

The painting in the middle and outer sanctums, and the black lacquer, coloration and fittings for the three shrines in the inner sanctum are to be restored.



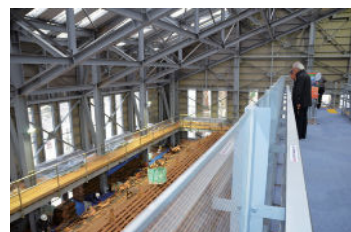
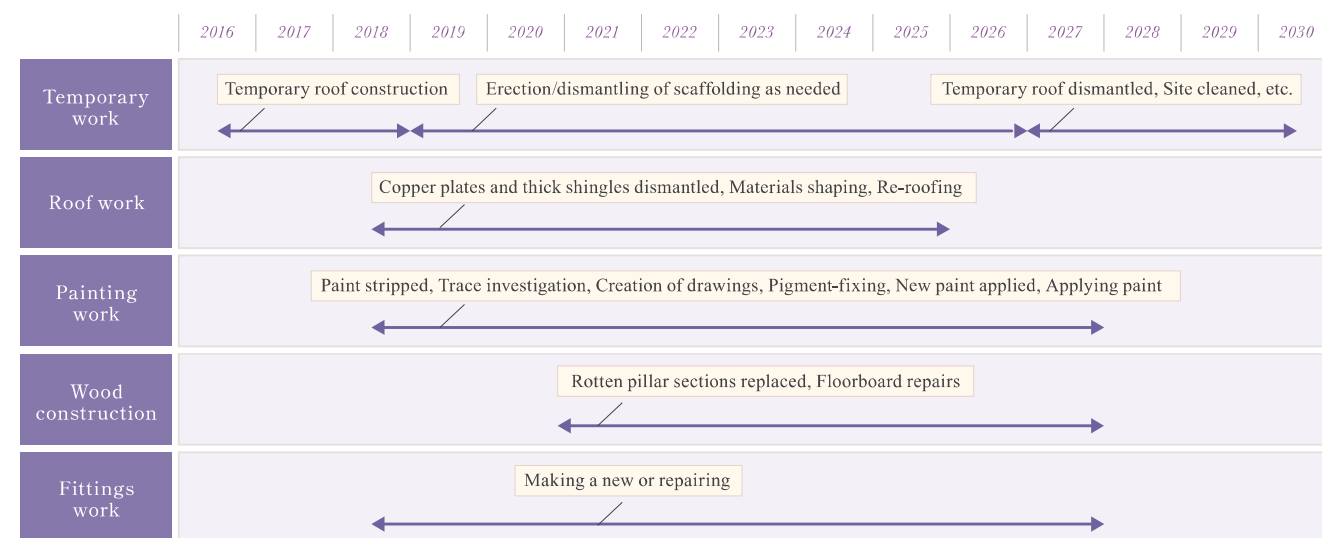
Konpon Chūdō interior
(middle, outer sanctums)



Zushi shrine in the inner sanctum



Transom along the inner and middle sanctums' boundary



Stage (until December 2026)

Inside the temporary roof, a stage is open to the public to allow them to view the restoration work from a height previously not accessible. Monitors are showing past restoration work. Don't miss this chance to see work being done on re-roofing, re-painting, and re-coloring.

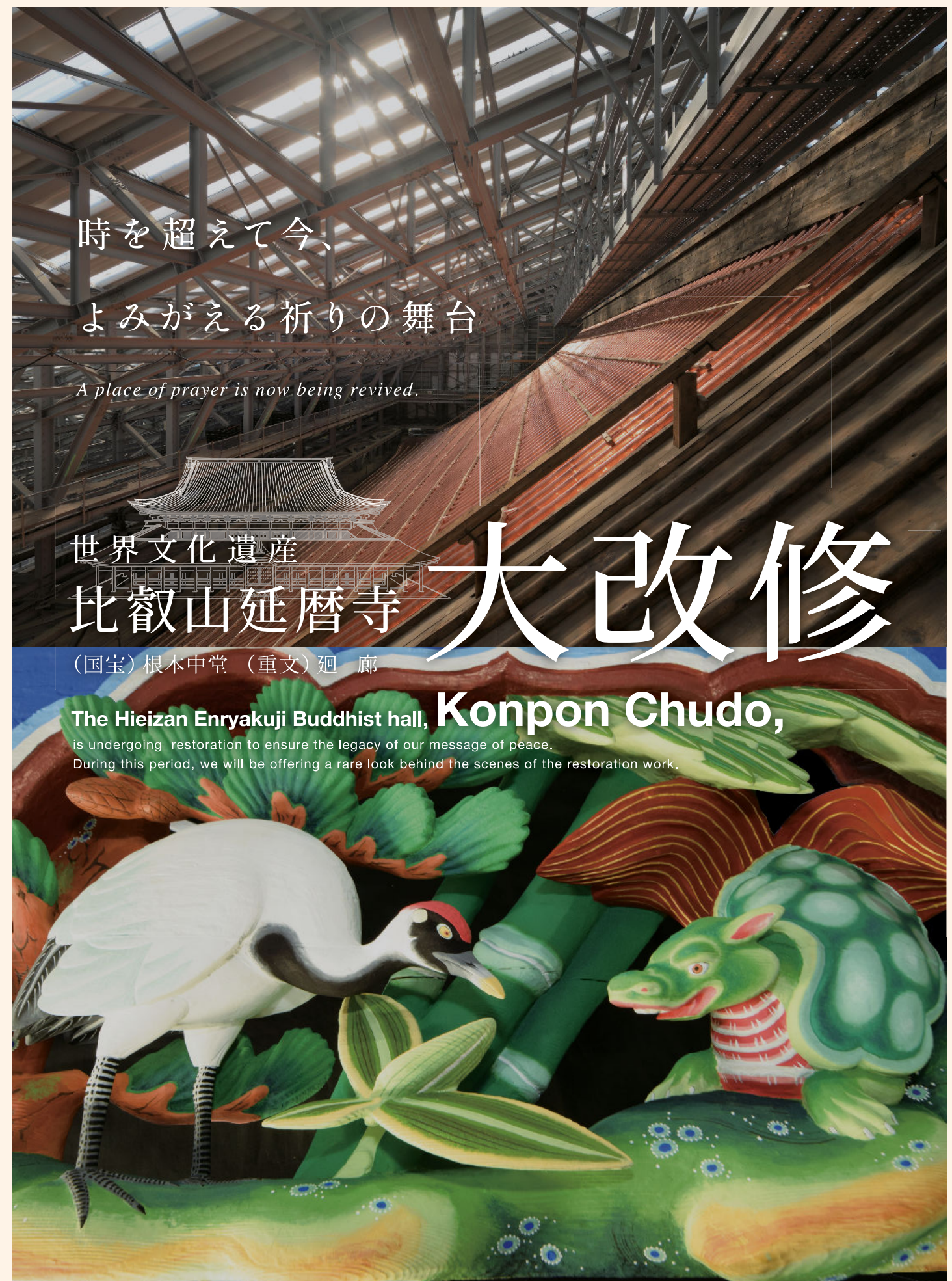
Preservation Project for the Enryakuji Konpon Chūdō (National Treasure) and Konpon Chūdō Cloisters (Important Cultural Property)

Owner: Enryakuji Temple
Location: Sakamoto Hon-machi, Otsu City, Shiga Prefecture
Repairs policy: Re-roofing and paint repairs
Project period: 1 April 2016 to 30 September 2030
Project costs: Approximately 7.3 billion JPY
(subsidies from the state, Shiga Prefecture, and Otsu City)
Outline of structures
(1) Name/Designated classification
Enryakuji Konpon Chūdō: (National Treasure)
Enryakuji Konpon Chūdō Cloisters: (Important Cultural Property)

(2) Dates of designation
5 April 1899
31 March 1953 (Designated National Treasure)
(3) Scale
Konpon Chūdō: Length 37.6 m, depth 23.9 m, height 24.3 m,
floor area 899.66 m², roof area 2,231.60 m²
Cloisters: Length (total) 106.9 m, depth 4.6 m, height 8.5 m,
floor area 466.90 m², roof area 998.40 m²
(4) Date of construction: 1642

Accessing Hieizan Enryakuji Temple

Via public transport (Sample Route)





Saichō (767–822)

Enryakuji Temple is an active monastery and the headquarters of the Tendai school of Japanese Esoteric Buddhism. The temple was established in the late eighth century by the monk Saichō. From long ago, this has been a site of worship for many people. It has flourished as a place to foster people through religious training and study, and as a place to protect the nation through prayers for peace. Many prominent Buddhist monks studied at Enryakuji during the temple’s 1,200-year history, and some even went on to found sects of their own. The temple’s lasting influence is the source of its nickname: “the mother temple.”



