

Housed & Mortised

Emi Shinmura

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Microscope is Periscope's investigative space for talking, thinking and testing with natural processes. The Microscope 'Slides' are a series of pamphlets that examine our emerging experiments, exhibitions, workshops and talks.

'Housed & Mortised' is an exhibition of Emi Shinmura's prototype stools collection paired with a series of axonometric drawings and a talk introducing Emi's practice and typical Japanese carpentry joints. The exhibition was held over a week in August, 2022

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~ Housed (noun)

'a channel or offset to which another member is fully inserted'

~ Mortise (noun)

'a hole or recess cut into a part which is designed to receive a corresponding projection'



Housed & Mortised

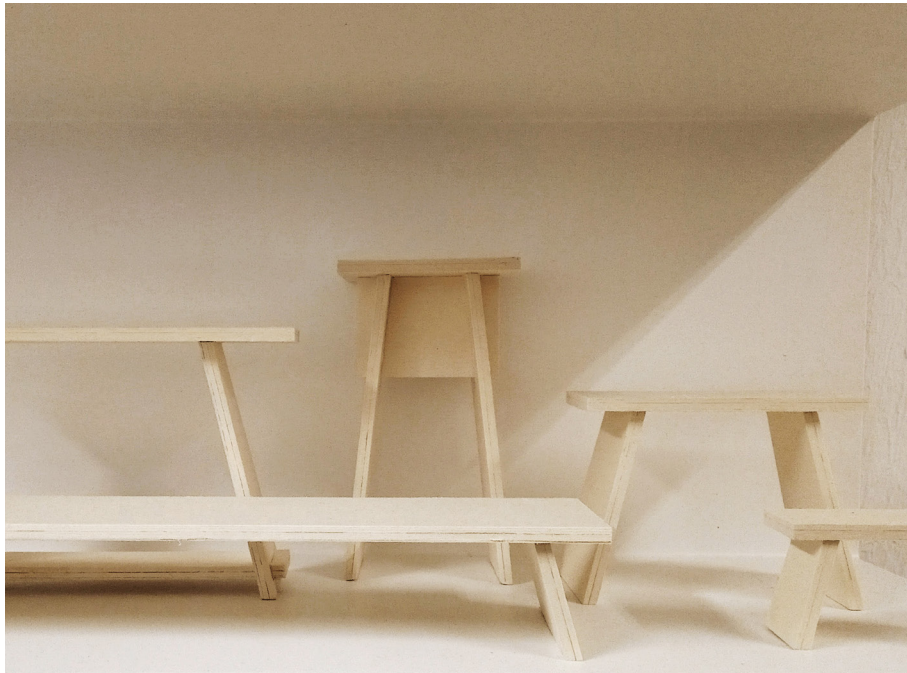
Housed & Mortised is a glimpse into traditional Japanese joinery used in residential architecture. Plus, a personal adaptation to the simple stool through the application of key joinery principles.

Emi embraces design through her woodworking background having spent time timber-framing with her traditionally trained carpenter aunt in Japan and from childhood experiences with her instrument-maker grandfather in the UK. Housed & Mortised is an exhibition by designer and woodworker Emi Shinmura. It is a collection of axonometric drawings of typical Japanese carpentry joints, published in 2021 in an annotated article in Fine Woodworking Magazine. The exhibition comprises A collection of her prototype stools using only wood to wood joinery is also on show, where the concept of utilising the wood as it naturally ages is celebrated.

Emi Shinmura, Woodworker & Designer

Emi Shinmura is an Anglo-Japanese woodworker and designer. She studied at the Royal Danish Academy of Fine Arts and lives and works between the UK, Germany and Japan. Her work has been exhibited overseas, including at the Venice Biennale.

