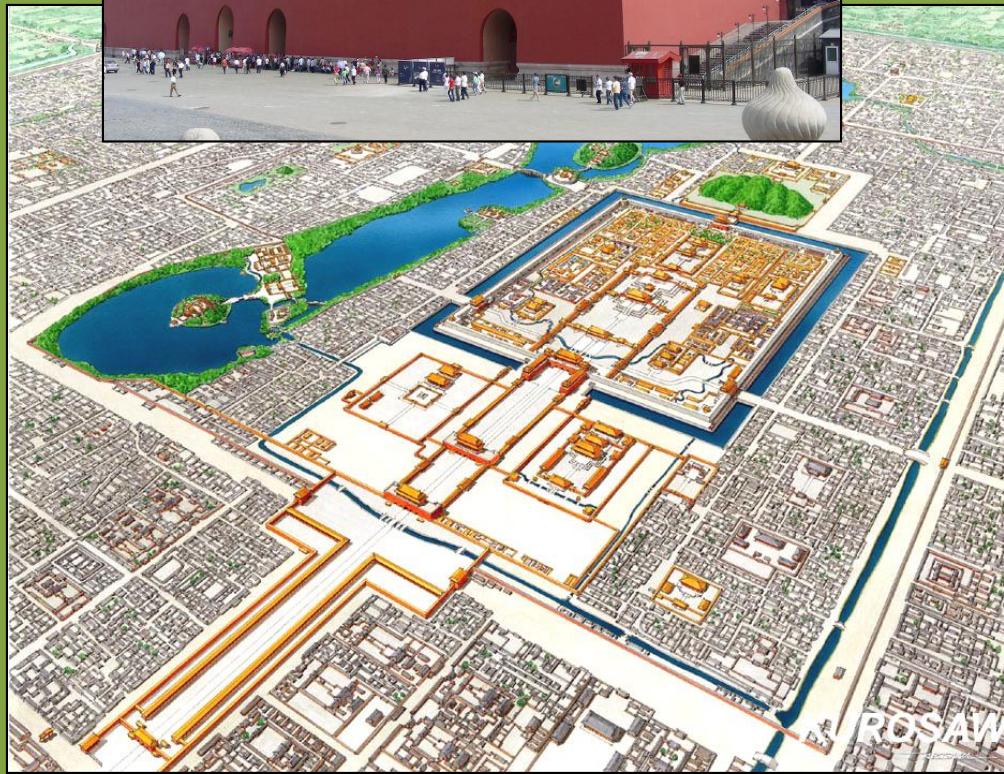


Emperors of Qing Dynasty lived in Forbidden City

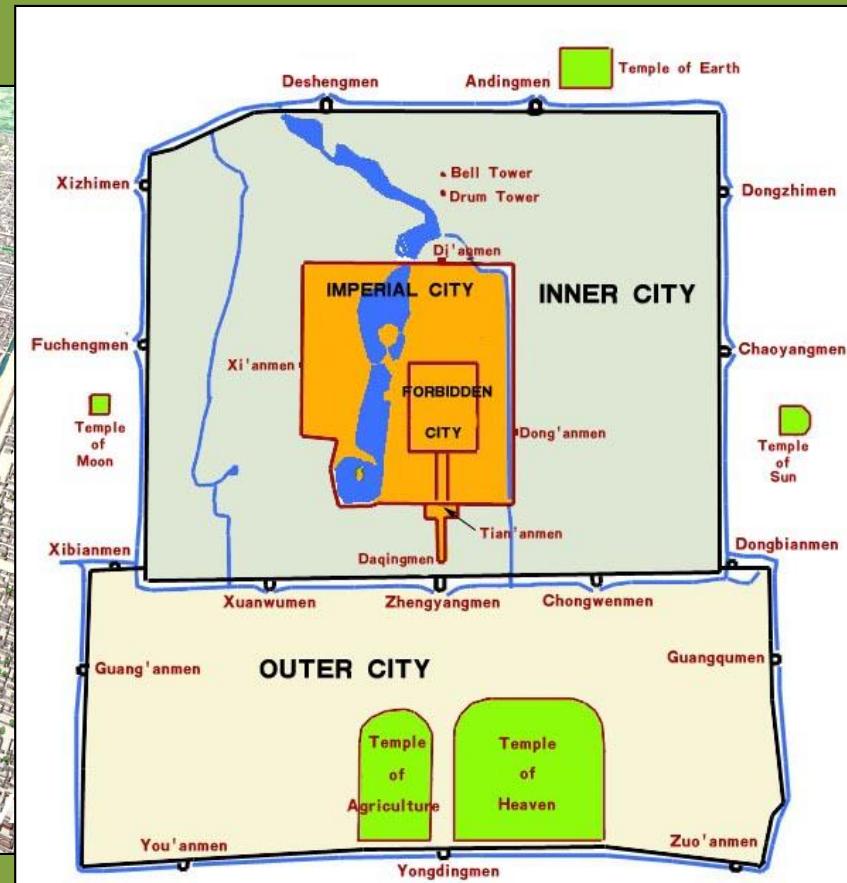


Golden Water and the Moat

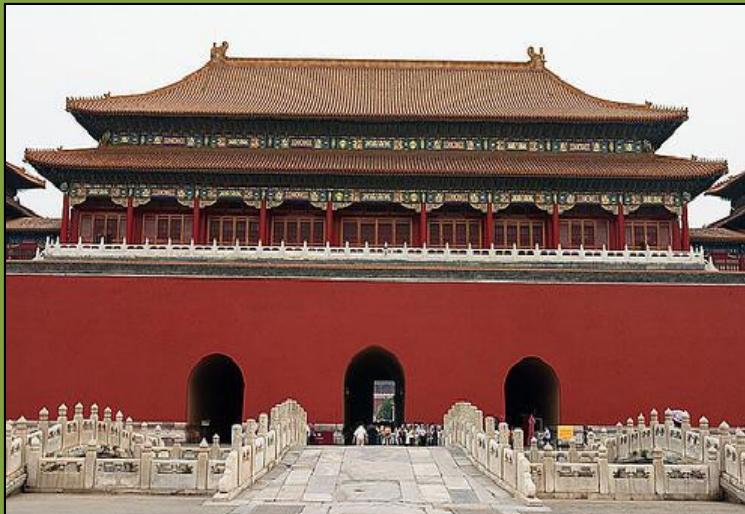
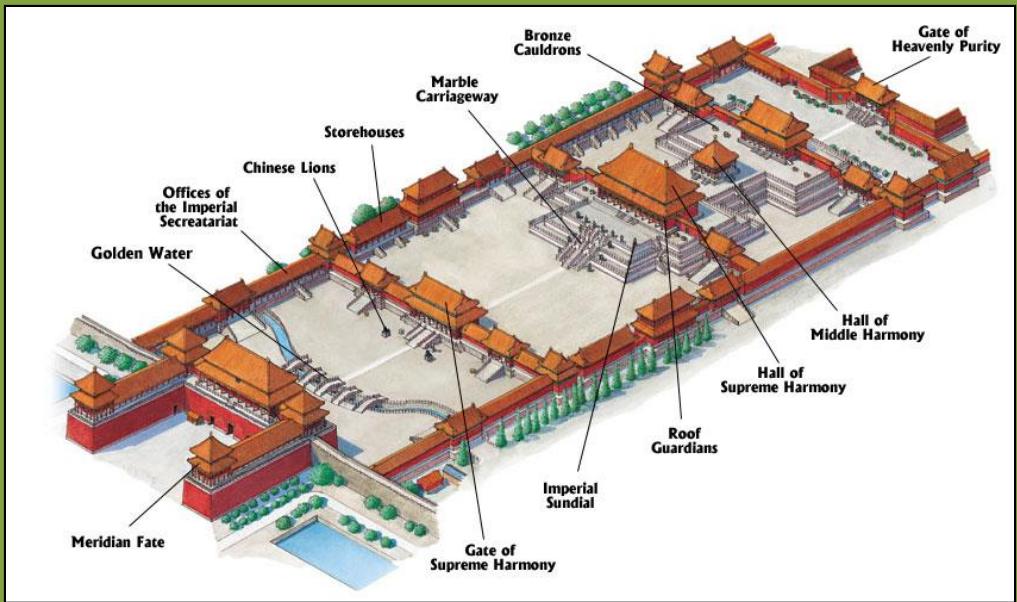
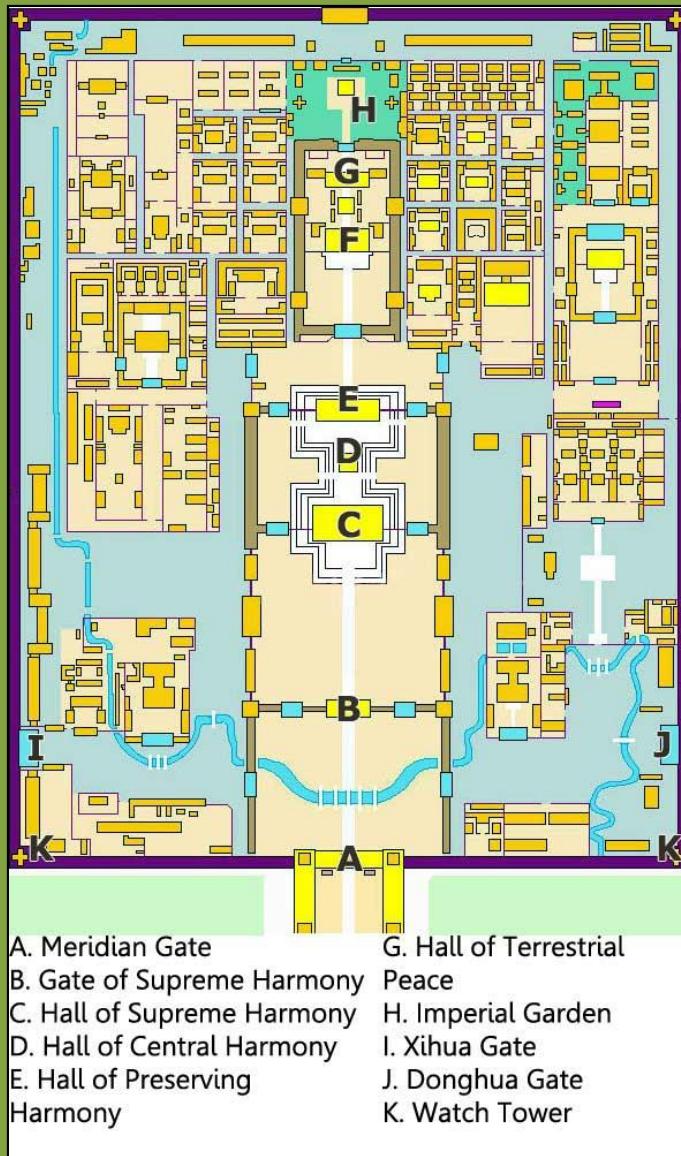
Forbidden City in Beijing, 1420; Inside Beijing is The Imperial City, inside The Imperial City is The Forbidden City