Eternal Light of Buddhism

The disciples who were heirs to Saicho’s vision created three areas on Mt. Hiei, which remain there today. Konpon Chūdō has been the heart of Enryakuji for the past 1,200 years and is an important spiritual training ground for the transmission of Saichō’s teachings. Such training includes daily recitation of sutras and the annual goma fire ritual to pray for peace, both of which may be observed by visitors to the temple. The name “Konpon Chūdō” is believed to derive from the central hall (*chūdō*) of Ichijōshikan’in, which enshrined the image of Yakushi Nyorai carved by Saichō.



788 | Building Ichijōshikan’in

Saichō had trained to be a monk in Nara (then the political capital and center of Buddhism in Japan), but in 785 he withdrew to Mt. Hiei to the northeast of present-day Kyoto. His goal was to pursue an ascetic life of prayer, meditation, and study far from the secular affairs of the capital city. Three years after arriving on the mountain, Saichō built a small mountain-side temple called Ichijōshikan’in. There, he enshrined a wooden image of Yakushi. In 823, Hieizanji temple came to be called Enryakuji after receiving the era name “Enryaku” from Emperor Saga at its founding, and Ichijōshikan’in had its name changed to Konpon Chūdō.

887 | Rebuilding Konpon Chūdō

Over a six-year period, the three halls were rebuilt into a structure that incorporated them in a single hall.

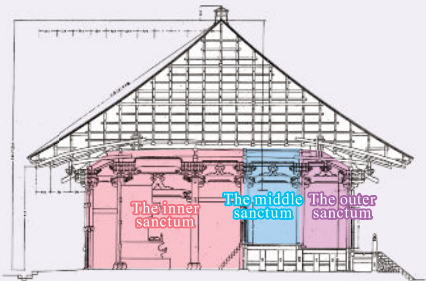
980 | Rebuilding Konpon Chūdō and New cloisters

After Konpon Chūdō burned down in 935, it was rebuilt in 938, then renovated to its present scale with new cloisters and a central gate.

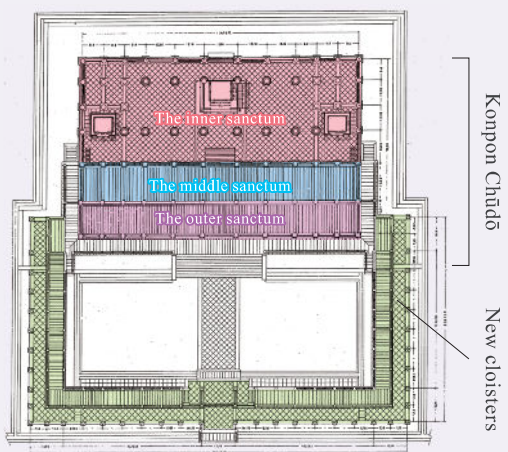
“Ichigu wo terasu kore sunawachi kokuho nari.”

There is a famous phrase, “Ichigu wo terasu kore sunawachi kokuho nari” (Those who shine a light into a corner are treasures of the land), in the writings of Saicho. “Ichigu wo terasu” (shine a light), refers to a person themselves becoming a light and illuminating their surroundings, giving of themselves to their uttermost to bring light to where they are. It is these people, Saicho says, who are “kokuho” (treasures of the land). Enryakuji is a place where human “treasures of the land” like this are fostered.

Saichō believed that between Shakyamuni’s awakening and the arrival of Miroku, the future Buddha, in 5.6 billion years, Buddha’s teachings would fade into darkness. He saw Buddhist practice and evangelism at Enryakuji as the way to prevent this loss. This belief is symbolized by the three lanterns at Konpon Chūdō’s inner sanctum. Saichō lit the flame in 788 before an image of Yakushi Nyorai, the Medicine Buddha, at Ichijōshikan’in Temple. Known as the “Eternal Light of Buddhism,” these lanterns have burned continuously for 1,200 years, even surviving the destruction of Enryakuji in 1571 by the ascendant warlord Oda Nobunaga (1534–1582). The temple monks ensure its survival by replenishing the lanterns’ oil daily. The inner sanctum of Konpon Chūdō has a stone-paved floor 2.4 meters below the middle sanctum, where visitors pray and offer incense, aligning worshippers’ eyes with the statue of Yakushi Nyorai. This design reflects Saichō’s belief that all people have Buddha nature and can attain enlightenment. Instead of placing Buddha images on high altars, the inner sanctum’s layout, which puts such images at the same level, embodies Hokke Ichijō (“humans and Buddha are one”), reinforcing that anyone can achieve enlightenment.



Cross section



Floor Plan



Photo before this current restoration

Toward the end of the sixteenth century, Oda Nobunaga saw Enryakuji as a threat to his campaign to bring the country under his rule. On September 30, 1571, Nobunaga’s forces attacked Mt. Hiei, burning down almost all of Enryakuji and killing most of its residents. Despite this tragedy, Enryakuji was able to recover with the support of subsequent governments. The current Konpon Chūdō building dates to roughly 1642, when the main hall and its outer corridor were reconstructed by edict of the shogun Tokugawa Iemitsu (1604–1651). The hall has three sections: inner, middle, and outer sanctums. Visitors pray in the middle and outer sanctums, while monks conduct rituals in the inner sanctum. A shrine (*zushi*) behind the main statue holds a Yakushi Nyorai statue carved by Saichō. Statues of the Twelve Heavenly Generals stand on the alter surrounding the shrine, while the bodhisattvas Gekkō and Nikkō are enshrined inside it with Yakushi Nyorai. Secondary altars honor Buddhist school founders and the warrior deity Bishamon. The three inner sanctum altars symbolize the former Ichijōshikan’in Temple’s three main halls, later merged into Konpon Chūdō.

History of repairs to Konpon Chūdō

The current Konpon Chūdō has been extensively repaired six times since it was constructed in 1642. This current restoration, the first in some sixty years, involves recovering the roof, extensive repainting, and replacing the pillar bases. Its prayers and traditions are being passed on to the next generation while care is taken to allow people to continue to worship.

1642	1669	1708	1754	1798	1890	1955	2016
Current Konpon Chūdō built	Rotten pillar sections replaced, Re-roofed	Rotten pillar sections replaced, Re-roofed, Repainted	Re-roofed, Repainted	Konpon Chūdō roof changed from shingles to copper plating	Rotten pillar sections replaced, Re-roofed, Wood around eaves repaired	Rotten pillar sections replaced, Re-roofed, Repainted	
		During the Edo period (1603-1867), the shogunate stipulated the specifications, and opened the work for bidding. The Eizan Library, which holds historical documents about Enryakuji, contains period repair manifests that describe the details of past repairs. Having the details of the repairs suggested by building inspections underpinned by historical documentation is extremely valuable.					
Period illustration showing Konpon Chūdō shortly after its construction	Repair Manifest			Photo when repairs were complete			

Period illustration：比叡山・根本中堂・大講堂廻廊・食堂・法蔵・御造営図（延暦寺所蔵（叡山文庫））
Repair Manifest：山門東塔諸堂舎之内三年目御修復塗物力仕様請切代銀入札帳（延暦寺所蔵（叡山文庫））

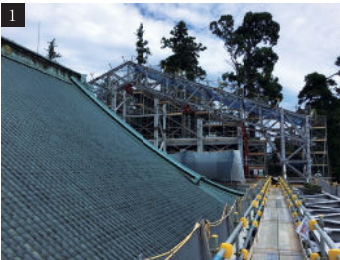
Restoration policy

This restoration is the biggest since the mid-18th century restoration, which were done with an emphasis on the initial specifications to which the structure was built. Following those traces, Konpon Chūdō will be restored to its appearance during the middle Edo period, ready for passing on down to the future.



Temporary Roof and Scaffolding

Before work on Konpon Chūdō could begin, scaffolding had to be constructed to protect the structure from the elements and provide a working platform for the restoration crews. This initial step took approximately two years. Given the limited open space around Konpon Chūdō, the temporary roof and scaffolding were assembled using an accumulative sliding method. Eleven steel frames each measuring over 5 meters long were assembled on a platform on the northern side of the main hall. Then, each frame was slid into place with a hydraulic jack. The process was repeated for each frame until the entire hall was covered. A viewing platform was built on the east side of the scaffolding to give visitors an up-close look behind the scenes at the traditional techniques used by the people working on the restoration.