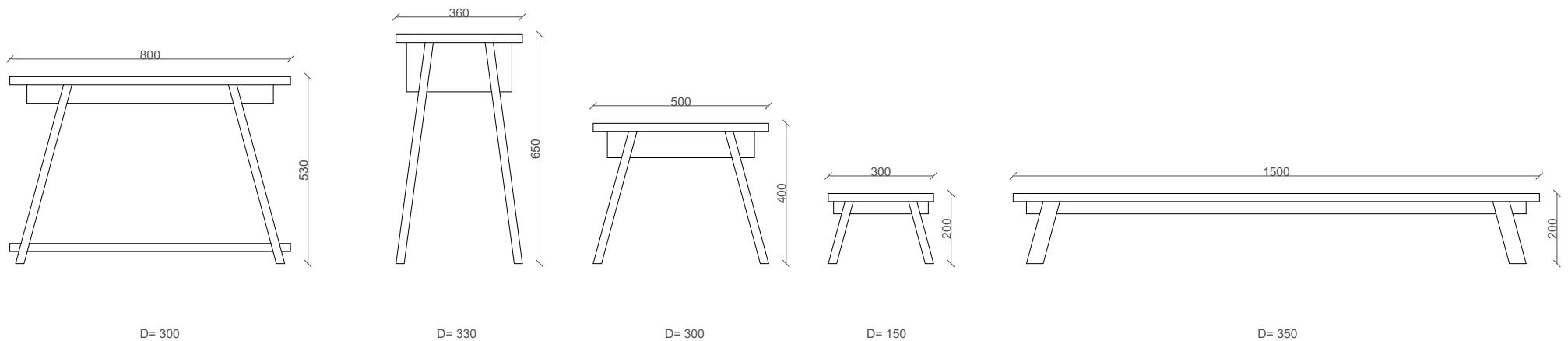
In 2019 Emi embarked on a half-year residency with her aunt Harumi, a well known master craftswoman in the mountains of Kyushu in Japan, where she deepened her knowledge of traditional Japanese carpentry by building a bunkhouse.



Model mock-ups of the stools



Collection of finished stools



“Made of Alderwood, these stools have a slight pink hue to them. They are designed with only tight-fitting wood-to-wood joints; no glue or metal hardware. The horizontal bar under each seat is not jointed to the seat but is held in place by the legs and in turn acts as an extended angled mortise for the legs by being ‘housed’ (a term used to partially insert a beam inside a column). Special care is taken to use the timber in the direction that it grew (where possible) and taking into account the way it will begin to distort or ‘cup’ over time.

“They are designed with only tight-fitting wood-to-wood joints; no glue or metal hardware.”

Newly made, the stools have two flat contact surfaces to the ground (several points are desirable to reduce rocking and to be more versatile on uneven ground), so the expected cupping of the legs will afford four contact

points over time. Cupping of the bathstool seat is desired to arch (rather than cup and retain pooled water) so the heartwood faces upwards to foresee this eventuality. For the stools destined for drier situations the preference for the seats cupping as an arch remains due to gaps appearing at the visible edges but often means a less aesthetic heartwood side of the wood is facing up.”

Description of the work provided by Emi Shinmura

Japanese Joinery in Practice

A rare look at this historic art in today's context

BY EMI SHINMURA



My aunt, Harumi Shinmura, is a traditionally trained residential carpenter working in Japan's western island of Kyushu. She is a guiding figure in my life, and I've been fortunate to regularly learn a sliver of her craft while working on-site with her.

Part of my good fortune is because my aunt practices a disappearing craft, *Toktiza-mi*, hand preparation of timber by craftspeople rather than entirely by machines, is unfortunately not common in Japan nowadays. Most houses are built with material precut in factories, including the joinery;

the carpenter's job is to assemble all the premade parts on-site. Sometimes, though, there are clients who value the quality of the long-established methods practiced by my aunt and others like her.

So was the case with my aunt's recent project, a simple, single-story bunkhouse about 13 ft. by 26 ft. intended for cooking enthusiasts. The whole structure was made with cypress and cedar, which are ideal for Japan's hot and humid climate. Timber buildings in general are particularly good at regulating moisture in these climates and have been developed over

many centuries to survive adverse weather and earthquakes. Traditional buildings in Japan were built with longevity and reparability in mind. With careful maintenance, these buildings can last for centuries. Today, even traditional buildings in Japan, once all wood, are required to have metal fasteners and brackets (much to the despair of some traditional carpenters).

Knowing that my aunt's carpentry knowledge was accumulated through many strict years of observing her master, I'm in a unique position to ask my aunt about her craft, something that is not allowed in a

Photos courtesy of Emi Shinmura

traditional apprenticeship. I feel honored to have a direct glimpse into this world, but it feels somewhat intrusive at the same time.

