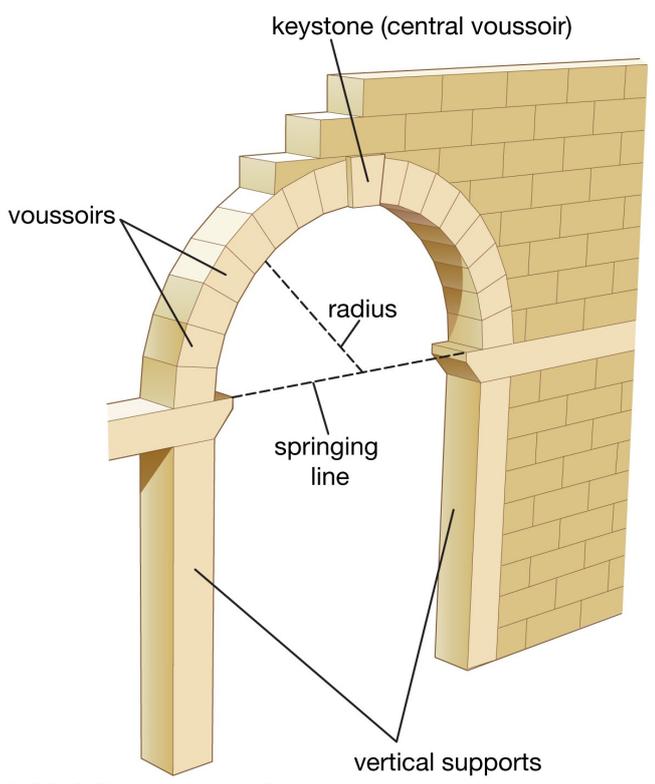


Roman Arches.

Here we will look at the construction of the Roman arch, which will allow us to understand the forms of windows in Classical buildings. We will deal with the pointed arch in churches later. Romans had concrete, which altered the engineering of buildings completely, and they learnt how to build a structural arch which allowed them to span larger areas than stone post and lintel constructions could. Arches should be not flatter than semi-circular, or they are less strong and act as a lintel instead.

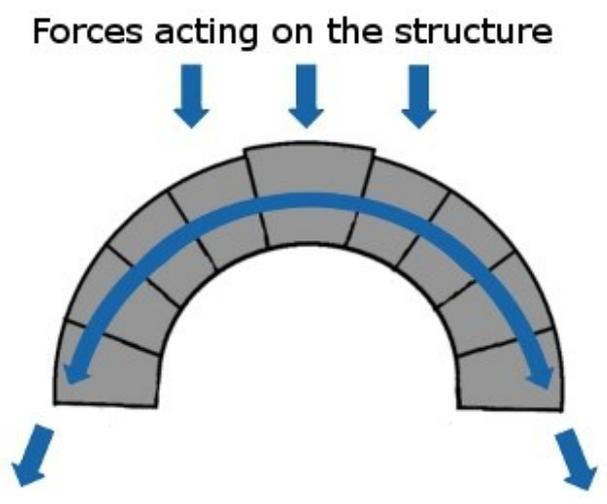
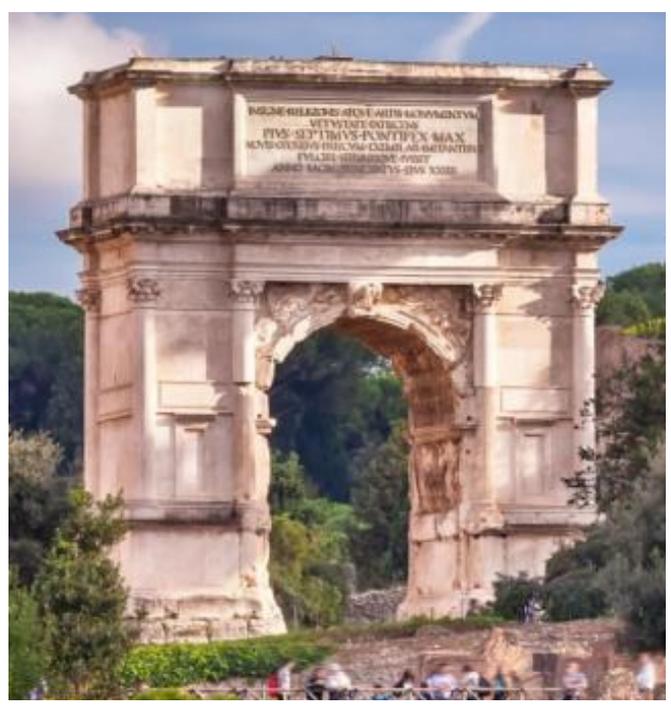
Parts of a circular arch



