

Onigawara tile

The onigawara (decorative roof tiles) installed on the roof of the Seiden Main Hall of Shuri Castle were created by first constructing clay models based on high-resolution photographs from the Yoshitaro Kamakura collection. Both the open-mouthed and closed-mouth (*a-un*) designs were finalized through a process of oversight and verification by the project's supervisors.

- Four onigawara tiles installed on the Seiden Main Hall of Shuri Castle.
- For the most recent (Reiwa Era) restoration, the open-mouthed and closed-mouth (*a-un*) pairs were reviewed using high-resolution images derived from old photographs from the Yoshitaro Kamakura collection taken in 1922 (Taisho 11).

Plaster prototype

The designs finalized as clay models were transferred to plaster prototypes, which served as the basis for firing the final pieces.

- The clay models underwent three rounds of iteration before plaster prototypes were made.
- To allow for post-firing shrinkage, the tiles were modeled at 110% of the final intended size.

Hand-forming (internal finishing and drying)

Subsequently, each piece was hand-formed based on the plaster prototype. The ceramic clay used was Ishikawa white clay sourced from Uruma City. Analysis of historical photographs indicated a size increase by a factor of 1.1 or so. This larger scale caused cracks to form during kiln firing in the course of restoring the tiles to the Heisei-era designs. For this reason, each lion's face was divided into upper and lower sections for shaping. The composition of the clay was also reviewed.

- Artisans hand-formed each piece from plaster prototypes.
- For the most recent restoration, Ishikawa white clay from Uruma City was used for clay development.
- For the most recent restoration, the size was approximately 1.1 times larger than the Heisei-era restoration, requiring improvements to both the clay composition and the shaping process.

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Bisque firing (kiln loading and unloading)

After forming, the pieces were bisque-fired, then glazed, followed by a second firing in the kiln.

Glazing

Traditional green and amber-brown glazes were used. As each piece is a three-dimensional form with pronounced relief requiring application of multiple colors, the optimal glaze compositions, application sequence, and firing methods needed to be carefully evaluated during the production process.

- Traditional green glaze and *ameyu* (amber-brown) glaze were used to glaze the onigawara tiles.
- Each piece is a three-dimensional form with pronounced relief requiring application of multiple colors, so the optimal glaze compositions, application sequence, and firing methods had to be carefully evaluated during production.

Firing

Application of glaze and start of the second firing process. For this restoration, due to the extensive division of upper and lower sections and the use of multiple glazes, details such as concentration adjustment, glaze application method and masking, and temperature control were all considered.

- Application of glaze and start of the second firing process.
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