

## Building an Earthen Embankment

Matsumoto Castle's earthen embankments were made from rammed earth (*hanchiku*), which is formed by compacting layers of dirt. First, the builders constructed a sturdy frame of wooden boards to hold the earth in place. Next, they filled the space between the boards with dozens of layers of earth, some with a higher sand content, some with more clay, and some with gravel. The layers were then tamped down, compacting them into a barrier that is much stronger than one made from soil alone.

The layers of colored strata visible in this cross section show the embankment's composition. Posts from the wooden framework were found buried on its eastern side.

## Diagram of an Earthen Embankment

This figure shows a cross section of the moat, earthen embankment, and plaster wall as they would have appeared during the Edo period (1603–1867). The area beyond the moat (left) was the outlying castle town, where the houses and shops of commoners were located. In the center is the moat, which is bordered on the right by the earthen embankment. The rows of stakes in the water at the embankment's base deterred attackers from attempting to scale it.

A white plaster wall ran along the top of the embankment, where defenders could gather during an attack. Wooden boards could be laid across the struts on the wall's inner side to create a platform. Standing on this platform, defenders fire over the wall at enemies attempting to cross the moat.

The flat berm just inside the wall was called the *musha-bashiri* (literally, “warriors’ run”). It provided room for defenders to position themselves along the wall. The narrow ledge of earth between the outside of the wall and the moat was called the “dog run” (*inu-bashiri*), because it was just wide enough for a dog.

To the right of the embankment is the castle's third bailey (*sannomaru*), the district where higher-ranking samurai lived.

総堀	Outermost Moat
杭列	Rows of Stakes
犬走	<i>Inu-bashiri</i>
土塁	Earthen Embankment
土塀	White Plaster Wall
武者走	<i>Musha-bashiri</i>
武家屋敷	Samurai Residences

## Rows of Wooden Stakes

Several rows of sharpened stakes were driven into the outer base of the embankment below the moat's waterline. Most of the stakes were made from split logs of pine or chestnut, and their carved points were hardened with fire. Scholars believe these stakes were intended to repel enemies, but they may also have reinforced the earth along the embankment's base, preventing it from sliding into the moat. Similar stakes have been

found at Yonezawa Castle, in Yamagata Prefecture.