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On the left is a diagram of an arch, (pier and arch architecture, otherwise known as ‘arcuated’ architecture). The piers are the vertical supports, and the springing line (the impost) is where a column capital is often placed, though it doesn’t need one structurally.

The arch itself is composed of wedge-shaped stones called voussoirs, which are built from the bottom up, over a wooden scaffold. When the voussoirs reach the top a (usually) larger stone is knocked into place which pushes down on the others, and causes the stresses to run down through the arch, rather than down through the central gap. Romans used concrete, though this type of construction is stable without.



Left: Arch of Titus, Rome, 1st Century AD.

The Roman Triumphal Arch.

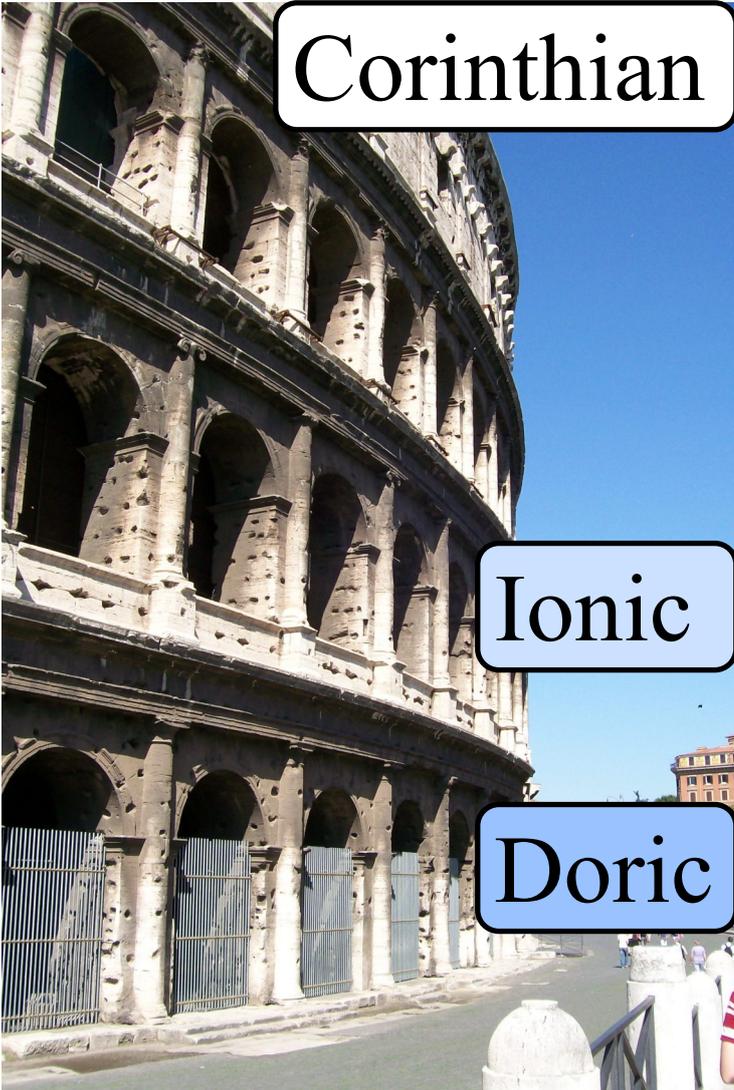
The **Arch of Constantine** is a triumphal arch in Rome dedicated to the emperor Constantine the Great. The arch was commissioned by the Roman Senate to commemorate Constantine's victory over Maxentius at the Battle of Milvian Bridge in AD 312.

