

Machiya: The Traditional Townhouse of Kyoto

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Abstract: Cities, particularly Kyoto, are characterized by the machiya style of traditional Japanese architecture. The majority of machiya dwellings' exterior construction is constructed of wood, and it has a simple, symmetrical design. They are slender and long.

The inside of a Machiya house is defined by an open central courtyard that allows natural light and air to flow throughout the building.

The living spaces are organized around the courtyard, and sliding doors and partitions allow for flexible use of the space. Multiple generations of a family are typically housed together in multigenerational homes, or machiya homes. Typically, the family uses the first floor of the house as a store or restaurant for commercial purposes. The top levels, which are classified as living spaces, have bedrooms and living areas that are accessed via a little stairway.

I. INTRODUCTION

Two prominent types of Japanese houses come to mind when we discuss Japanese homes prior to the impact of the west during the Meiji Revolution period beginning in 1868. One is a Japanese house of the Shoin style that was used by aristocrats and warriors to live in and is surrounded by fences. The subject of this study is another, which is a grid townscape of mostly two-story wooden dwellings called machiya (town houses) bordering on both sides of the roadway in the historic capital. This was the district's scenery during the Edo period, when all the town's regular citizens lived (1615-1868).

The introduction of the grid townscape, which dates to the time when feudalism first emerged in Japan, forced the construction of all townhouses within a lengthy, constrained area. They carefully considered how to arrange the spatial layout in the constrained space.

Moreover, townhouses with retail shops and workshops combined with their own residential dwellings were built in the Kyomachiya during the Edo period to fit their way of life and the rapidly expanding Japanese economy.

A kyomachiya is defined as

A type of machiya known as a kyomachiya was predominantly built in the former capital of Kyoto in the 17th century, the Edo period. It is a wooden townhouse that is long and narrow. At that time, Kyoto was known as Heian Kyo. Machiya probably started off as row dwellings built for the less privileged. Officials, craftspeople, and laborers in Japan's early capital cities. Machiya, which were shophouses used for both residential and commercial purposes, first appeared on the main street under some Chinese influence. Shops have expanded to reflect Japan's quick economic growth as the machiya's common facade. Single-story machiya were transformed into double-story townhouses, with the lower height of the top level being used for interior living space.



Fig 1

Typical double-story Kyomachiya with shop as a frontage

What are the planning characteristics of an authentic Kyomachiya?

- Kyomachiya were townhouses with a linear layout and a timber frame.
- In Kyomachiya, artisans and traders resided and conducted business.
- dwelling quarters and workshops in the back of shops.

- The servants' and children's apartments of a double-story Kyomachiya were on the upper floor.
- The double-story façade is dominated by a projecting window with a timber degoshi lattice made of thin vertical bars.
- A sizable wooden sliding door with a little wicket intake serves as the primary entrance (odo).
- Located on the ground level facade, the entry is shielded by a cantilever pent roof. (hisashi).
- All of the wood panels are covered in translucent paper to permit natural light into the dark, claustrophobic interior.
- The flexibility of the room's use will determine whether the facade is open or closed.

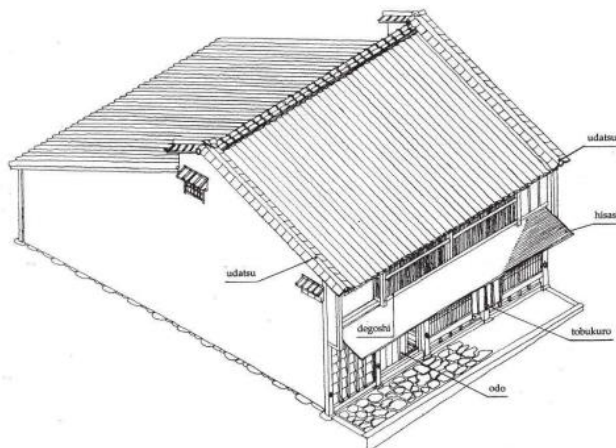


Fig 2

An example of a classic Kyomachiya facade is Takizawa House in Kyoto.

A path-like earth-floor area serves as the entrance and rear of Kyomachiya, which was divided into two zones on the floor plan. A timber floor rises above the ground level in the other parts, which are the shop and the residential quarters. The living room's floors are covered with tatami mat modular units that are roughly one by two meters in size. Tatami mat usage established the order of the areas since the more significant the space, the larger the size, and the more tatami mats were utilized.

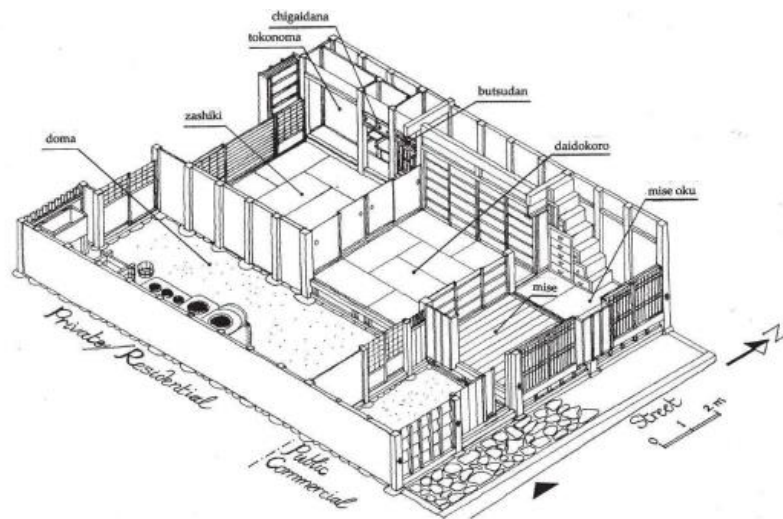


Fig 3

Takizawa House in Kyoto, seen in isometric perspective, has a typical Kyomachiya spatial arrangement.