1) Assembly of the first steel skeleton



2) Fifth slide completed



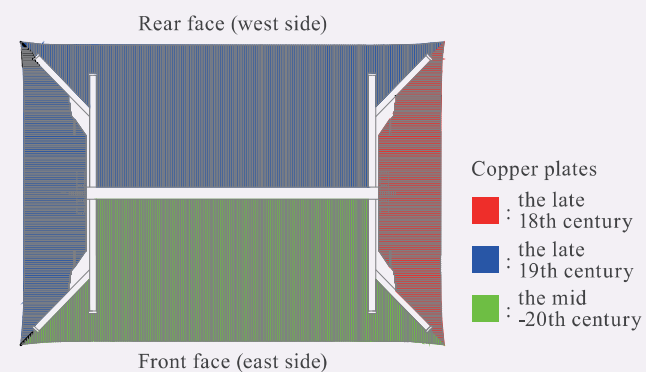
3) Assembly of the cloister steel skeleton



Copper-plated roof

Roof copper plate specifications and changes we now know

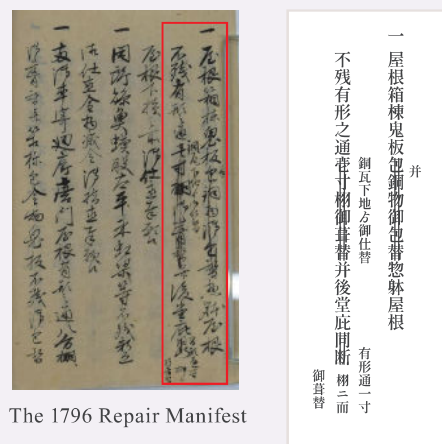
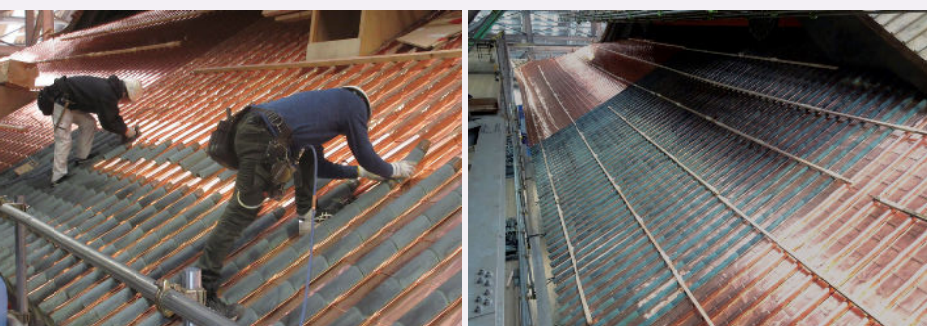
The Konpon Chūdō roof uses about 76,000 copper plates. The copper plates, which have been damaged due to exposure to the elements since the previous restoration (1955), are being completely replaced. The roof is a very solid, triple-layered structure of copper plates and wood to keep rain from leaking.



Chronological distribution of copper plates before repairs

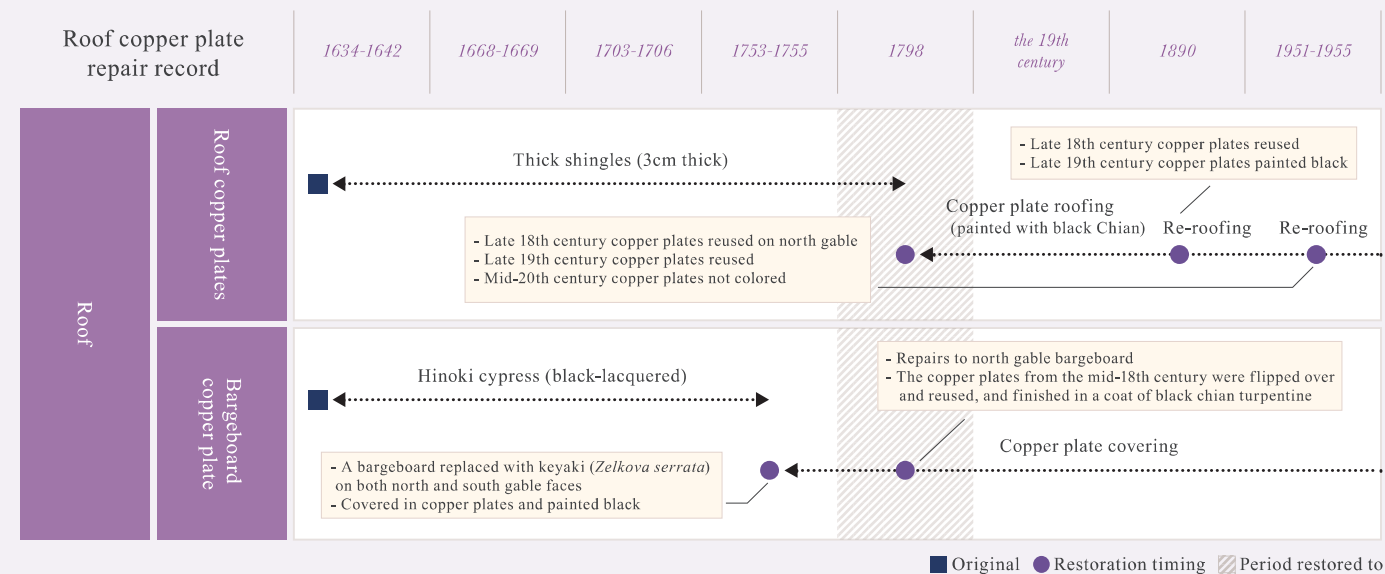
The Konpon Chūdō roof had copper plates from three different times: the late 18th century, the late 19th century, and the mid-20th century.

In the 1955 restoration, the old copper plates on both gable faces and the rear face were reused, so only the front face had new copper plates.



The roof was covered with thick shingles when it was first built, but was re-roofed in copper plates in 1798. The 1796 Repair Manifest has the plan to re-roof in thick shingles crossed out and changed to copper plates.

The 1796 Repair Manifest: 根本中堂御修復願仕様帳 (延暦寺所蔵 (叡山文庫))



Copper plates painted black

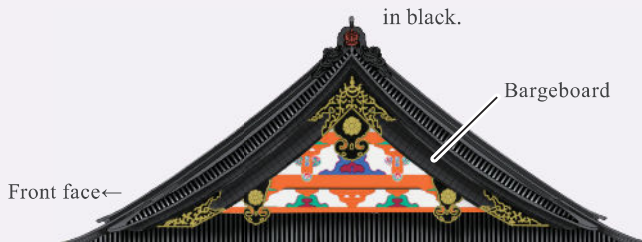
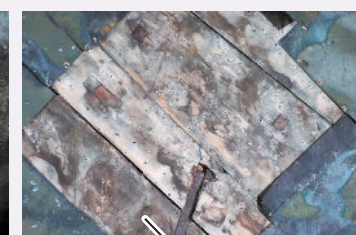


From left: the late 18th century, the late 19th century, and the mid-20th century (two types)

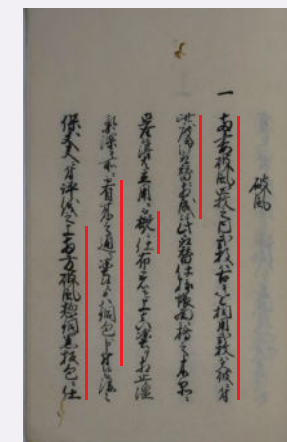


Some copper plates used from the late 18th century showed traces of black paint. The scientific analysis detected pine resin contained in the chian turpentine. From this, it appears that black chian was applied when the roof was changed from shingles to copper in the late 18th century. This current restoration uses black chian on the copper, restoring the mid-Edo appearance.

Black coating on bargeboard copper plates



The copper plates on the north gable bargeboard were flipped over and reused when the bargeboard was repaired in 1798. The black paint remaining on what is today the underside dates back to the mid-18th century, so it is probably the “black plate” finish referred to in the old texts. The black paint on the surface dates to the late 18th century, and is known to be chian as analysis has detected pine resin in it.



The 1752 Repair Manifest records that two of the four bargeboards on the north and south gables were replaced with keyaki, and covered in black copper rather than being painted. Having the details of the repairs suggested by building inspections underpinned by documentation is extremely valuable.

