= Imbrex and tegula =

The imbrex and tegula (plurals imbrices and tegulae) were overlapping roof tiles used in ancient Greek and Roman architecture as a waterproof and durable roof covering . They were made predominantly of fired clay , but also sometimes of marble , bronze or gilt . In Rome , they replaced wooden shingles , and were used on almost every type of structure , from humble outbuildings to grand temples and public facilities .

The tegula (Greek solenes) was a plain flat tile , or a flat tile with raised edges , which was laid flat upon the roof , while the imbrex (Greek kalupter) was a semi @-@ cylindrical roofing tile , like a half @-@ pipe , laid over the joints between the tegulae . When well @-@ made and properly imbricated (overlapped) , there was little need for further waterproofing or sealant .

The roofing area was generally surrounded by antefixae which were often decorated , and had several decorative anthemia to cover each end row imbrex .

The concept of imbrex and tegula roofing in pitched roof construction is still in use today as an international feature of style and design , and is the origin of the term imbrication for the condition of things arranged in overlapping layers .

= = History and development = =

Imbrices and tegulae were first made by the Greeks . Like bricks , they were formed of wet clay in a four @-@ sided mould , often shaped with a piece of wire , and then baked in an oven or kiln . More sophisticated moulds were developed over time .

Tegulae were originally made perfectly flat , or with nothing more than a ridge underneath the upper border , which allowed the tile to be " hung " upon a sloping roof so that it would not slide to the ground . Later , tegulae were formed with a raised border on the two vertical sides , which would channel rainwater to the bottom of the tile , rather than allowing it to seep between tiles to dampen the roofing materials . Another improvement occurred when these two raised borders were made to converge , forming a broad v @-@ shaped trapezoid with the narrowest edge downwards , nestling into the widest part of the tile below it to form a continuous channel .

The imbrices completed the waterproofing of the roof by arching over the joints between the vertical edges of the tegulae , dividing the roof into channels . Rain water flowed off the curved imbrices into the channels and down over the surfaces of the tegulae , and descended into the gutter (canalis) . In formal architecture the canalis had a plain or ornamented frontal piece set atop the entablature , immediately above the cornice . The semicircular opening at the front of the lowermost imbrex was often capped with an ornamental fronton , and the spouts which drained the gutters were frequently decorated with lions ' heads (capita leonina) or other fantastic or grotesque faces .

By Roman times many tiles were being made under the auspices of various Roman legions , and were imprinted with a stamp of the legion 's insignia . Imbrices and tegulae are common finds in archaeological sites , and their design and markings can be of use in dating the sites and identifying the inhabitants . For instance , a 1993 archaeological dig in Merseyside in England uncovered over 300 kg (660 lb) of tile and kiln remains . Some of the tegulae were stamped with the " LXXVV " insigniae of the Legio XX Valeria Victrix . Romans also often recycled broken tiles by incorporating them into mortar .

Tiles of marble were first used around the year 620 BC . Besides the superior beauty and durability of the material , these tiles could be made of a much larger size than those of clay . Consequently , they were used in the construction of the greatest temples , such as the Temple of Zeus at Olympia , the Parthenon at Athens , and the Serapeum at Puteoli (modern Pozzuoli) . Still more expensive and magnificent tiles were made of bronze and gilt .

= = Gallery = =