A triumphal arch is a gateway through which the armies marched with their prisoners and trophies of war. They often have a grand central arch with a smaller one on each side for the followers of the procession. This format was sometimes used on the façade of later churches where the aisles are not as high as the nave.



Read carefully the following description:

It is built of concrete and brick, marble-faced, and the structure is arcuated. The columns are not load-bearing and are in the Classical style, standing detached from the main structure and pretending to support an entablature of architrave, frieze, and cornice with dentils over. Above this is an attic decorated with sculptures and an inscription. The columns are in the Corinthian order, are fluted at the top with very little entasis, and stand on large pedestals. The arches have prominent impostes and keystones, and the tops of the side arches line up with the springing point of the central arch. The voussoirs are not apparent. The whole is decorated with sculptural reliefs.

Corinthian

The Colosseum in Rome is also built of bricks with a facing of dressed stone, and on it the Romans used the Greek orders one after the other with the oldest on the bottom level. Look at the 2nd level up, for instance. It has pedestal bases, arches without prominent keystones, but with marked imposts, and a facing of Ionic half columns which carry their own entablature.

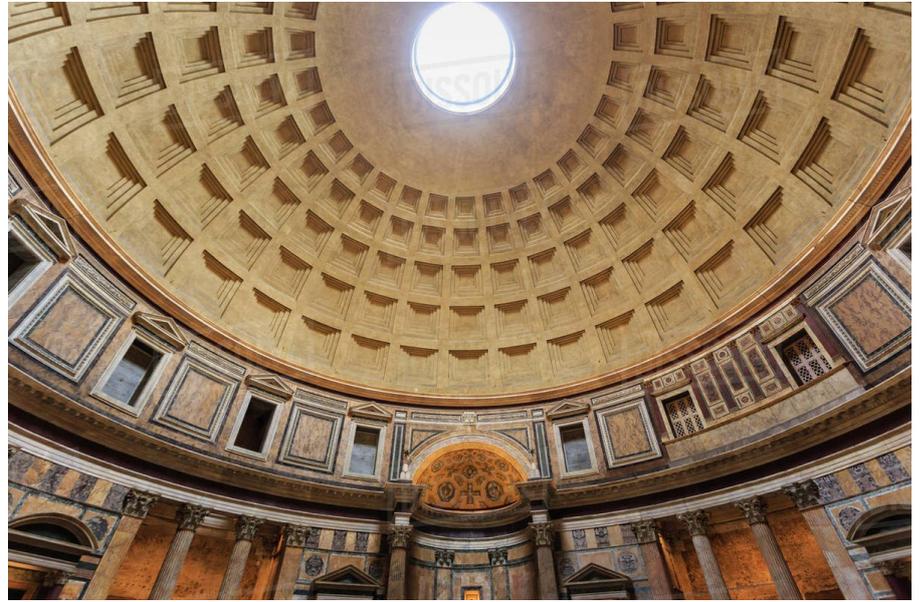
Ionic

The attic level at the top once supported an awning to protect the crowds from the sun, and it has pilasters (flat imitations of columns) to extend the sense of the vertical. Visually, the dominant lines are horizontal.