The following illustrations grew out of working with my aunt on the bunkhouse. To practice layout and conduct self-guided research, I sketched the joints that were used.

The joints in this article are a mix of common, well-understood ones and alterations my aunt made for this particular build. The appearance or complexity of a joint is not most important; instead, its function is foremost. There are numerous variations of a joint type, and the basic types can be mixed and altered depending on the purpose. I often asked my aunt about the construction, and quite often the answer was that her master did it a certain way and she'd adapted it for this build.

Emi Shinmura is a U.K.-based artist and woodworker. To see more of her work, go to Instagram at @emi.shinmura.

OFF-SITE PREP

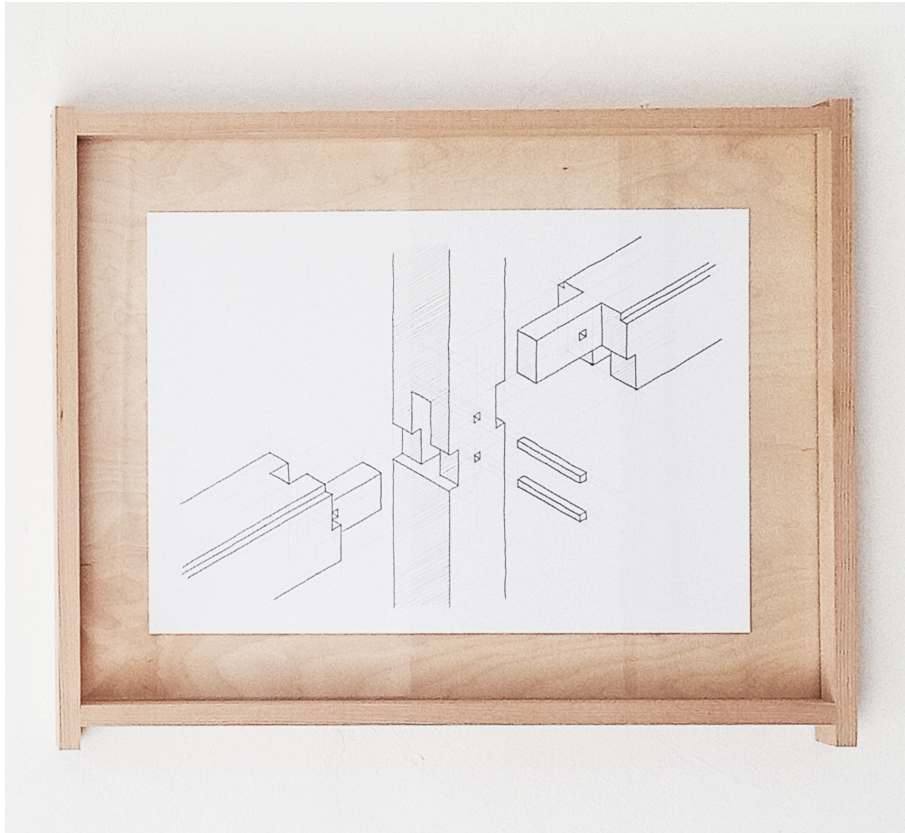
Emi Shinmura and her aunt, Harumi Shinmura, readied their workpieces at the aunt's workshop before taking them to the build site.



Set out to dry. Master carpenters in Japan are traditionally responsible for most of the tasks an architect would undertake in the West as well as all the timber preparation, including the stock, joinery, and construction.



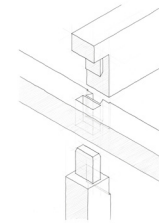
A human touch, but machines still have their place. Modern home-building in Japan, like many other places, has become increasingly mechanized. In contrast, Emi and her aunt got more hands-on, from joinery to finish planing. While they often picked up a chisel, plane, or saw when necessary, the two turned to machines for the more back-breaking efforts, like the many wide and deep mortises.



Typical Joints

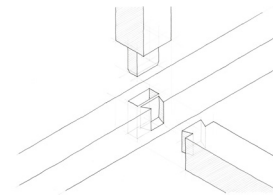
A Study

A selection of six typical Japanese carpentry joints are presented alongside the stool prototypes. These selected joints represent two of the main purposes of complex joinery: to make beams longer, or to attach pieces at perpendicular angles. These are typical construction joints that are utilized in particular scenarios of architecture with the description of their use presented with the drawing.