Walls are 26' high and filled with earth on the inside, and 3 layers of bricks on the outside – similar to the Great Wall

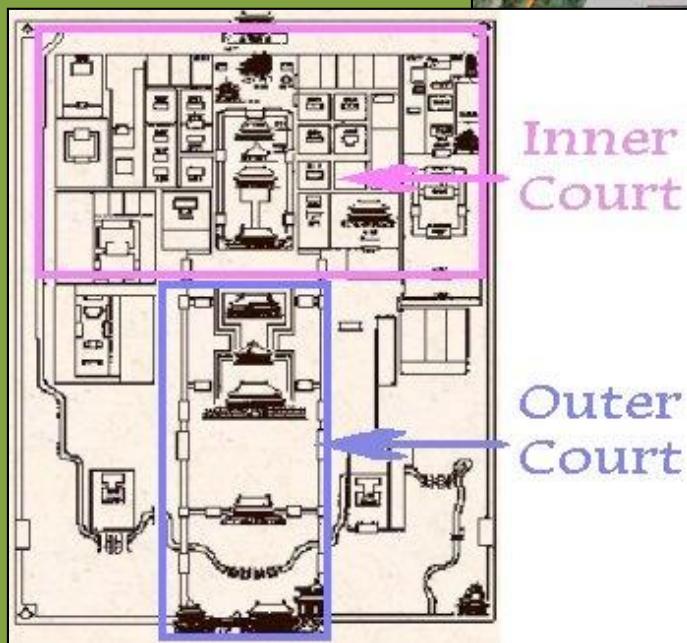
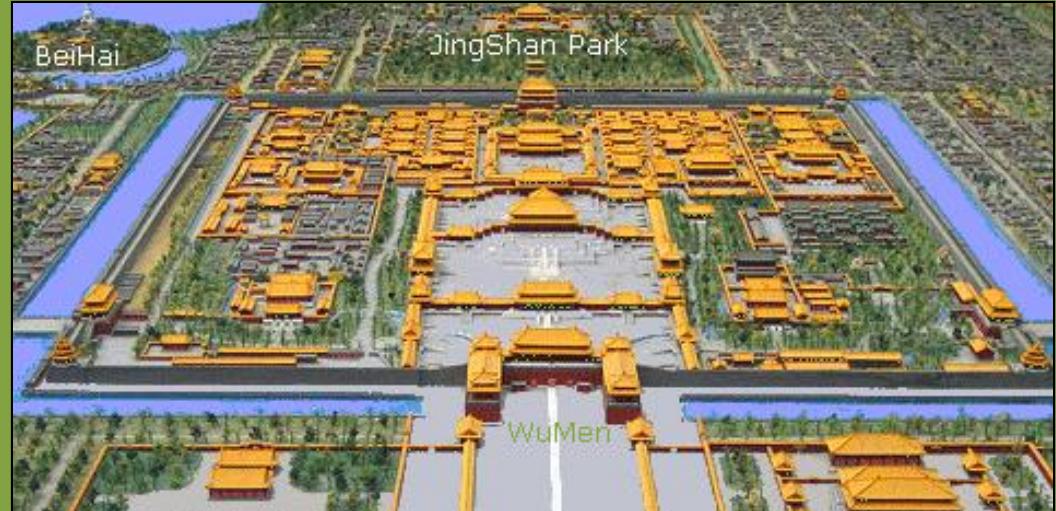


Forbidden City in Beijing, 1420; The Meridian Gate

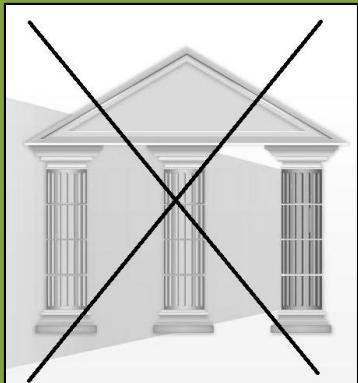
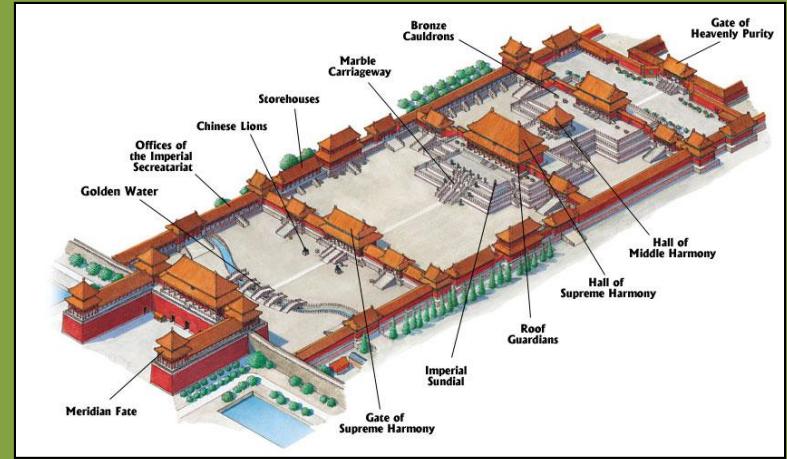


Meridian
Gate is 12
stories
high and
the tallest
gate in
Beijing

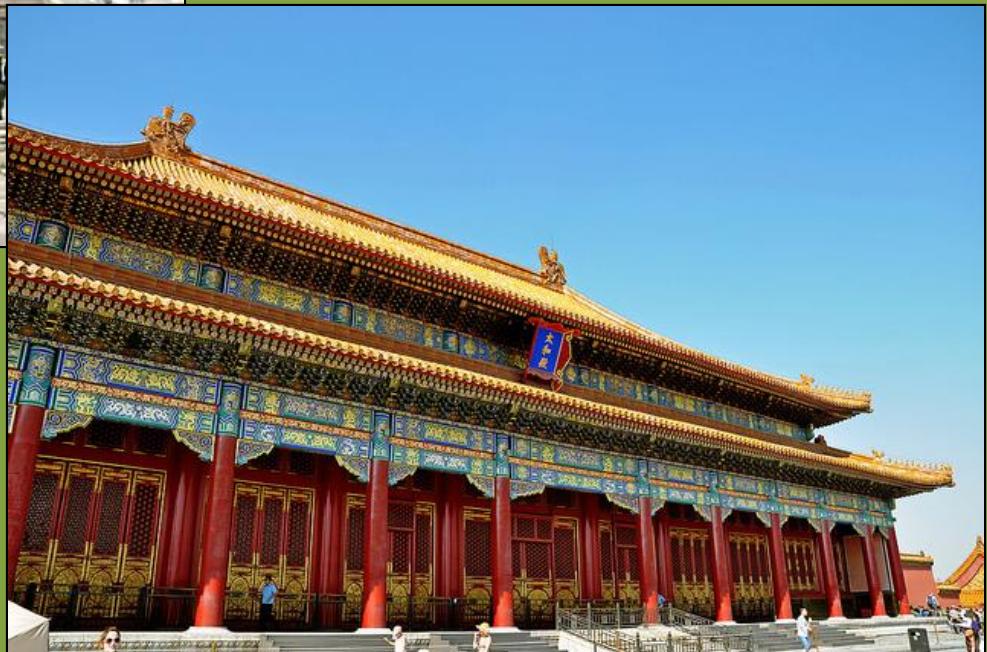
Forbidden City in Beijing, 1420; Inner and Outer Courts (public and private areas)



Forbidden City in Beijing, 1420; Hall of Supreme Harmony, the most important and largest of the structures



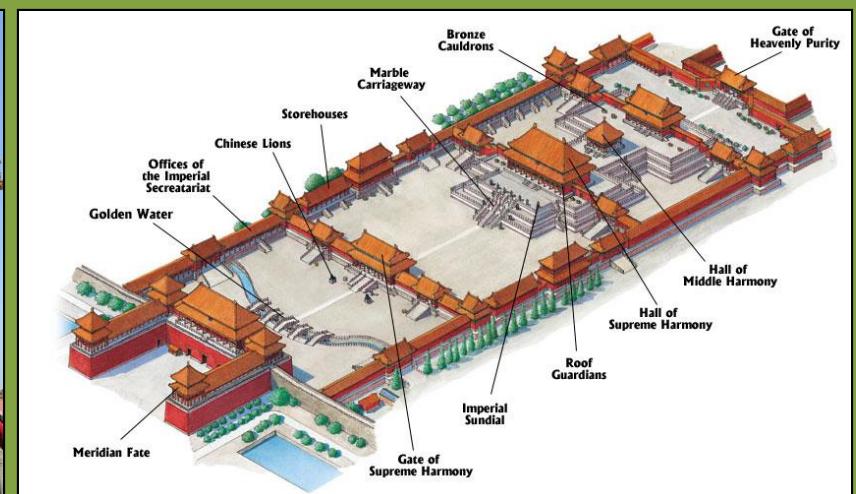
11 Bays
Across
(12 Columns)