The 1752 Repair Manifest: 根本中堂御修復取仕替覚書 (延暦寺所蔵 (叡山文庫))



The shingles believed to be from the Edo period that remain on the north and south sides of the cloister

Thick shingles

The craftsman's art of creating smooth curved surfaces with thick plates

The corridor's roof is covered with shakes, a type of wood shingle made by splitting the wood along the grain. The kind used here is called *tochi-ita* in Japanese. Over 100,000 *tochi-ita* shakes cover the 1,000-square-meters of the corridor roof. The shakes began to rot or deteriorate from exposure to wind, snow, and rain over the 60 years since the last restoration of Konpon Chūdō.

In this restoration, the shingles believed to be from the Edo period that remain on the north and south sides of the cloister have been preserved.



The shingles are made from *sawara* cypress wood. *Sawara* cypress is easily workable and water-resistant, so it has long been valuable as a roofing material. However, it is not as easy to obtain these days.

Making thick shingles (*tochi-ita*)



❶ Cutting logs into lengths



❷ Hand-split multiple times to get thin boards



❸ Conversion of timber

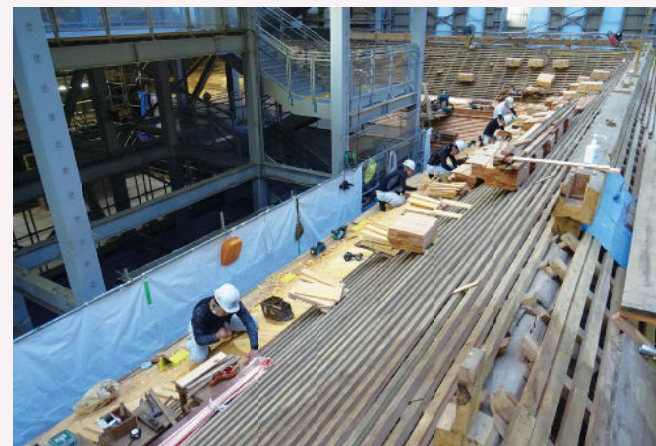


❹ Blade shaping

To make a shingle, the cypress log is cut into rings, each of which is split into six parts. Each part is then split multiple times by hand to an appropriate thickness.

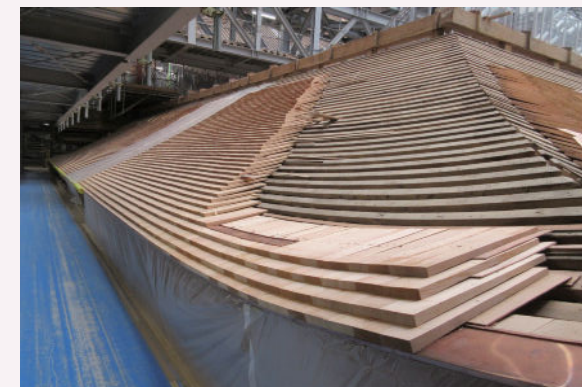
They are then split to the required thickness, and planed with a blade diagonally.

Doing this by hand means that the cypress is split along the fibers, leaving tiny fluctuations on the surface. These mean that air can still circulate even when they are layered, helping the wood to last.



The shingles, 45 cm long and 2.4 cm thick, are staggered at 8.5 cm intervals and fastened with bamboo nails. Our predecessors skillfully adapted their techniques to suit the humid environment around Konpon Chūdō. Repair Manifests from the mid-17th century onwards record that thinly-shaved shingles were inserted between the joints of the thick shingles. This is a way to ensure air circulation by ensuring shingles are not too close together. In repairs from the early 20th century onwards, copper plates were wedged in amongst the shingles. Copper leaches ions when exposed to water, which flow over the surface and help protect the wood from rot.

As copper plates were inserted in the previous restoration, and the underlayment over which the shingles were attached was in good condition, copper plates are being used in this restoration as well.



The gate in the middle of the cloister has a curved roof, so the shingles need to be shaped on site in order to fit properly. Similarly, the corners, where the cloister changes direction, need to be shingled so the shingle lines are continuous.

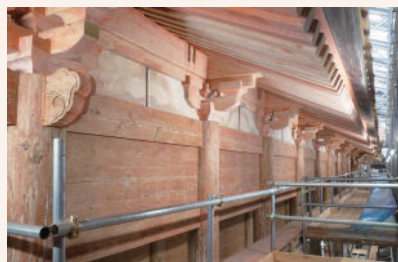


TOP: *Tan-nuri* BOTTOM: *chian*

Painting

Recreating the Edo-period two-tone colors found through investigations

The exterior painting on Konpon Chūdō and its cloister is being entirely redone. Investigations have shown that different techniques and colors were used for the top and bottom. The area around the eaves was done in orange using vermillion lacquering (*Tan-nuri*), while the walls were done in deep red using *chian*. This restoration recreated the mid-18th century two-tone upper and lower coloring.



With the paint stripped

The eaves and walls can be seen to have different shades of red.



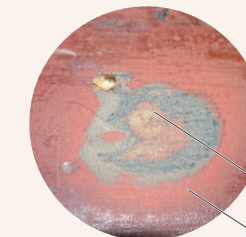
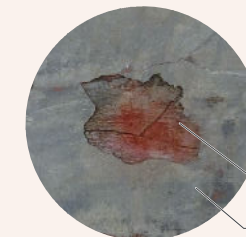
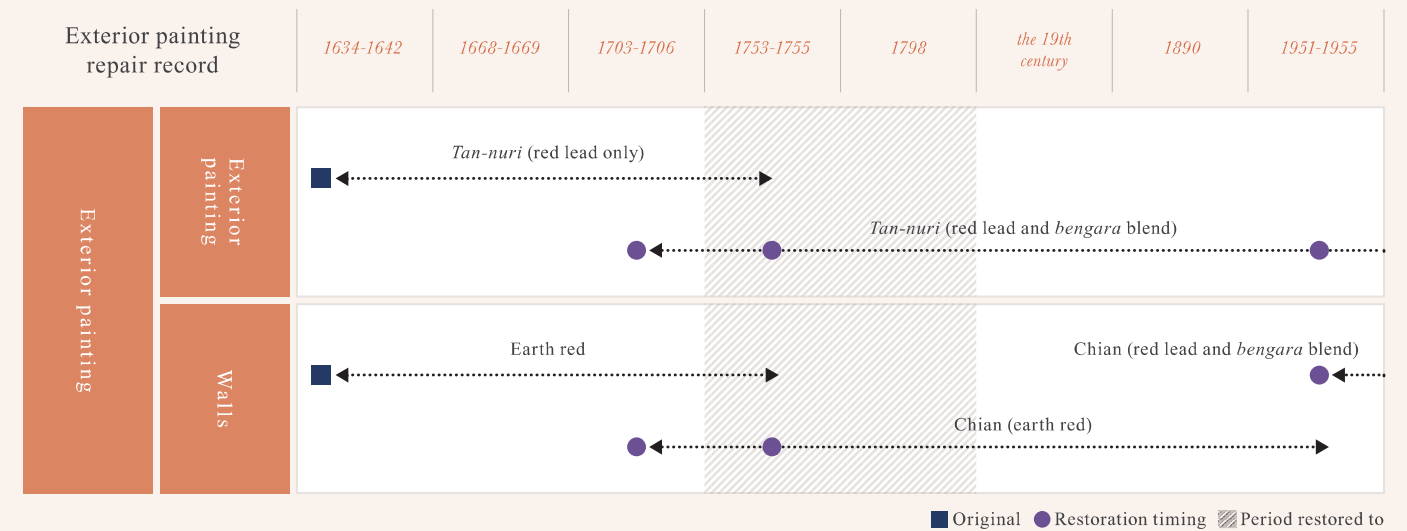
Tan-nuri from the mid-17th century to the mid-18th century

Analysis of the pigment remaining on the eaves only detected lead. This showed that the building was painted orange using only a red lead-based pigment.



Konpon Chūdō shortly after its completion

An old illustration that shows what is thought to be Konpon Chūdō shortly after its completion shows the eaves as orange and the walls as deep red, which matches with the analysis results and Repair Manifests.

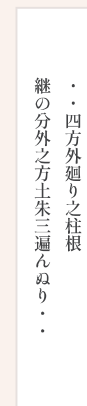
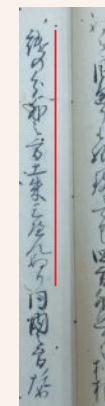


Painting prior to *chian*

Edo-period paint remains on sections of the front face of Konpon Chūdō. A microscope shows large granules mixed with either iron or quartz. This shows that it was the pigment known as earth red, made from hematite.