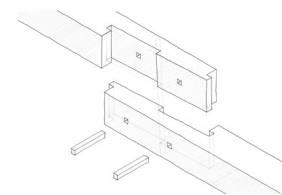
Ooire Kabuto-ari-kake

This is a housed, half-lapped, half blind dovetail joint, very similar to the Koshikake aritsugi. It is used when the transverse beam is particularly large and is used on top of a post. With a column underneath then housing is needed and allows the dovetail to rest on the top of the column.



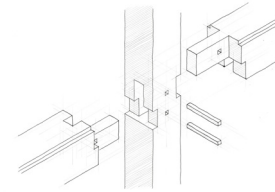
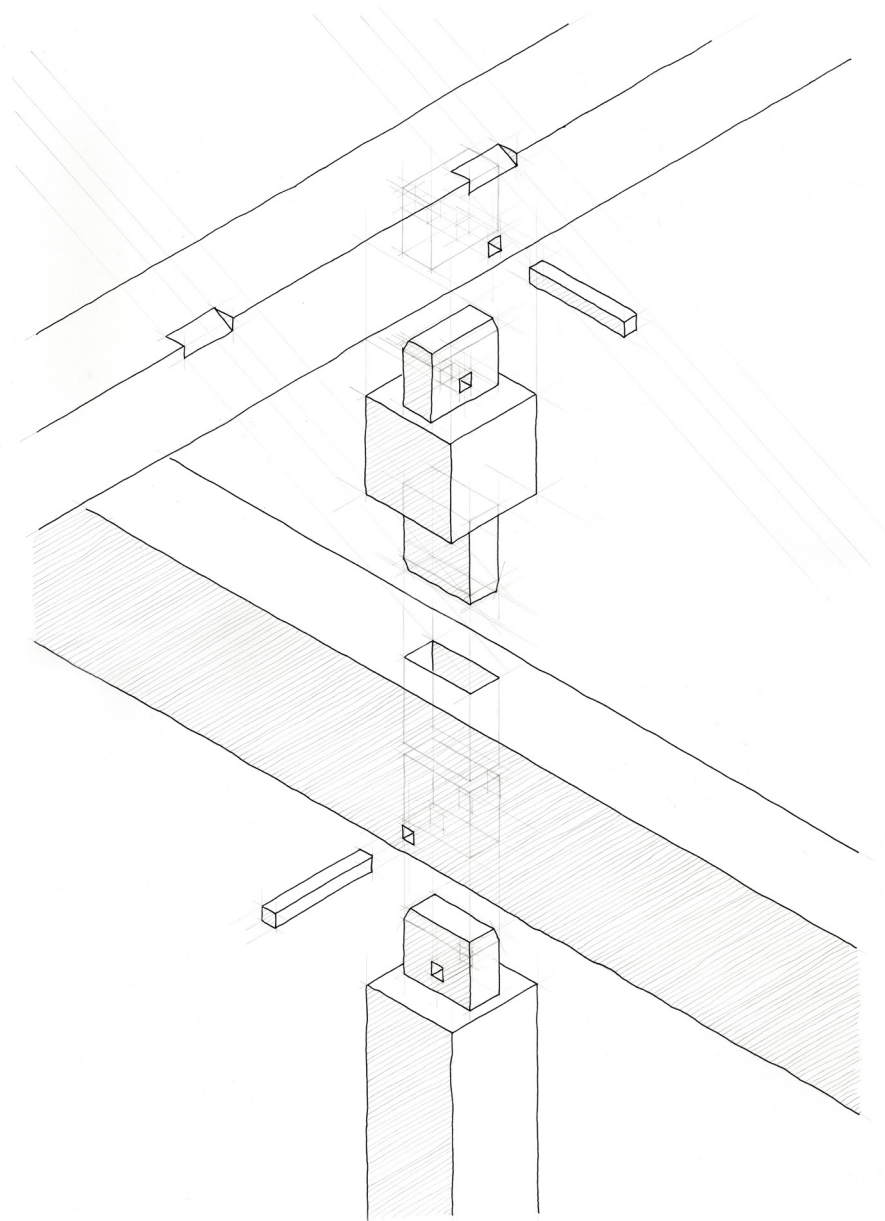
Ariotoshi

The mortised beam sits on a solid foundation wall and the dovetailed beams may be on solid foundations or supported on posts to the ground. The dovetail joints are cut two-thirds from the top surface of a beam.