Forbidden City in Beijing, 1420; Hall of Supreme Harmony



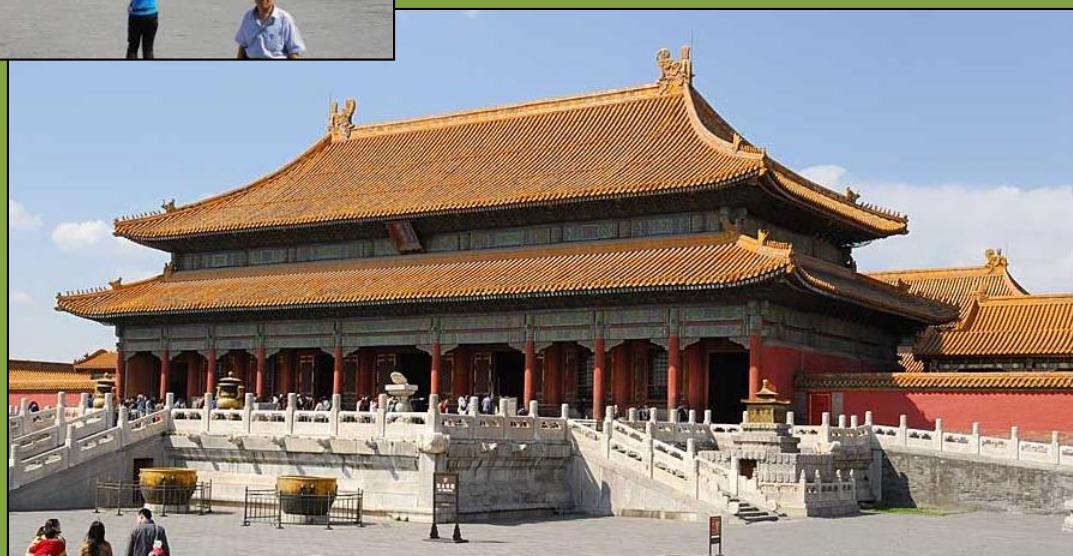
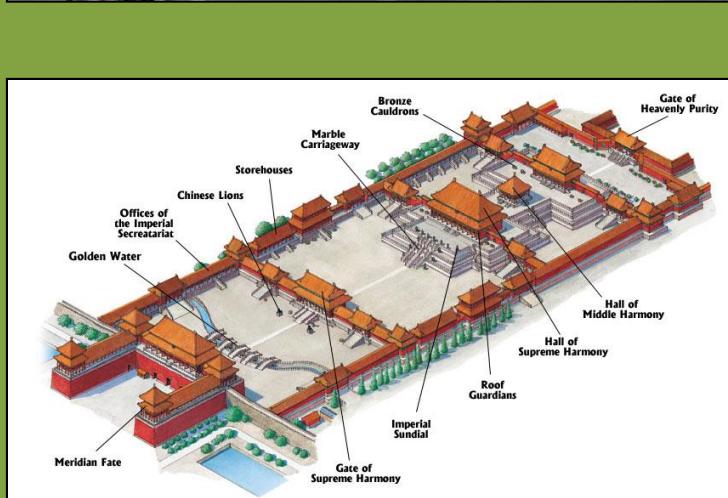
Forbidden City in Beijing, 1420; Hall of Central or Middle Harmony



Forbidden City in Beijing, 1420; Hall of Preserving Harmony



10 Columns,
9 Bays Across



Forbidden City in Beijing, 1420; The more mythological statues on the eaves, the more important the building.



Eave of Earthly Tranquility, one
of the 3 main structures in the
Inner Court



Eave of Hall of Supreme Harmony

Forbidden City in Beijing, 1420; The Inner Court was the imperial residence where the Emperor, wives, and women lived.

Beijing Forbidden City (Palace Museum) www.chinatravelgo.com

Four Main Entrances

- ① Meridian Gate
- ② Gate of Divine Prowess
- ③ West Flower Gate
- ④ East Flower Gate

Outer Court

- ⑤ Gate of Supreme Harmony
- ⑥ Hall of Supreme Harmony
- ⑦ Hall of Central Harmony
- ⑧ Hall of Preserved Harmony
- ⑨ Gate of Heavenly Purity

- ⑩ Tower of Enhanced Righteousness
- ⑪ Tower of State Benevolence
- ⑫ Hall of Military Prowess
- ⑬ Hall of Literary Glory

Inner Court

- ⑭ Hall of Heavenly Purity
- ⑮ Hall of Union and Peace
- ⑯ Hall of Earthly Tranquility
- ⑰ Imperial Garden
- ⑱ Garden of Benevolent Peace
- ⑲ Palace of Benevolence Peace
- ⑳ Imperial Kitchen



Forbidden City in Beijing, 1420; 3 Halls/Palaces of Inner Court



Hall of Union and Peace

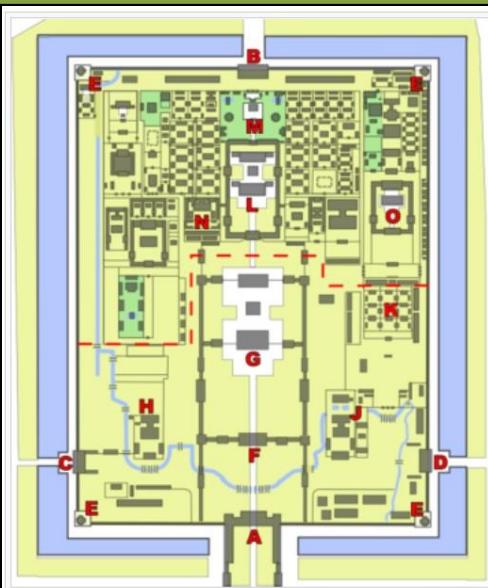


Hall of Earthly Tranquility



Hall of Heavenly Purity for the Emperor

Forbidden City in Beijing, 1420; The Imperial Garden is the largest of the Inner Court gardens



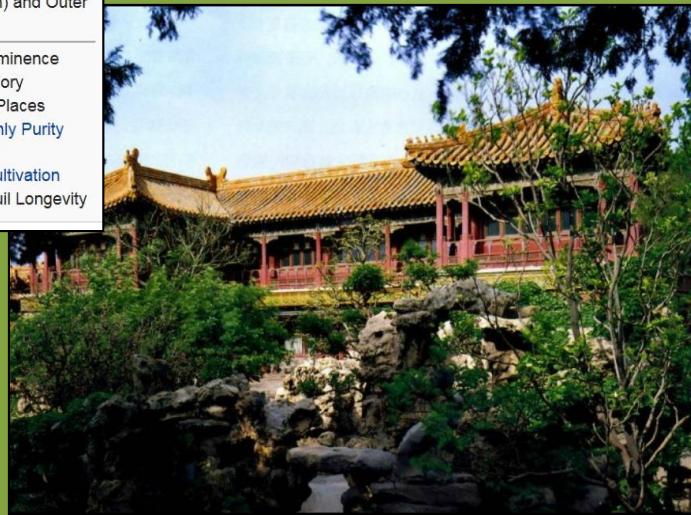
Plan of the Forbidden City. Labels in red are used to refer to locations throughout the article.

- - - Approximate dividing line between Inner (north) and Outer (south) Courts.

- | | |
|----------------------------|---------------------------------|
| A. Meridian Gate | H. Hall of Military Eminence |
| B. Gate of Divine Might | J. Hall of Literary Glory |
| C. West Glorious Gate | K. Southern Three Places |
| D. East Glorious Gate | L. Palace of Heavenly Purity |
| E. Corner towers | M. Imperial garden |
| F. Gate of Supreme Harmony | N. Hall of Mental Cultivation |
| G. Hall of Supreme Harmony | O. Palace of Tranquil Longevity |

