

Castle Craftsmanship: Plaster

Japanese builders have used plaster as a finishing material for centuries. Plaster has more than just an aesthetic purpose; it helps protect wooden structures against fire and seals them against wet rot—the two main threats to traditional buildings in Japan.

The plaster work at Himeji is more extensive than at other Japanese castles. The walls are covered on both sides (whereas many castles are plastered only on the exterior), and plaster was also applied to the earthen perimeter walls and the joints between roofing tiles. The overall effect is an unusually white appearance, giving rise to Himeji's nickname, "White Heron Castle."

The composition of Himeji's plaster varies depending upon the specific time and place of its application, but a typical recipe was as follows: start with two kinds of lime—one derived from stone, the other from shellfish. Add *susa*, a fibrous material made from ground-up hemp, then mix in water and a paste made from boiled seaweed.

Inside the Walls

Plaster is the last of the many layers that make up a castle wall. Builders started with a wood-bamboo trellis-like frame called a *komai*. They then daubed mud onto the frame to form the wall—in Himeji's case, mud was applied in four layers. After it was dry, the craftsmen coated the mud with two layers of plaster, each made from slightly different materials.

Wood and bamboo frame

Rough mud wall

Second coat to even out the surface

Third coat to smooth the surface

Final mud undercoat

Plaster undercoat

Plaster topcoat

The walls of the keep are thinner at higher floors. The walls start at 45 centimeters thick on the first and second floors, narrow to 41 centimeters on the third and fourth floors, and are finally about 30 centimeters thick on the fifth and sixth floors. Dried mud accounts for most of the bulk of the walls. The plaster is a relatively thin layer about 30 millimeters thick on the outside of the keep and just 2 or 3 millimeters thick on the inside.

Mud wall

Plaster

Plaster

Interior

Exterior

Look and Feel

The plaster on Himeji Castle's walls and roof joints is made from a mix of rock and shell lime, ground hemp, and seaweed starch. Sand was sometimes also added.