Okkake daisen tsugi

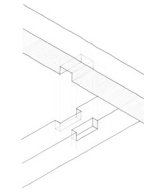
Upper wood slides from directly above into wood below. Because there is no axial shift to install, this is a very suitable joint for installation and repairs between fixed supports or a sill between anchored points.



Right angle joint of the ashikatame beam

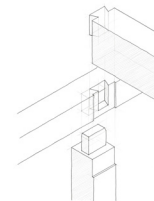
The Ashikatame beam connects all the posts and piers where you don't have a continuous ground sill to support the dead and live loads on the floor. Due to its weakness it is not commonly used and most concrete foundation walls are built to hold all ground sills. The long tenons slide over and past each other increasing contact surface and therefore resistance to twisting.

Watari-ago kake

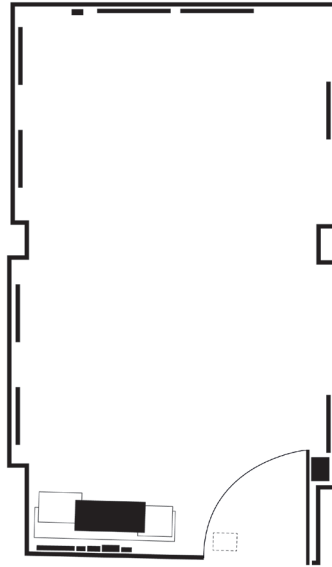


This joint is used for cantilevered beams. It sits one third or less overlapping and in most cases does not produce a flush joint such as the cross lap joint. When a smaller upper beam is crossing over the top surface can be flush.

Ooire ariotoshi



This basically utilises the same joints as at the ground sill, however the dovetail is more commonly housed by around 5mm to take some of the beam's weight off the dovetail. The underside of the cross beam now rests partially on the top of the column.



Housed & Mortised

Joints in space

Driven from her workshop in Berlin to Microscope, The stools arrived as stacked planks of wood. All it took was a hammer, a piece of scrap wood and a few hours for Emi to transform the planks of wood back into stools.

The exhibition comprises of five friction fit alderwood stools that hang in the glass, six drawings of typical Japanese carpentry joints, five kokeshi and five greyboard models of the stools that together contextualize Emi's work in woodworking.

Suspended by fishing wire the nature of the stools display brings the viewer's eyeline fully into the joints of the stools. Typically hidden from view the bottom of the school and the profile of the joints are brought into and above eye-level giving a new perspective to the typical stools.

The exploded-axonometric drawings, accompanied by their frames contextualize the joints while deconstructing their interlocking parts. The sill of the shop frontage exhibits the test models, also held together by a friction fit. Whereas the back wall has small sculptural Kokeshi made in the proportions of the stools. These Kokeshi are inspired by Emi's sculptural series made in response to a dovetail offcut during her time in Japan.



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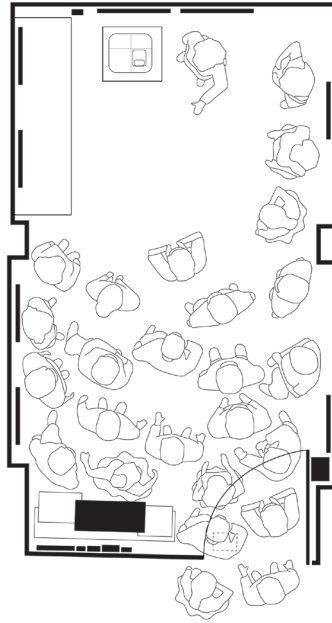
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Underside of the small bathstool



Detail of the stool's joint



Emi's Talk

Emi Shinmura's talk took the listeners on a journey from the mossy garden of her aunts workshop in Kyushu, a pergola in Battersea to her prototype stools made in a workshop in Berlin.

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Inviting us into some of the knowledge that Emi has gathered through her practice and time working for her aunt in Japan.





Housed & Mortised

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