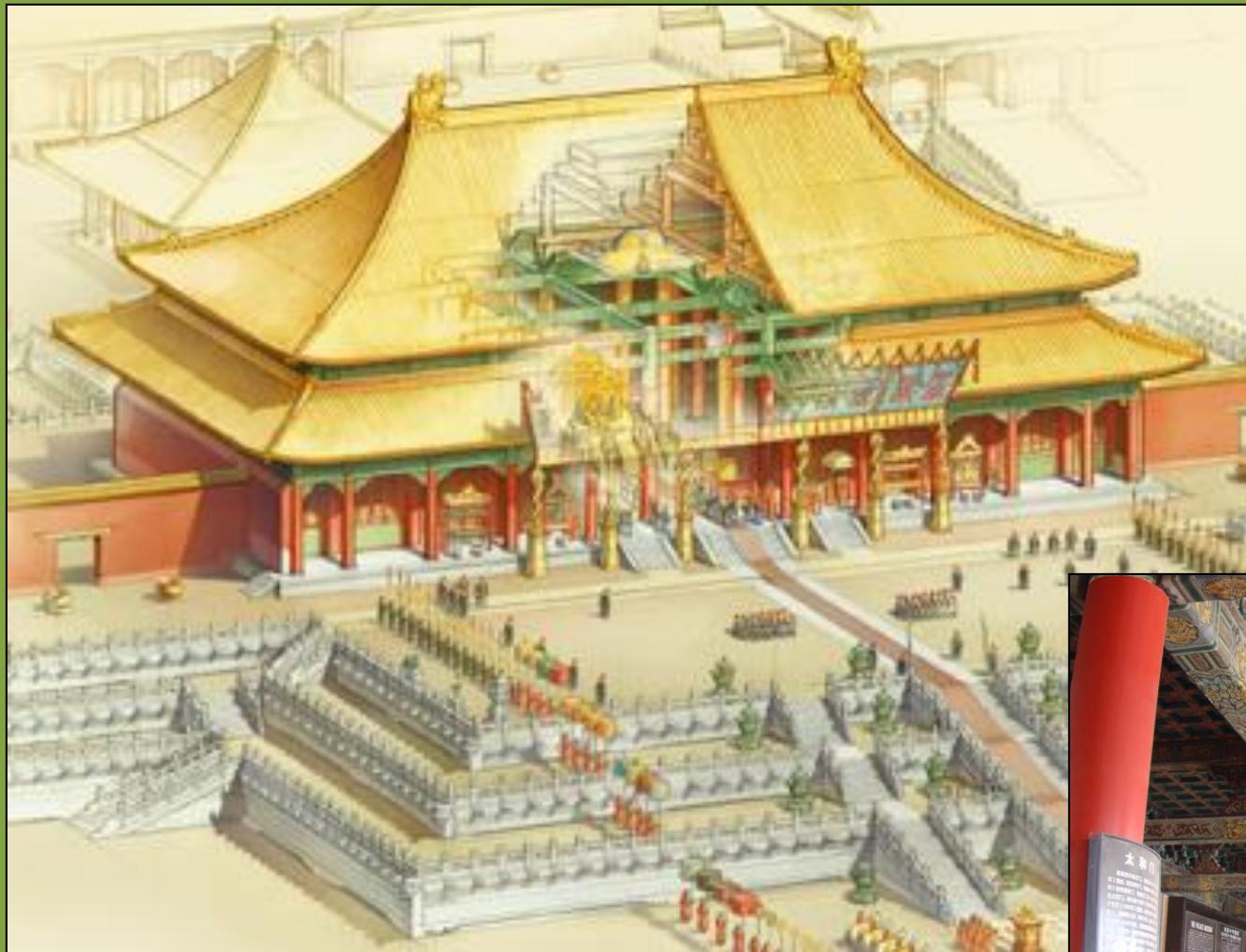


Relationship
of outside to
inside



Pavilion of Fresh Fragrance

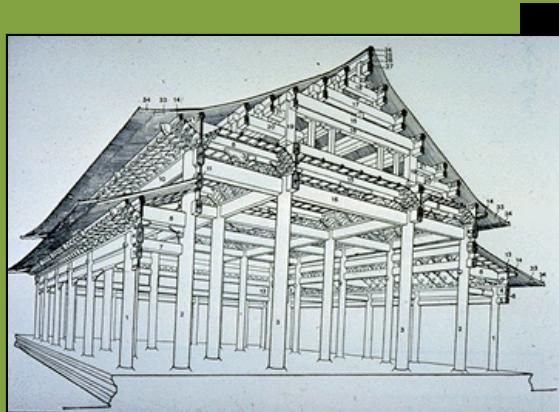
Forbidden City in Beijing, 1420; Wood Frame Construction



Column and
Beam with a
Coffered ceiling



Forbidden City in Beijing, 1420; Wood Frame Construction



Wooden Construction

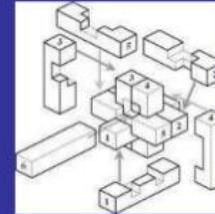
Timber Frame 梁架

Traditional large Chinese buildings were mainly built of wood. All the weight of the building are supported by a wooden frame. Thus the walls are light and not weight bearing.

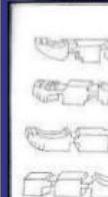
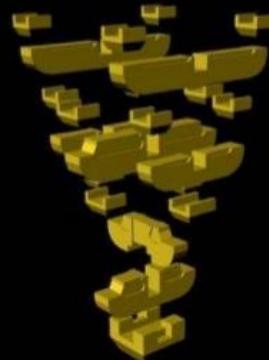
Bracketing

斗拱

Dougongs are brackets that lock beams together with pillars together. The technique dated back to two thousand years.



Chinese carpenters developed some of the most complicated wooden joints used in buildings (see diagram). The joints of the dougong joints are called Luban Locks, which are interlocking three perpendicular parts.



Forbidden City in Beijing, 1420; Construction Materials; Nanwu Wood, Golden Bricks, Marble, Glazed Roof Tiles

Construction Materials

Glazed Roof Tile – By far the most common roof tiles are the yellow glazed tiles. Yellow being the colour of the emperor. A few houses are covered with green tiles for the princes.



Marble 漢白玉石 – The main buildings of the palaces were built on marble terraces. There is a huge inclined slab, with carved dragons, weighs 300 tons. These were transported on sheets of ice pulled by 20000 men and horses and took a month to travel the 50km journey.



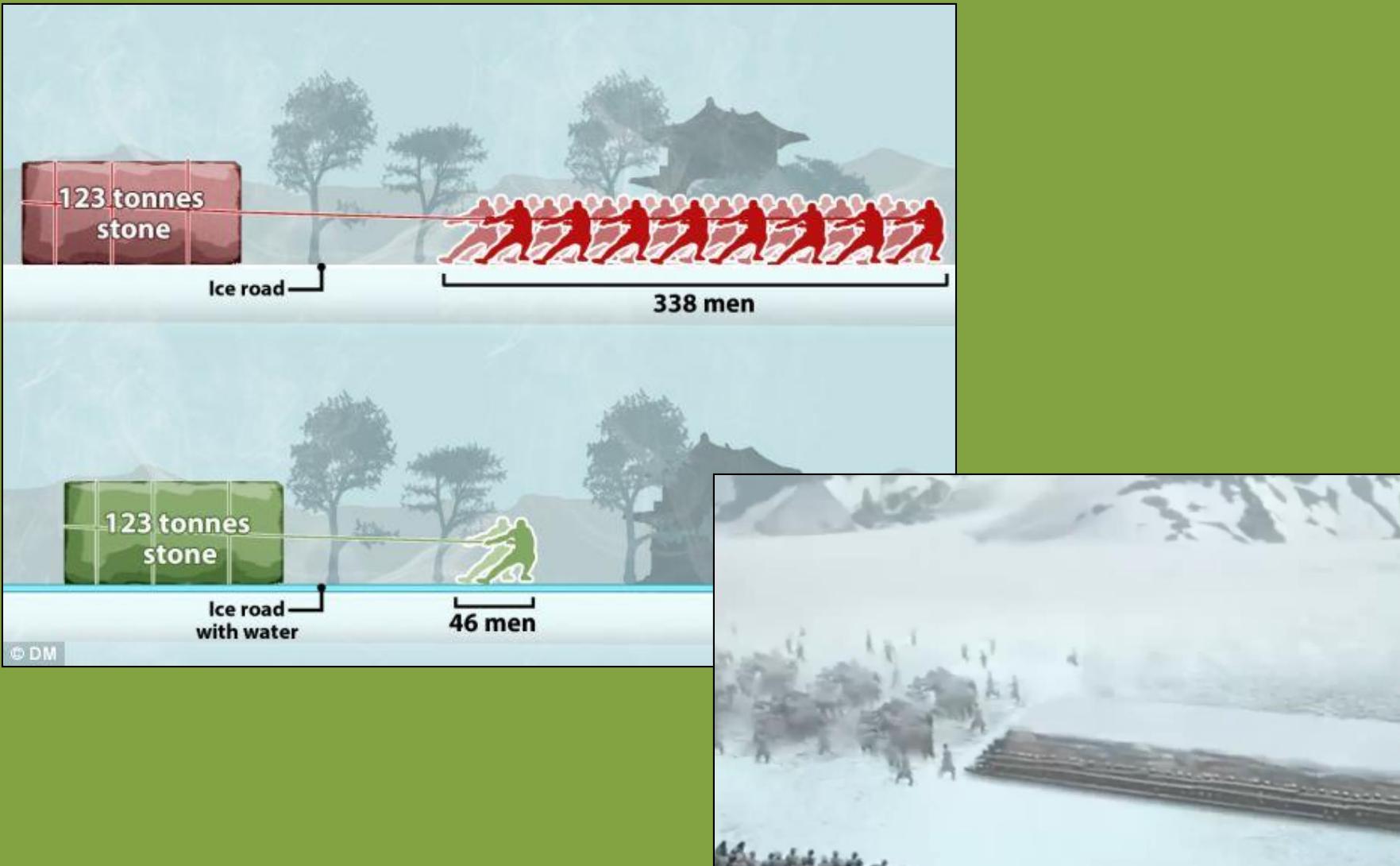
Bricks and Golden Bricks 金磚 – Bricks were used for paving and for the external walls. Floor tiles are known as Golden Bricks, made in Suzhou. These were made of clay and took two months firing in kilns. A floor tile took two years to make, and can last for centuries. They are called Golden Bricks because they are expensive to make.



Timber – All palace buildings used timber frame structures. The most important of timber are the pillars of Nanwu wood 楠木 (Phoebe Zhennan). These logs were transported from south western China and took 4 years for the journey. Some 100,000 Nanwu pillars were used in the construction. The wood work were covered by a secret formulated paste, mixed with pig's blood, flour and earth for preservation.