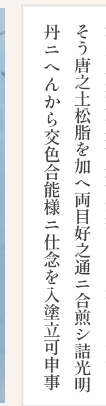
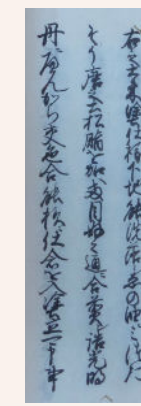
Chian from the Edo period

Some deep red paint remains underneath the metal fittings of the door hinges. The analysis detected pine resin, showing that this was *chian* turpentine. There was a red coat underneath this coat as well. It can be seen to be earth red using a microscope. This shows that the building was initially painted in earth red, then repainted in *chian*.



The 1668 Repair Manifest

The Repair Manifest from 1668 contains instructions to use earth red on the repaired sections to match their surroundings, which matches the analysis results.



The 1706 Repair Manifest

The Repair Manifest from 1706 contains instructions to remove the earth red from the repaired sections and paint them with *Chian* turpentine using a mixture of red lead and *bengara* to adjust them to the shade of the red color. It is very valuable to have recipes like this preserved in historical texts.

Painting techniques

A range of techniques are used to paint Konpon Chūdō.



Tan-nuri

Uses red lead as pigment



Red lead

A pigment made by oxidizing lead through heat



Nikawa water

Nikawa, which is a collagen obtained by boiling down animal bones, skin, etc, dissolved into a liquid using a double boiler



Chian

Uses *chian* turpentine
In this restoration, red *chian* was used to paint the walls.



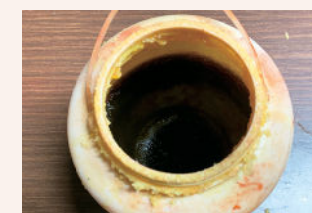
Bengara

Oxidized metal obtained by heating ferrous sulfate



Pigment used for painting the walls

1 kg of red lead was mixed with 500 g of *bengara* and 225 g of *chian* turpentine to form a paste.



Chian turpentine

350 g perilla oil, 350 g tung oil, 10 g red lead, 5 g white lead, 5 g litharge 20 g pine resin: boil for at least 3 hours



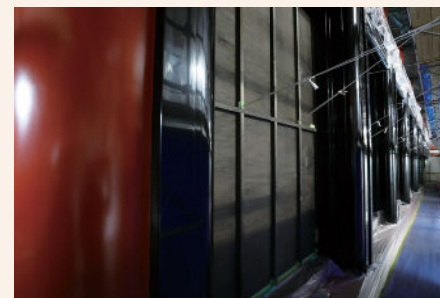
TOP: Damaged fitting prior to restoration
BOTTOM: Tools for lacquering

Lacquering

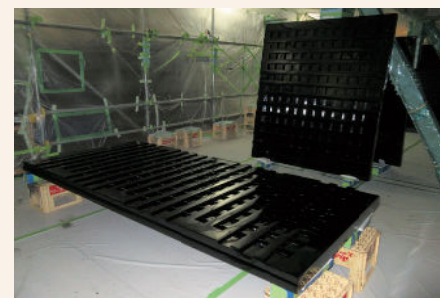
Careful undercoating is key to creating a beautiful finish

The fittings in Konpon Chūdō are coated in black lacquer. These are being recoated, as the old lacquer was becoming powder or peeling.

Lacquering requires multiple undercoats to create a smooth surface. The surface must be very smooth, because the viscous lacquer will bring out every little bump and dip.



The black lacquer in the area around where the fitting goes is redone



The fittings that have been lacquered



TOP of left pictures:
The undercoats are a blend of fine-grained earth and lacquer. The higher the layer, the finer the earth used.

LOWER LEFT of left pictures:
Undercoat made using a blend of rice glue, lacquer, cotton, flour, and *keyaki* sawdust

LOWER RIGHT of left pictures:
Making the undercoat

Lacquering process



① The old damaged coating is removed by hand using chisels. Areas in good condition are kept.



② Areas that are notably uneven or likely to split have hemp cloth pasted over them to soak in the undercoat.



③ The layers of undercoat start with the coarser levels and gradually get finer.



④ After undercoating, it is sanded smooth.



⑤ After sanding, lacquer is applied to strengthen the surface.



⑥ On top of the undercoats that have been layered up to this point, lacquer is applied to strengthen the finishing coats of lacquer. Four coats were used in this restoration.



⑦ The workplace is cleaned, then the top coats of lacquer are applied. Lacquer hardens by reacting with moisture in the air, but as humidity is always high around Enryakuji, work is done with an eye on the weather to prevent condensation from forming. It took about a year from removal to the final coat.



Cleaning and pigment-fixing work

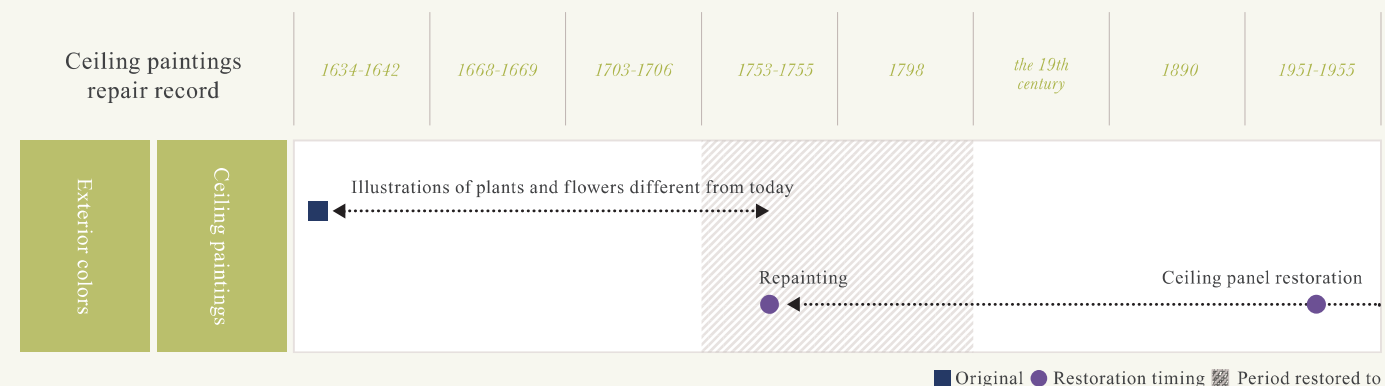
Ceiling paintings

Passing on the work of Kano School artists

The ceilings in Konpon Chūdō and cloisters are decorated with paintings. There are 200 in Konpon Chūdō and 48 in the cloisters. These paintings are dirty with soot and missing pigment, but precious coloration still remains.

They depict flowers and grasses from Japan. The ceiling paintings in Konpon Chūdō and the cloisters share themes and methods. They are thought, based on Repair Manifests, to date from 1752.

During this restoration, all the ceiling paintings were removed, cleaned, and treated to fix old pigment in place.



The ceiling paintings along the cloisters have suffered much loss of pigment, and only a few have traces of the picture. However, they are still valuable, as they are extant examples of the Kano School, Japan's largest school of painting, which flourished from the 15th to 19th centuries.

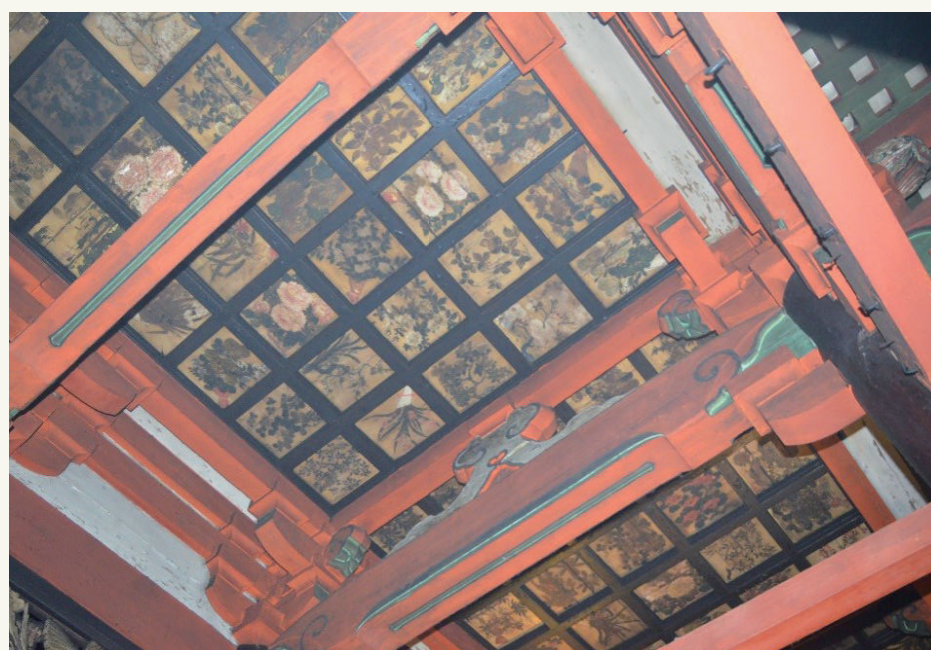


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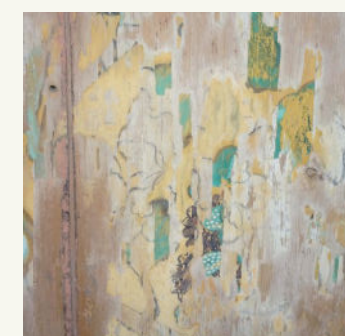