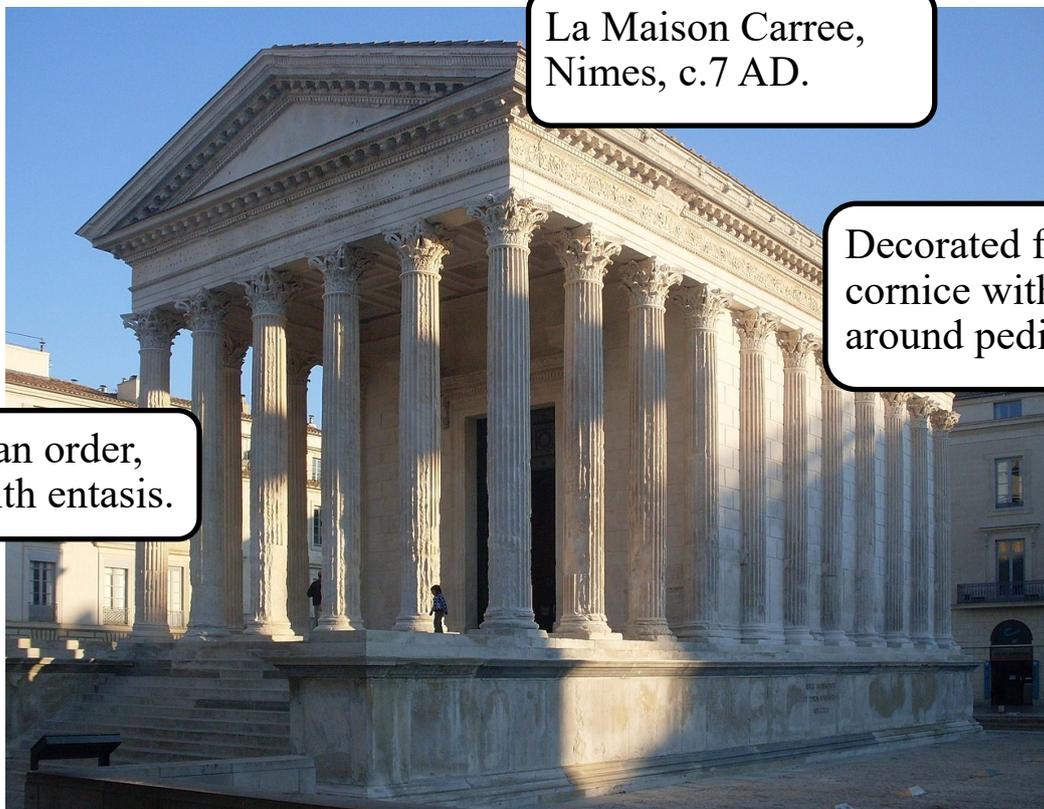
Doric



This is the Pantheon which we looked at in the previous chapter, where we analysed the portico. The main part of the building is made of concrete.



The Romans were able to build domes, but only on circular buildings. The dome here is an aggregate of concrete and stone, and it uses lighter stone such as pumice higher up. There is an open oculus in the centre which allowed light (and rain) to enter, and the dome's interior is coffered (the square shapes) to reduce the weight. If you enlarge the picture you will see that the windows have pediments above them, that the columns are fluted and in the Corinthian order as are the pilasters, and the niche has a semi-circular arch with the keystone slightly indicated. There is an entablature which beautifully articulates the circumference of the interior.



La Maison Carree,
Nîmes, c.7 AD.

Decorated frieze,
cornice with dentils
around pediment.

Corinthian order,
fluted with entasis.

Most Greek and Roman temples had an interior room called the cella, which could store the treasures. Roman temples often brought the walls up to the outer edge, and attached half columns. Only the front group of columns of this temple are fully structural and detached.

Facade of Brompton Oratory church, London, 1884.

Try to read carefully and follow the description below, so that you can try a similar description of a different façade.



This 19th Century church façade is in the Classical style. It has two tiers.