Forbidden City in Beijing, 1420; Getting Marble from the Quarry to Beijing



Forbidden City in Beijing, 1420; Dragons for the Emperor – 5 claws



Forbidden City in Beijing, 1420; Dragons for the Emperor



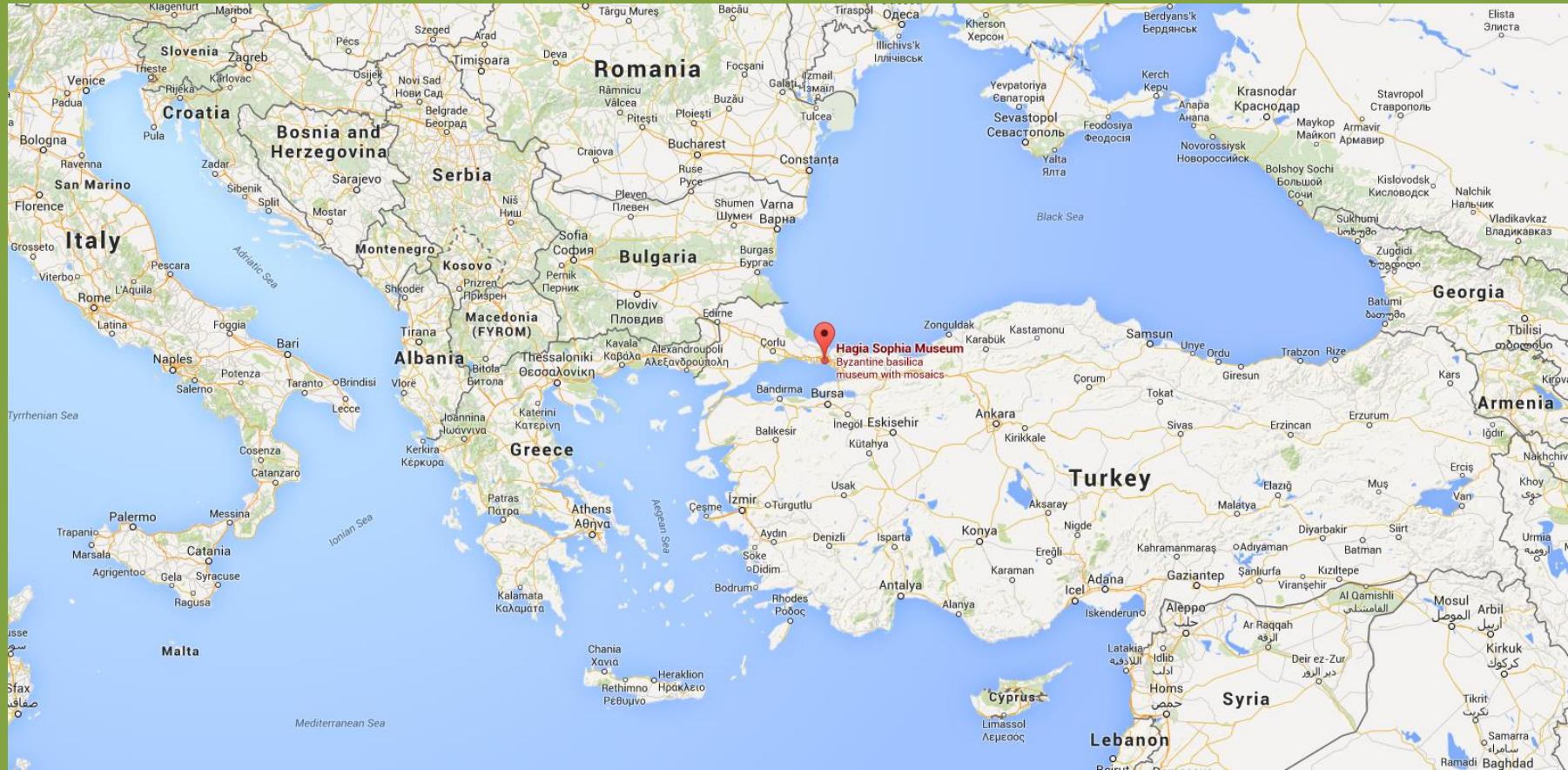
Forbidden City in Beijing, 1420; Phoenix for the Empress



Forbidden City in Beijing, 1420



HAGIA SOPHIA in Istanbul, Turkey...started as Byzantium, then Constantinople, then Istanbul

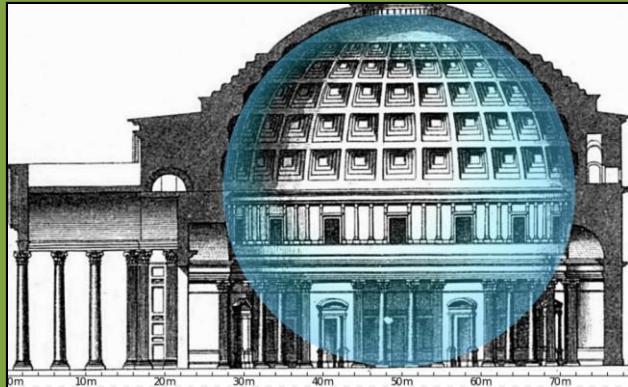


Hagia Sophia; 532 AD; Commissioned by Emperor Justinian, Great example of Byzantine Architecture

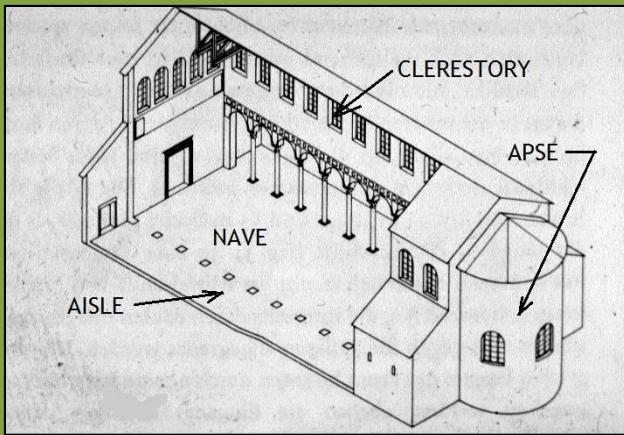


World's largest
cathedral for
almost 1000 years

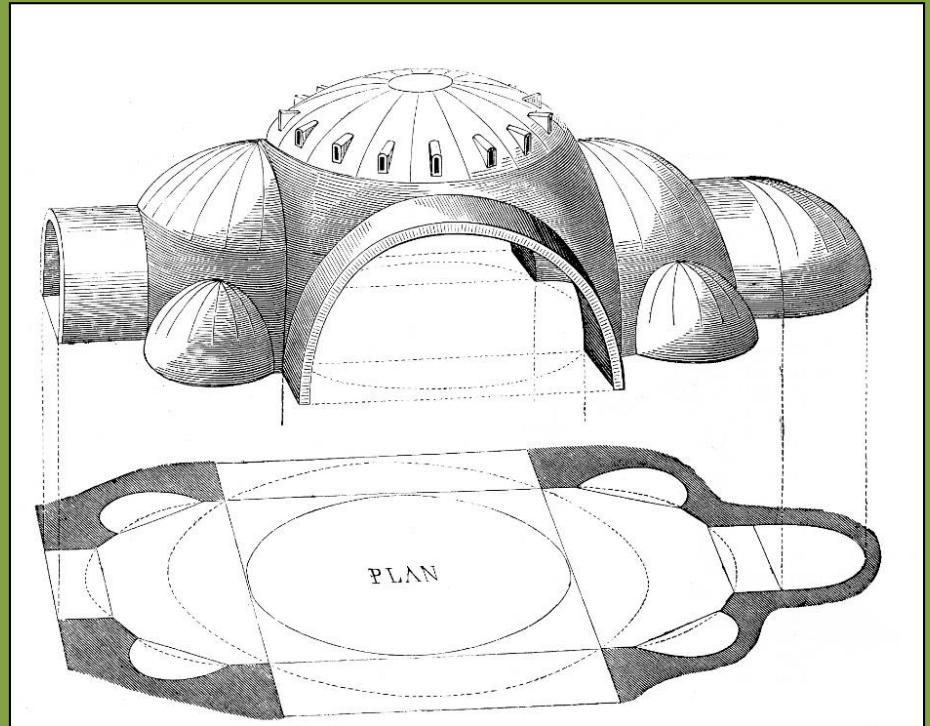
Hagia Sophia, 532 AD; Combining a round dome with a Basilica



Pantheon in Rome; Round dome on a round base



Basilica; Central Nave with Clerestory, lower Aisles and Apse at the end

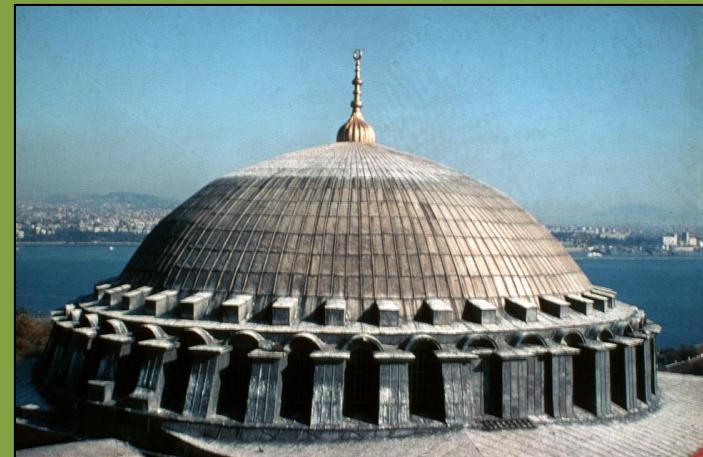


Hagia Sophia; First ever round dome on a square base

Hagia Sophia, 532 AD; Materials included special bricks, special mortar, cement, lead, stone, marble, stucco and plaster



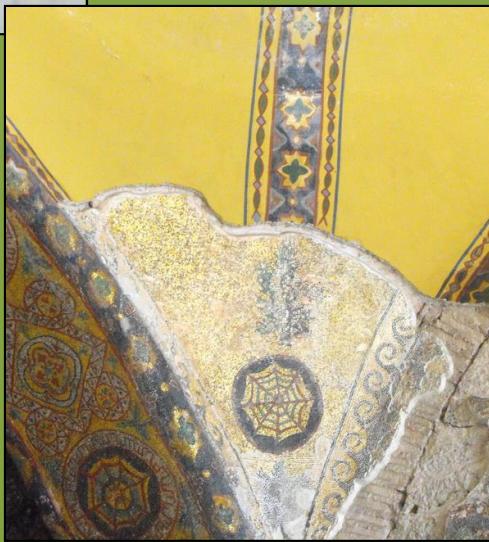
Bricks, mortar, stucco



Lead dome



Marble detail



Interior plaster

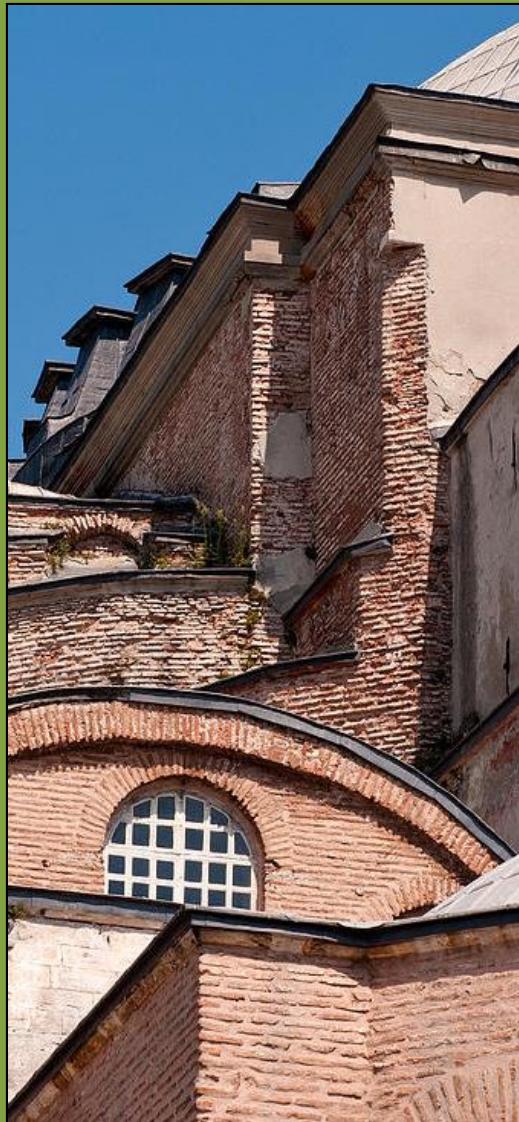


Columns made of either marble, granite, or basalt

Hagia Sophia, 532 AD; Made of special bricks and mortar, which was covered with stucco