The ceiling panels are formed from two flat panels, with crosspieces on the upper side. One of these crosspieces has the name “Gozaemon” and the date written in black ink. This may well be the same person as the man in the “Ikegami Gozaemon” ink calligraphy found in Konpon Chūdō. The Ikegami family were noted carpenters in Kyoto, and helped build Konpon Chūdō. This suggests that the ceiling panels are from when it was first built.

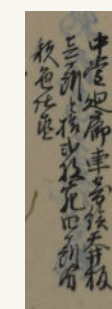
Inscriptions reading “Kano” can be seen on the ceiling panels in Konpon Chūdō and cloisters. Both lots appear to have involved Kano School artists.



LEFT: Ceiling paintings in Konpon Chūdō
UPPER RIGHT: Bellflowers (Konpon Chūdō)
LOWER RIGHT: Maple Leaves and Bellflowers (cloisters)



牡丹



中堂廻廊車寄経天井板
窓ヶ所は拾式枚宛四ヶ所分
彩色仕直

The 1752 Repair Manifest

Some of the ceiling paintings were changed from the original subjects when they were repaired. Restorers confirmed from the names in the inscriptions and the outlines that the flowers or plants currently depicted are not the right ones.

The only record of repairs to the ceiling paintings is from the mid-18th century to the mid-18th century, so it appears that the paintings were extensively renovated then, and these are the ones that we have today.

The 1752 Repair Manifest: 山門東塔諸堂舎之内三年目御修復塗物方仕様請切代銀入札帳
(延暦寺所蔵(観山文庫))

Kaerumata (frog-leg struts)

Plants and animals revived through detailed investigations and the art of craftsmen



The Konpon Chūdō and cloisters have carved frog-leg struts. There are 34 in the Chūdō, all of which feature animals. As well as real animals, there are imaginary ones like the Chinese qilin. The middle of the front side features cranes and tortoises, which are considered good luck in Japan.



There are 78 in the cloisters, most of which are combinations of birds and plants. They feature familiar plants and animals to give a feeling of rural hills or coasts. Unlike the animals in the Chūdō, which protect the sacred zone, the cloisters appear to reflect the secular world.

Color restoration process

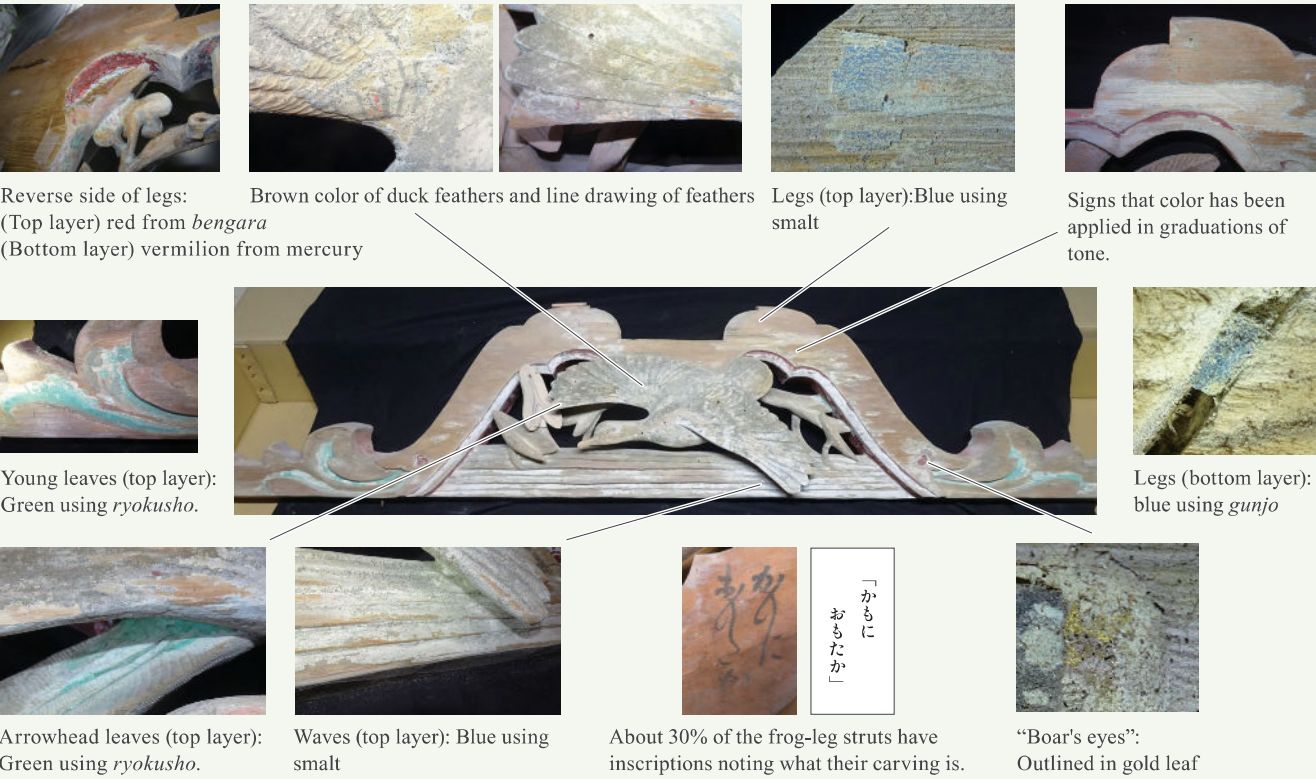
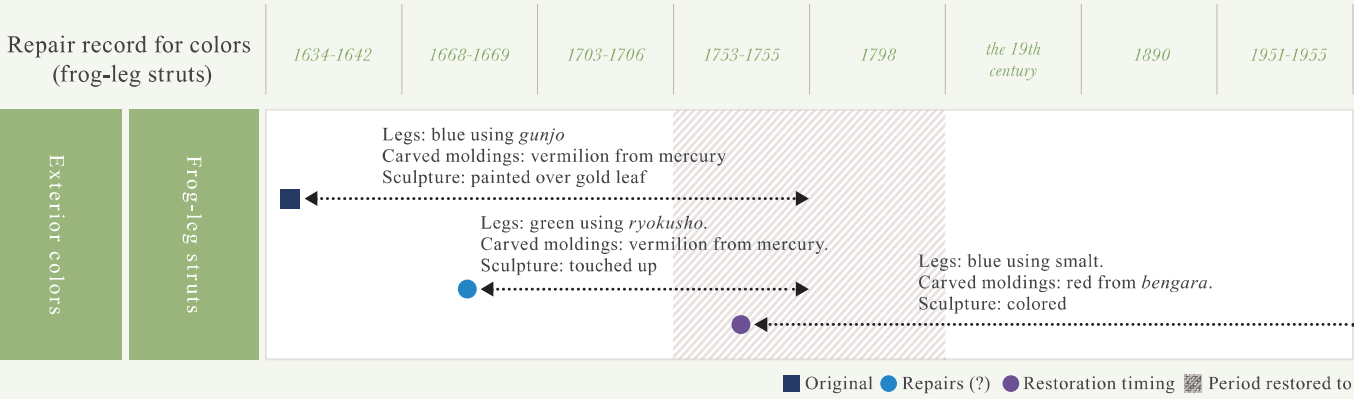
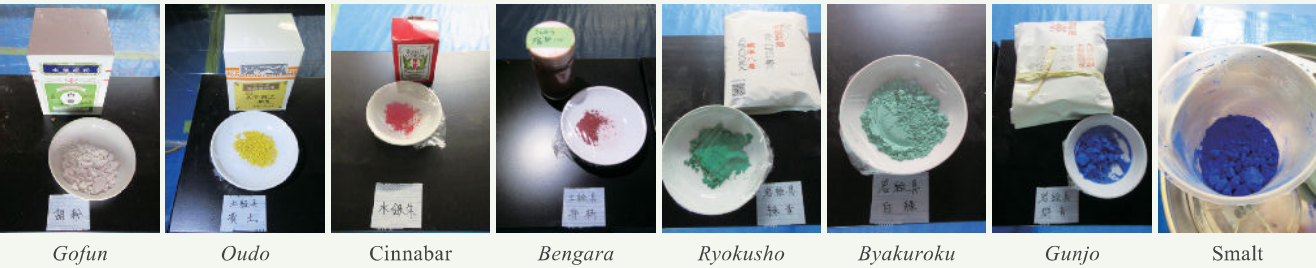


In this restoration, the colors remaining on the carvings were investigated and recorded, and drawings were created based on this. Pigments remaining on the carvings were covered with extremely thin washi stuck down with nikawa water to protect them. Then the color was applied based on the drawings.