The lower tier: The façade is symmetrical, with a central narthex (front bit) extending into 2 wings. The narthex has 2 sets of paired columns in front of the entrance, with paired pilasters at either side, all on plinths and in the Ionic order, with slight entasis and no fluting. The central doorway is taller than the others, square headed and with a triangular pediment, and has an entablature of architrave, frieze and cornice. Those on either side are smaller, square headed, but each has a rounded tympanum above the entablature. The wings: on each side, at the end nearest the narthex, is a square headed window with a non-structural key stone in the centre beneath a triangular pediment, and beyond each is a round headed niche with the voussoirs marked, a key stone, and a rectangular decorative relief. The voussoirs lead into rusticated stonework (the lines of the blocks show), and there is decorative rustication between the pilasters. The whole of the lower tier has its own entablature, with the cornice casting a shadow which emphasises the horizontal.

The second tier is above the narthex and does not extend over the wings. It takes the form of a temple façade, with 4 sets of paired pilasters in the Corinthian order. They are unfluted, have little entasis, and are not supportive. Between the 2 inner pairs is a large round headed window with impostes and a large keystone. The line of the impostes extends across the façade between the pilasters, with a background of ashlar (flat nicely finished stone with no rustication). On either side are round headed niches with no impostes, and beyond each of the outer pilasters is a decorative scroll. Above the niches are rectangular carved decorative panels, and above the Corinthian pilasters is an entablature which the central keystone juts into. At the top is a decorated pediment with plainer blocks above the paired pilasters, which nicely articulate the façade (carry the lines through so that it has a nice composition and seems to link up). Above the pediment are 4 balusters on pedestals and a central statue. In front of the upper tier is a balustrade which also carries through the vertical lines of the pairs of lower columns and upper pilasters.

Here are 3 for you to have a go at analysing.

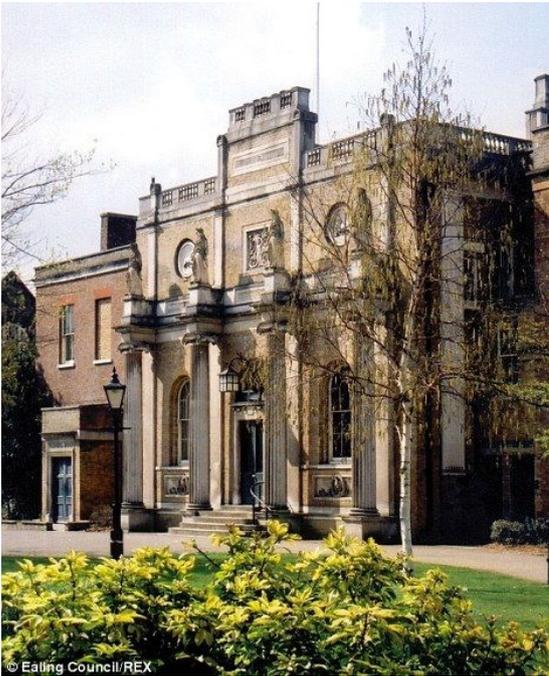


The facade of the Sheldonian Theatre, Oxford, Christopher Wren, c. 1669.

Inspired by drawings of Roman theatres, Wren adopted their D-shaped plan. However, the open arena of Rome, unsuited to the English climate, had to be covered.

To do this without introducing loadbearing columns into the central space, Wren designed a roof truss able to span the required 70 feet, a technical achievement which gained him great credit in scientific and architectural circles and made the roof of the Sheldonian a landmark in roof construction. From below, this technical ingenuity was, however, concealed from view by the painted ceiling.

Thomas Jefferson, the third President of the United States, began designing Monticello after inheriting land from his father at age 26.
1772, Virginia, USA.



Pitzhanger Manor is the former country home of British neoclassical architect, Sir **John Soane**, based in Walpole Park (Ealing, West London). Built between 1800 and 1804, it is a rare example of a building designed, built and lived in by Sir **John Soane** himself.



Two buildings designed by their owners for themselves to live in.