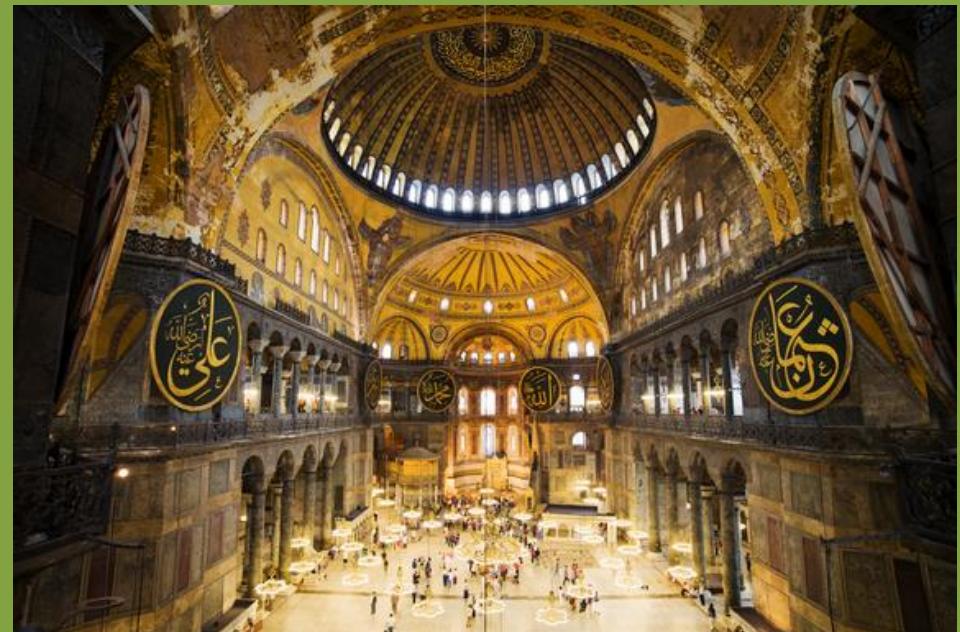
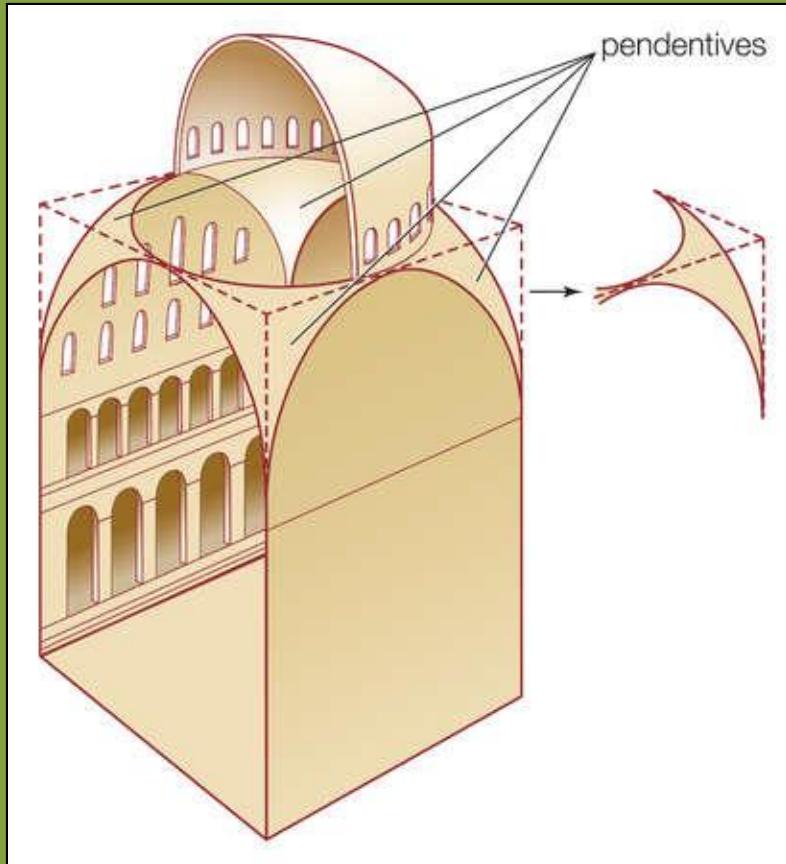
Hagia Sophia, 532 AD; More mortar than brick was used, making the building more flexible



Bricks and mortar of
Hagia Sophia vs.
standard construction



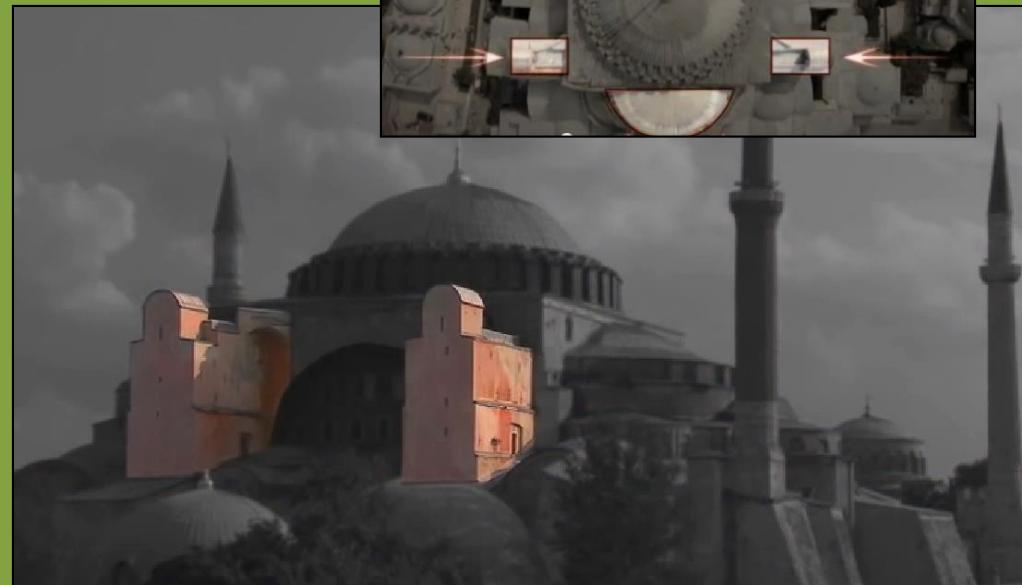
Hagia Sophia, 532 AD; Use of Pendentives – the triangular piece between the arches and the dome



