

2.5 Construction of the Wall

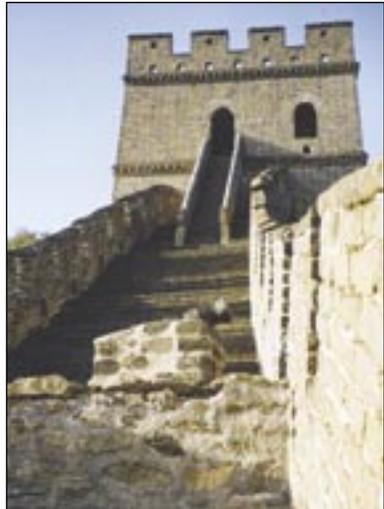


Hecang Fortress at Yumenguan, Gansu Province

Early methods of constructing walls were as varied as the materials to hand. Under the Western Han Dynasty, the ‘yellow earth’ of the Loess Plateau was tamped (heavily compressed) and shaped between wooden boards. In stony areas, stones were chosen by shape and built up into a dry-stone wall. In sandy desert areas, available plants (tamarisk twigs, jarrah or reeds) were intertwined and filled in with sand. These walls do not resemble the elaborate stone and mortared brickwork of the Ming Dynasty: the photographs above and on page 15 are more typical of long stretches of Qin- and Han-built walls further west.

This book focuses on the more accessible sections of Ming Dynasty Wall, so here we discuss Ming construction methods. Wall-building was pursued enthusiastically throughout the Ming Dynasty (1368-1644). In the late 14th century, their first task was to replace earthen Great Wall by masonry: General Xu Da is credited with directing much of this work. Two centuries later, an important innovation was introduced by General Qi Jiguang: the watch-tower. Reporting on his inspection of the existing sections of Wall at Badaling, he had noted

The watch-tower was a 16th century innovation



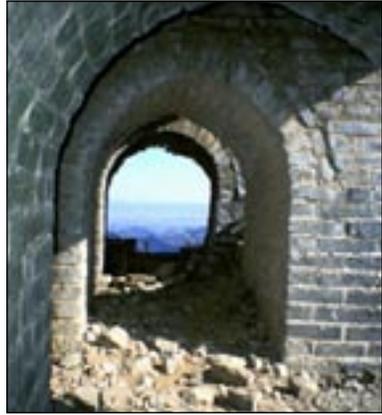
that 'soldiers had no protection against heat or rain in summer, sleet or snow in winter, while ammunition and weapons lay exposed to the elements'.

A typical Qi Jiguang watch-tower had two storeys: the lower level was used as a weapon store and as living quarters for off-duty soldiers. The upper level gave those on patrol an excellent view of approaching enemy, their protective walls having peep-holes and crenellations (rectangular slots).

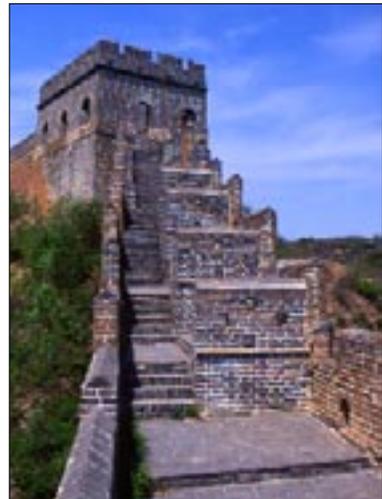
Some had inner buildings, with pitched roofs and upturned eaves sometimes decorated with animal figures. The ceiling of the lower storey was typically arched, vaulted or octagonal. Each side of the tower had up to five embrasures (openings), sometimes with one extended to form a doorway. Some watch-towers were rectangular and others square. Details were often asymmetrical: look closely at the foreground tower in the front cover photograph, for example.

The core of the Ming Wall was normally made of blocks of stone and earth, with mortared facing bricks on all visible surfaces. The structure is clear in derelict sections: see the photograph on page 51, for example. The top of the Wall was typically several metres wide, in places up to seven metres or more. For strength, the base of the Wall was always built slightly wider than its top, so that the side walls lean slightly towards each other. The tops are often crenellated, but the design varied: at Badaling, they were on the 'enemy' side only (generally north-facing), whereas at Mutianyu they are on both: see page 53.

An interesting variant is the 'barrier wall' – a succession of transverse protective barriers, carefully designed so that archers could fire down independently on the enemy. You may walk past a good example at Simatai: see page 51.



Inside a watch-tower, Mutianyu



Barrier wall at Jinshanling



Stone drainage channels on watch-tower (foreground) and on the Wall at Mutianyu

Another Ming development was the 'mountain pass town': this was a garrison town in a strategic location where during an emergency generals could be stationed to direct operations. Such towns had strongly designed defensive structures, walls within walls and fortified gatehouses, and they were considered a key part of the Ming defences. There are fine examples at Jiayuguan (page 5), Shanhaiguan (pages 30-31) and Huangyguan (pages 42-45).

The later constructions show great attention to practical detail, such as the handling of water drainage. The Wall, as well as its watch-towers, was given stone drainage channels at regular intervals. Pride in workmanship was shown in the bricks themselves: made locally, they often bore their maker's name and date of manufacture, although these are now mostly difficult to discern. Many sections and watch-towers had inlaid stone tablets with low relief. A beautifully carved example survives on Kylin Tower, Simatai.

Panel carved in low relief on Kylin Tower, Simatai