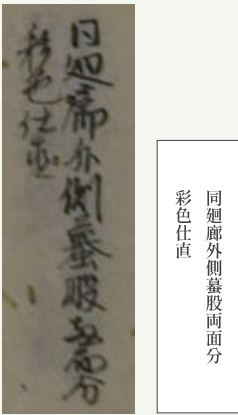
Pigments used for touching up

Gofun: a white pigment made by pulverizing shells.
Oudo: yellow ochre pigment that includes iron oxide, etc.
Cinnabar: a red pigment mainly made from mercury(II) sulfide.
Bengara: a red pigment mainly made from ferric oxide.

Ryokusho: a green pigment made by pulverizing malachite. Mineral pigments.
Byakuroku: a pale green pigment with white made by pulverizing verdigris even finer.
Gunjo: a blue pigment made by pulverizing azurite.
Smalt: an artificial blue pigment made by coloring glass particles with cobalt.



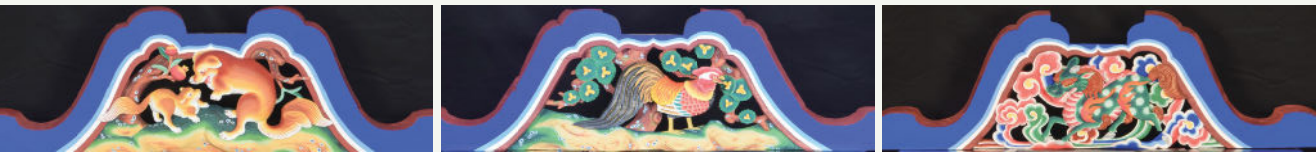
Tiny amounts of two-layered pigment remain on the struts. The bottom layer dates back to the original construction. It was a painted layer, with paint applied over gold leaf. There are still trace amounts of blue mineral pigment on the legs, and vermilion from mercury on the carved moldings. The 1752 Repair Manifest records that the frog-leg strut colors were redone, so the top layer of pigment can be dated to this time. The top layer is done using blue from smalt for the legs and red from bengara on the carved moldings. Smalt is an artificial blue pigment made by coloring glass with cobalt. It was first used around the 18th century. Bengara also started to be produced on an industrial scale then. The mid-18th century restoration retained the color expressions from the original designs while actively incorporating these new pigments.



The 1752 Repair Manifest

Colored frog-leg struts in the Chūdō

The current restoration has restored the mid-18th century colors remaining on the top layer.



LEFT: Parent and child civets, pomegranates CENTER: Fowls and larch tree RIGHT: Qilin and clouds



Colors Restoring period coloration from traces of Edo-period pigment

Konpon Chūdō is decorated with bright colors over a variety of delicate designs. Restoration of the colors was based on drawings made from investigations of the colors remaining on the carvings. First, the remaining pigments were treated to ensure they did not flake off anymore, then the colors were recreated.

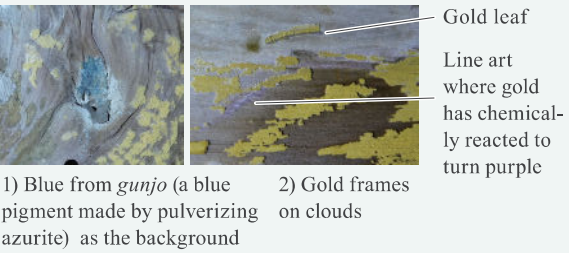
Itashirin (cornice)

Traces of paint from top layer Outline of undulations (clouds)

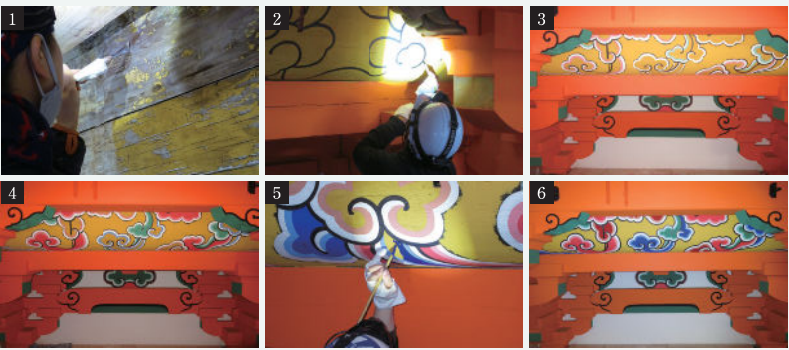


From left: Green from *ryokusho* (a green pigment made by pulverizing malachite), Red-brown from *bengara*, Blue, Vermilion from mercury

Traces of paint from bottom layer



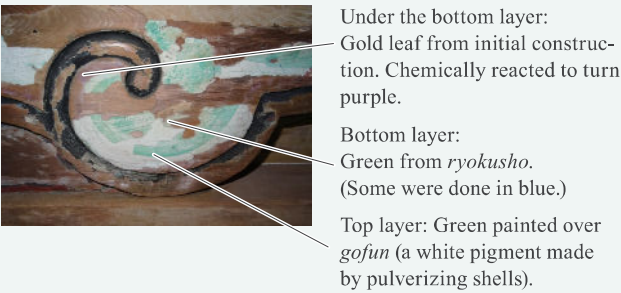
The top layer colors are thought to date from the mid-18th century as the Repair Manifest from then notes that repairs were made. The current restoration has restored the top layer colors. Preparations are being made to restore the flowing clouds and colors based on the traces. The designs on other pillar spaces were used to help fill in uncertain areas. However, the lack of traces on the sides and back means that these cannot be restored.



Repainting the itashirin

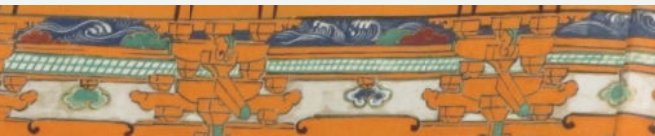
- 1) Preventing peeling
- 2) After applying yellow background color, clouds are outlined in ink
- 3) After light colors applied
- 4) Deeper colors being applied
- 5) Green and blue are finished by applying mineral pigments
- 6) Itashirin repainting completed

Itakaerumata (solid board frog-leg struts) Hanahijiki (flower bracket arms)



Under the bottom layer: Gold leaf from initial construction. Chemically reacted to turn purple.
Bottom layer: Green from *ryokusho*. (Some were done in blue.)
Top layer: Green painted over *gofun* (a white pigment made by pulverizing shells).

Konpon Chūdō shortly after its completion

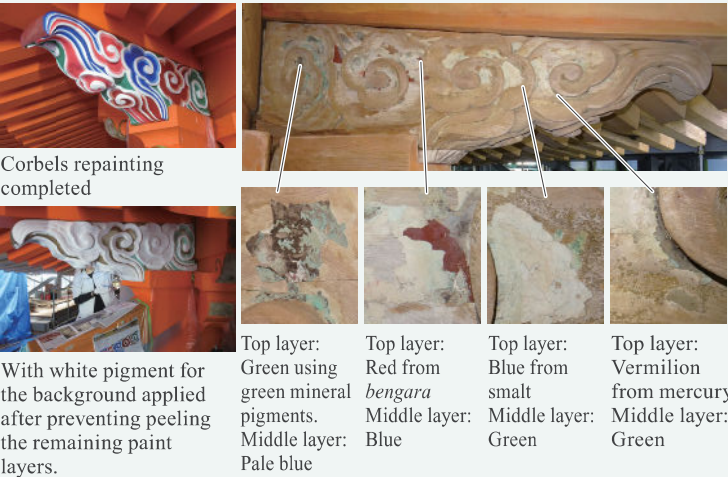


An old illustration of the building shortly after its construction shows clouds done as gold frames on a background of deep blue along the itashirin, which matches the remnants remaining on the bottom layer. The alternating green and blue for the solid board frog-leg struts and flower bracket arms also match the remaining traces.