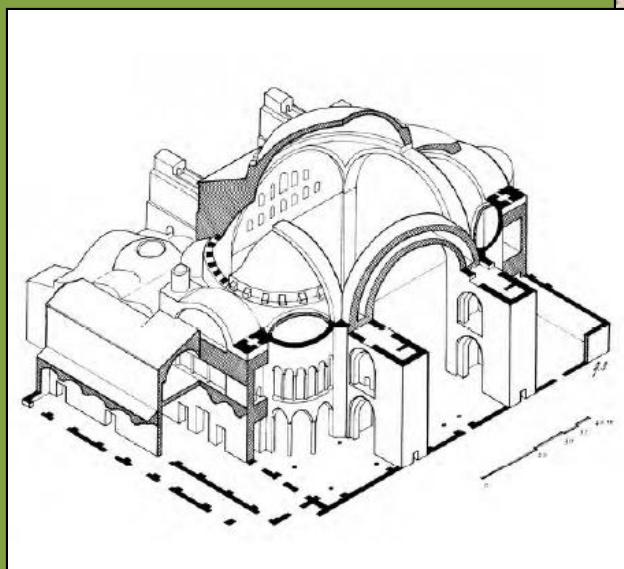
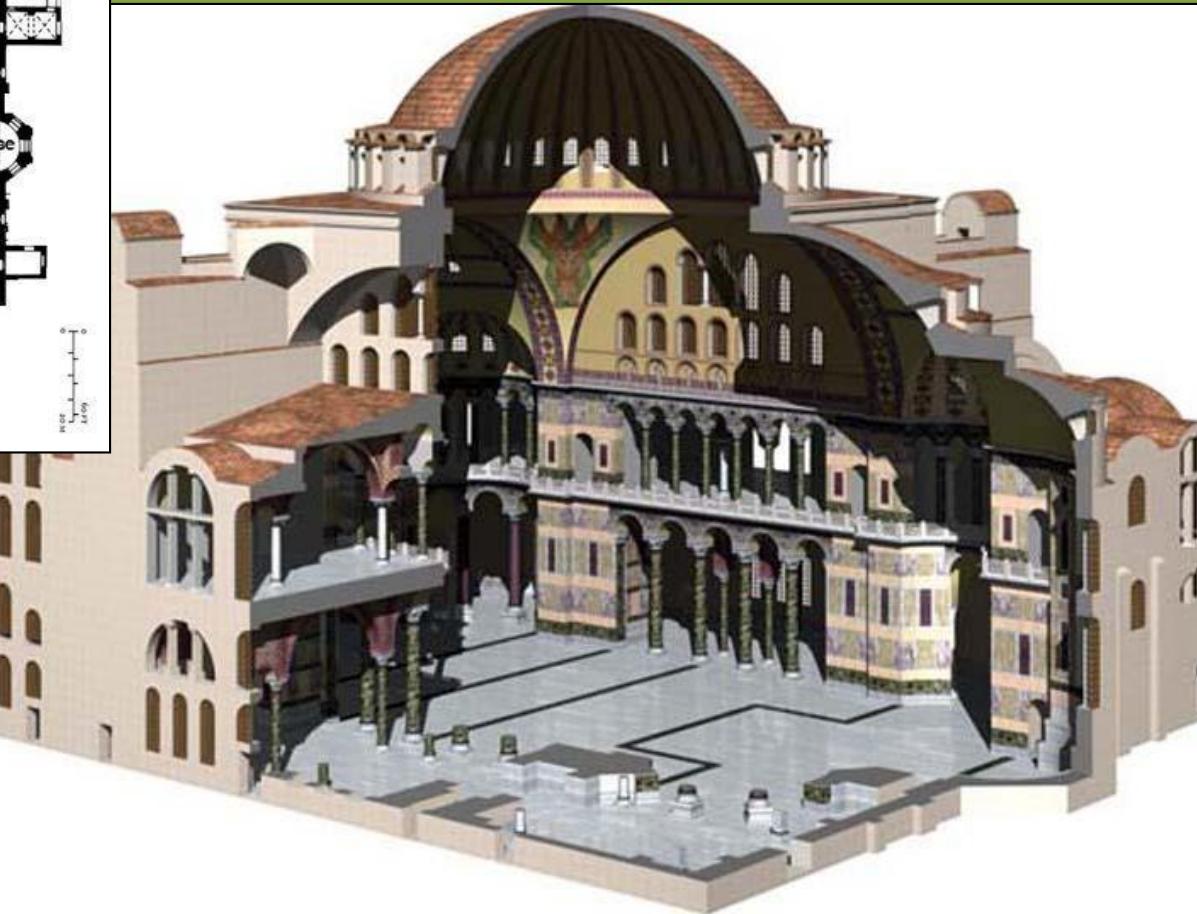
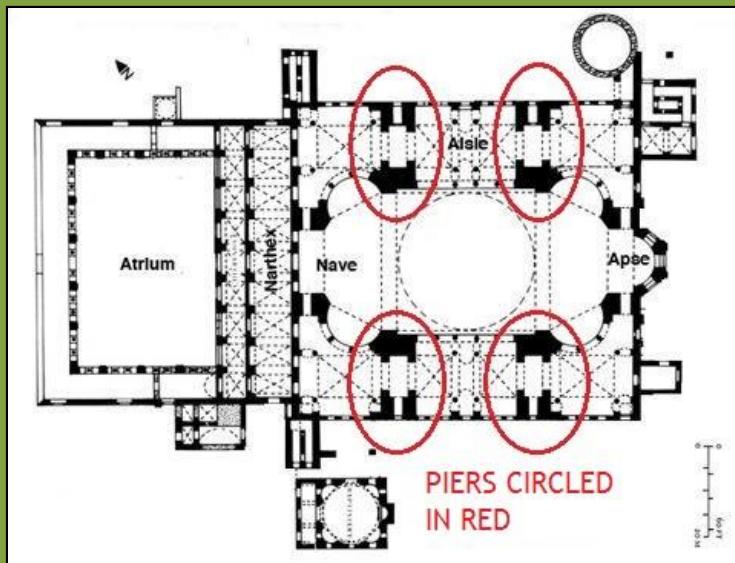
Hagia Sophia, 532 AD; Thick piers act as buttresses to prevent the horizontal motion of the arches.



The weight of the dome is carried by the piers, semi-domes and pendentives



Hagia Sophia, 532 AD; Apse, Nave, Aisles with Galleries above



Hagia Sophia, 532 AD; Ring of buttresses around the dome

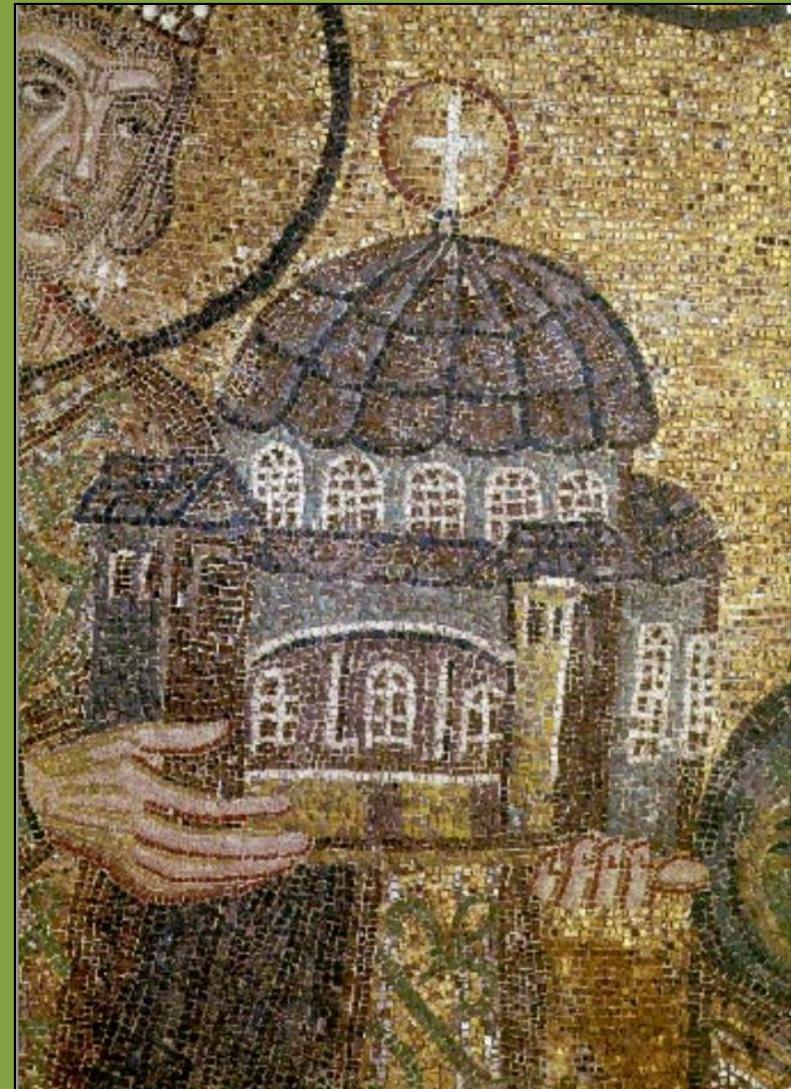


Hagia Sophia; Windows around the lower portion of the dome give the appearance of light with little or no structural support



Hagia Sophia, 532 AD; Original Mosaics – covered by plaster when it was turned into a Mosque

Justinian and Constantine



Hagia Sophia, 532 AD; How Mosaics are made

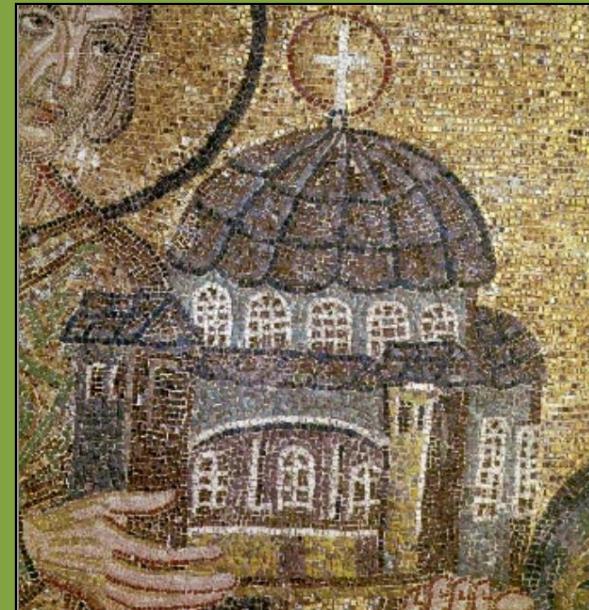


Small pieces of glass and stone are cut with a small mallet over a metal wedge

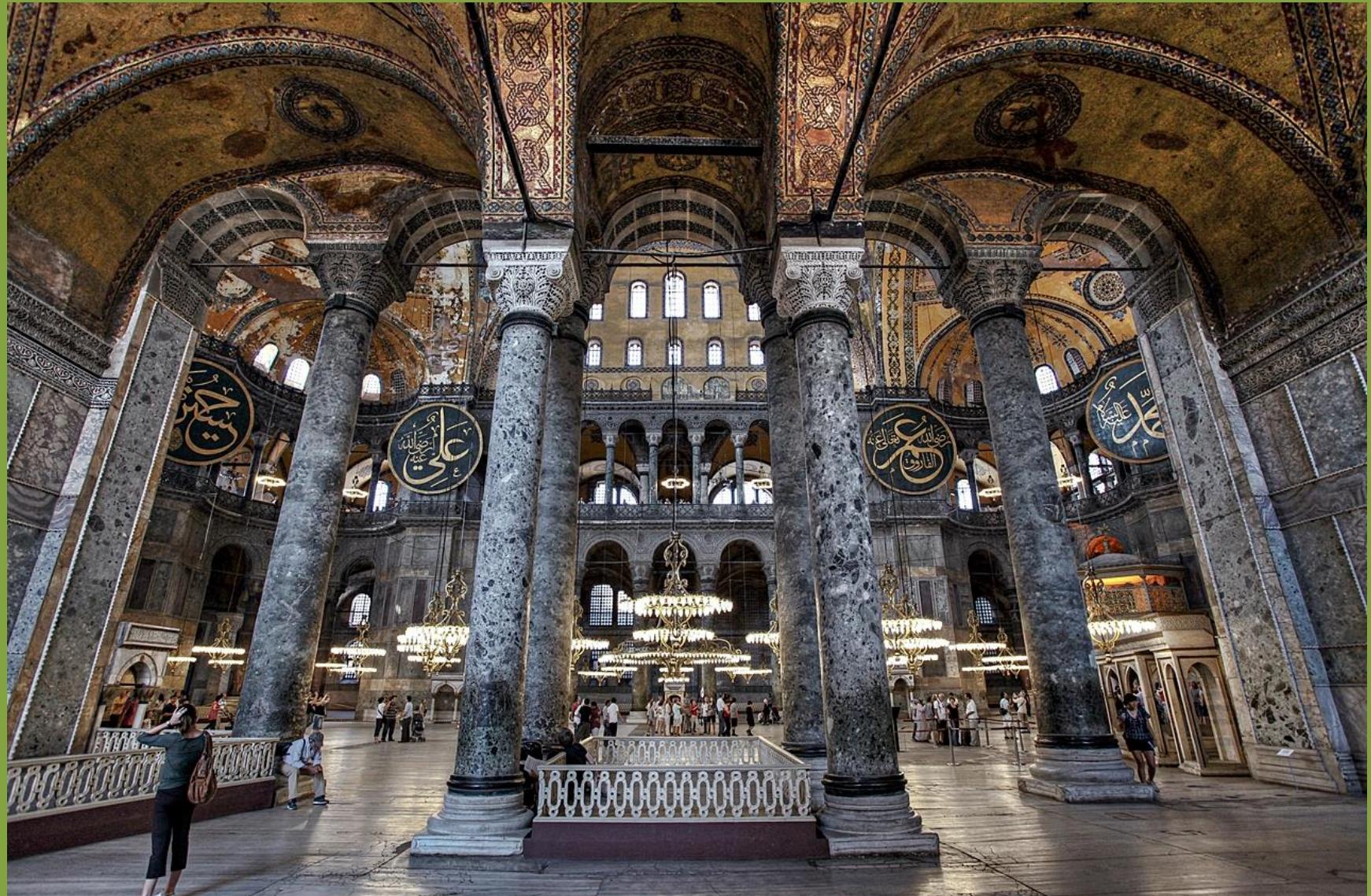
They are filed into the desired shape and size



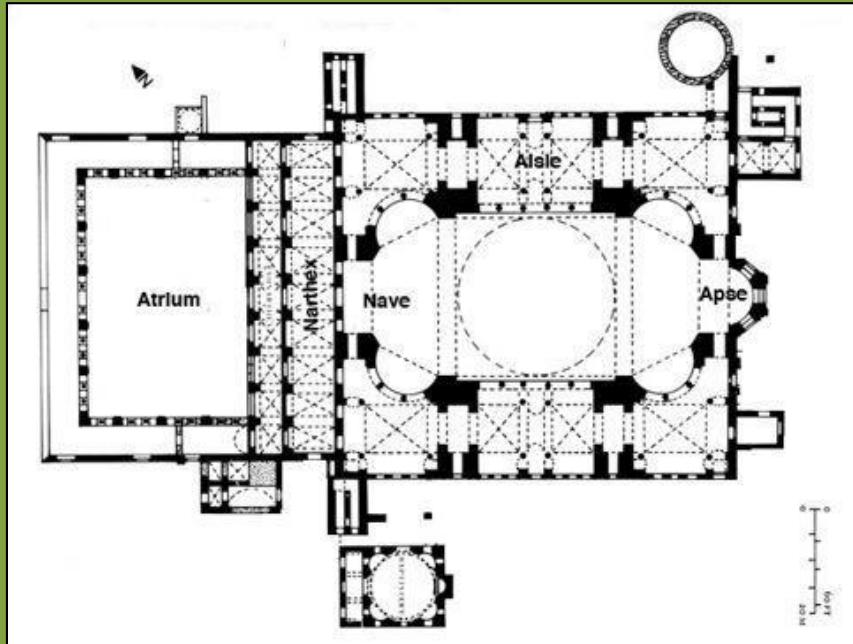
The pieces are placed in a type of glue or cement



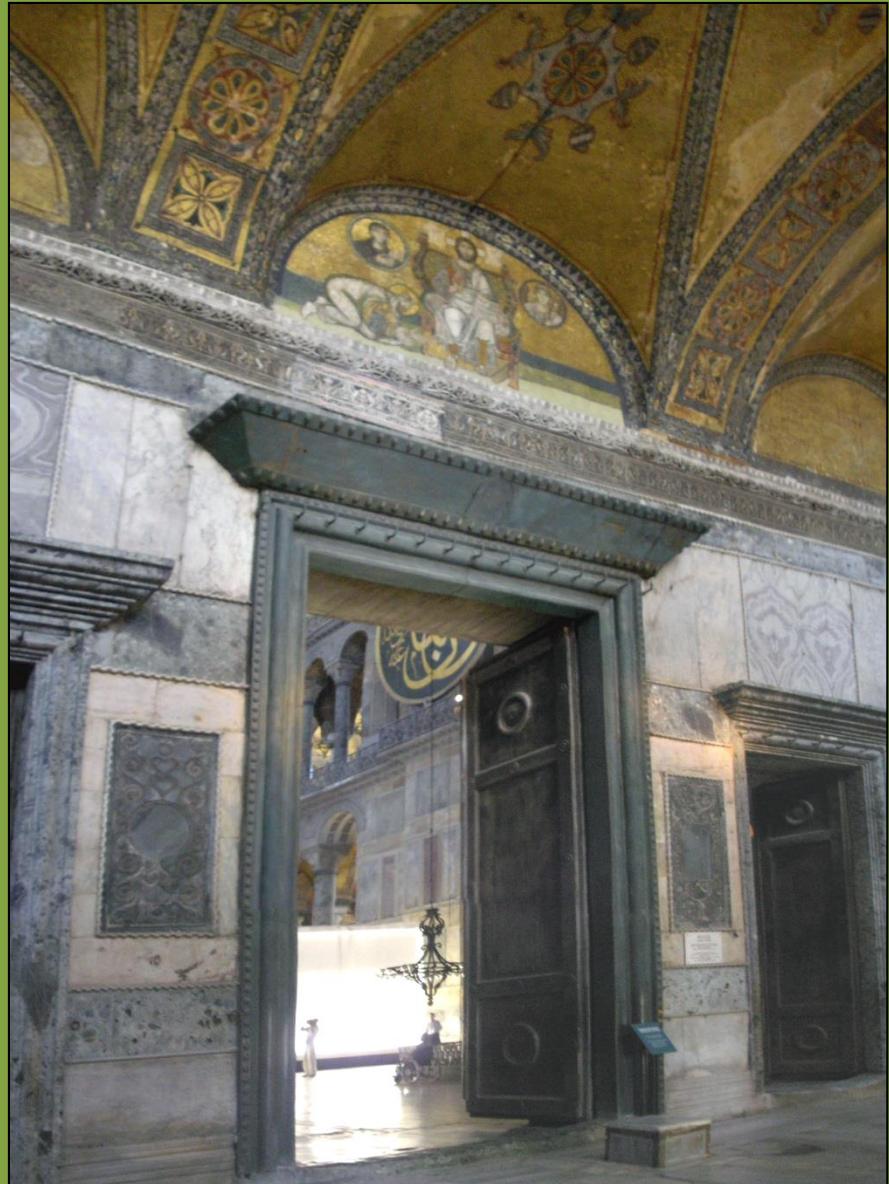
Hagia Sophia, 532 AD; Marble floors and columns



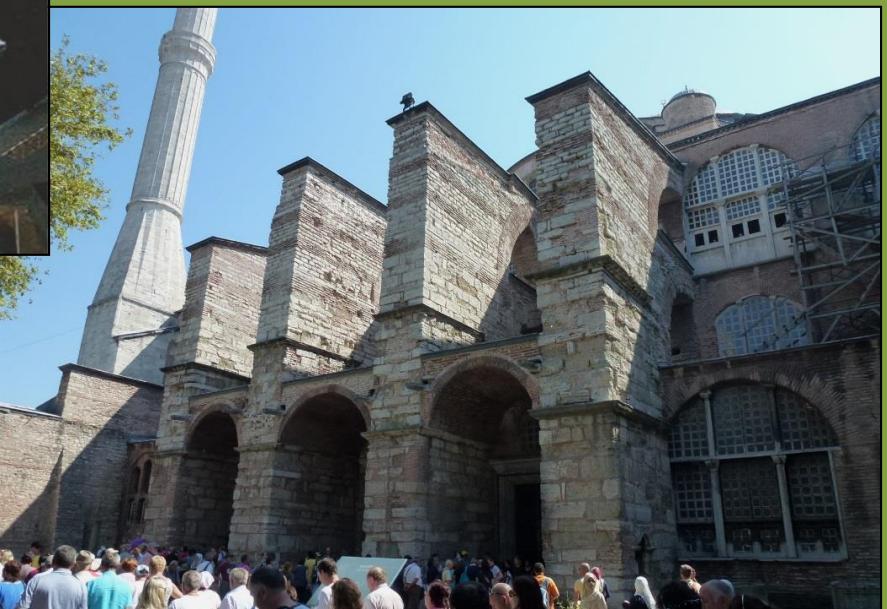
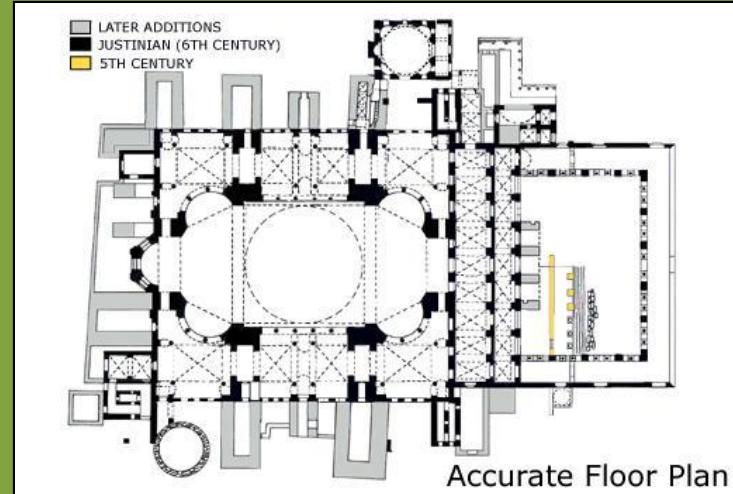
Hagia Sophia, 532 AD; Imperial Gate for Emperor



Located between
Nave and Narthex



Hagia Sophia, 532 AD; Minarets and additional Buttresses added by the Turks when they turned it into a Mosque in 1453



Hagia Sophia; Full name means ‘Shrine of the holy wisdom of God’