Repair record for colors		1634-1642	1668-1669	1703-1706	1753-1755	1798	the 19th century	1890	1951-1955
Exterior colors	Itashirin (cornices)	Clouds with gold frames on a blue or green background					Clouds with black frames on a yellow background		
	Hanahijiki (flower bracket arms) / Itakaerumata (solid board frog-leg struts)	Alternating blue and green (with gold frames)					Alternating blue and green (with pale blue/green frames)		
	Corbels	Clouds of unknown color (framed in gold leaf)					Blue and green clouds		
	yuiwata molding	Colored (with gold leaf frames)					Lower-level <i>kobushibana</i> nosing / <i>yuiwata</i> moldings only: colors touched up		
		Colored (with pale red/blue/green frames)					Colored (with pale red/blue/green frames)		

■ Period restored to ● Restoration timing ● Repairs (?) ■ Period restored to

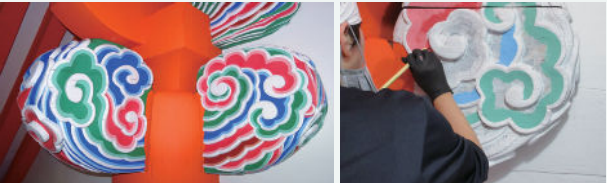
Corbels



Kobushibana nosing

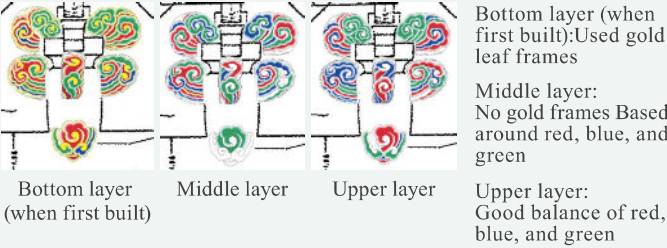


Top layer: Red from *bengara*
Bottom layer: Vermilion from mercury
Middle layer: Green from *ryokusho*



Pale colors applied on a white background

The exquisitely decorated corbels at the four corners of Konpon Chūdō had three layers of pigment. The bottom layer has traces of gold leaf that had turned purple, which shows that gold frames were used when it was first built. The middle layer was based around blue and green, while the top layer had red from *bengara* and blue from smalt, showing the characteristics of mid-18th century coloring. The 1752 Repair Manifest shows repair records, which match the era estimated from the remnants.



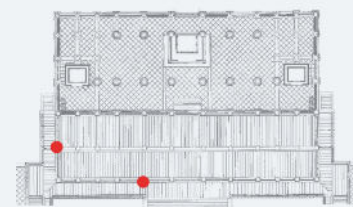
The exquisitely decorated kobushibana nosing and yuiwata at the gable faces of Konpon Chūdō had traces of three layers of pigment. The middle layer in particular retained a lot of color, showing it was not the same as other middle layers, which were touching up colors. The top layer had red from *bengara* and blue from smalt, showing the characteristics of the mid-18th century coloring. The early 18th century Repair Manifest shows repair records, which match the era estimated from the remnants.



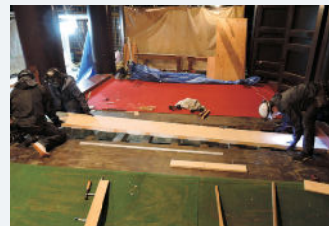
Woodworking

Struggling against the high humidity environment and ingenuity for the rot

Konpon Chūdō's hall is supported by 76 pillars that are all made of *keyaki* (*zelkova serrata*) wood. Each pillar is approximately 65 centimeters in diameter and 7.8 meters tall. *Keyaki* is a strong, durable wood that has long been a highly valued as a building material throughout Japan. Konpon Chūdō's environment is very humid year-round, so pillars and floors are susceptible to rot and damage. To conserve as much of the original wood as possible, only the bottom of each pillar was replaced. The rotted section was then removed, and a new bottom was connected to the pillar like a giant puzzle piece. This preservation work involved replacing particularly rotten sections of two pillars.

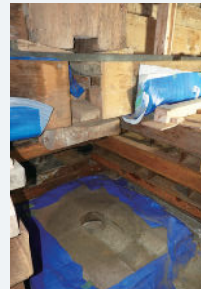


Repaired pillars



Replacing the rotted floor boards

Woodworking process | 01 Removing the rotted sections



One at a time, each pillar was lifted up 6 centimeters off of its foundation using a hydraulic jack. The surrounding structure was also lifted incrementally to prevent the still attached joists from buckling under the strain. Pillar bases have trenches in the shapes of circles or crosses carved into them to allow ventilation. The foundation stones also have ventilation trenches.

Woodworking process | 02 Connecting the new bottom



The new wood used for the replacements needs to be very strictly inspected to ensure that it is fine-grained and has not developed cracks even when fully dried. Replacing all of the rotted pillar sections took 7 months.

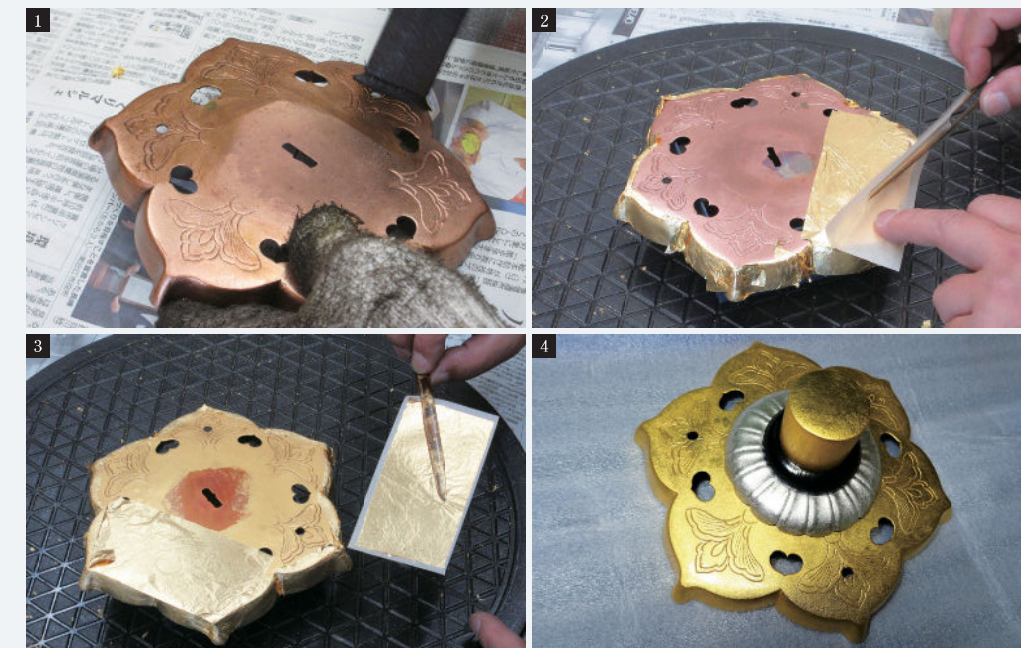


TOP: Fitting before repair
BOTTOM: Fitting after rust removal

Metal fittings

Decorative metal fittings shine again

Many of the decorative metalwork pieces affixed to the tie beams, doors, and railings of Konpon Chūdō's main hall and outer corridor have been damaged or lost to time. Likewise, much of the gold leaf on the metalwork pieces of exterior of Konpon Chūdō has begun to peel off. As part of the restoration process, the metalwork pieces have been carefully removed from the building, cleaned, re-lacquered, covered with a new layer of gold leaf, and reattached—or, if seriously damaged, replaced entirely.



Applying gold leaf

- 1) Lacquer rubbed in to ensure gold leaf adheres. The lacquer blend must be altered based on humidity and work speed.
- 2) Gold leaf is applied. The leaf is only 3 microns thick, so will rip if not picked up along with the paper.
- 3) More lacquer is rubbed in, then the gold leaf is applied. The gold leaf is then brushed to smooth the surface.
- 4) Matched with other parts that have gold or silver leaf applied using this process, or baked lacquer, to complete. Baked lacquer is a technique in which black lacquer is applied to metal fittings, allowed to dry naturally, and then baked at high temperatures.