3. What elements influence the physical design of a traditional Kyomachiya?

The townscape of old Kyoto during the Hei-an period had a significant impact on the spatial layout of conventional Kyomachiya. The capital was divided into two symmetrical towns, with the townscape developed in accordance with a grid street plan layout "kyo" and "Ukyo" are connected by the central "Suzaku Boulevard." The emperor's palace and other imperial buildings are accessible via the central axis route "Heian-road kyo's construction was planned to use a grid street layout based on the Jo-Bo Zone scheme. The grid street plan pattern has served as the foundation of city construction ever since. History of the Development of Kyoto's Historical Scenic Beauty) Said that the grid townscape from the Hei-a period has had a significant impact on the Kyoto cityscape even now.

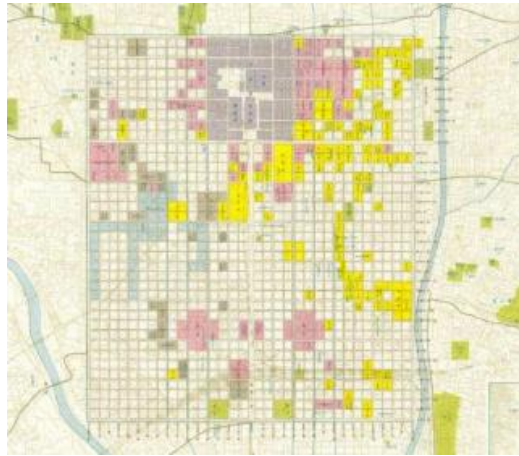


Fig 4

During the Heian period, Kyoto had a grid-like.



Fig 5 A "Cho" was divided into small blocks with a width of 4 and a length of 8 to 32 using the Jo-Bo Zone system.

Also, the arrangement of Kyomachiya in "Cho" changed from the traditional Jo-Bo Zone system, where Kyomachiya exclusively faced the east and west sides, to the Ryogawa-cho, where every Kyomachiya faced the street, which was the new center of the "Cho," and had a back garden facing inwards. Due to the high property taxes, each Kyomachiya had a relatively small frontage, which made the building long and thin to fit the residents deep inside the homes while keeping their stores neatly placed on both sides of the street.

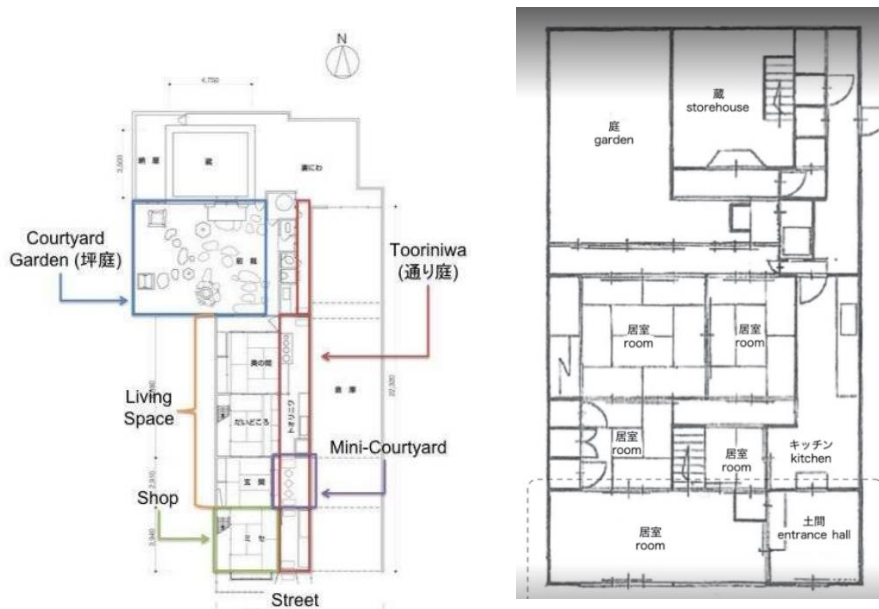


Fig 6

Ryogawa-cho system's Kyomachiya spatial arrangement

Case study of traditional machiya

The case study is based on a two story, historically significant Machiya in the Nishijin district. (Nyunt, 1978). The house was virtually untouched for a long time, but after being vacant for a while, it started to significantly degrade.

We can see that there is a living core made up of the meals breakfast, lunch and dinner that are grouped with the activities work, play and study in cluster B.

The activities that take place in this area (aside from leisure time) constitute the core, which is connected to the remainder by sliding panels.

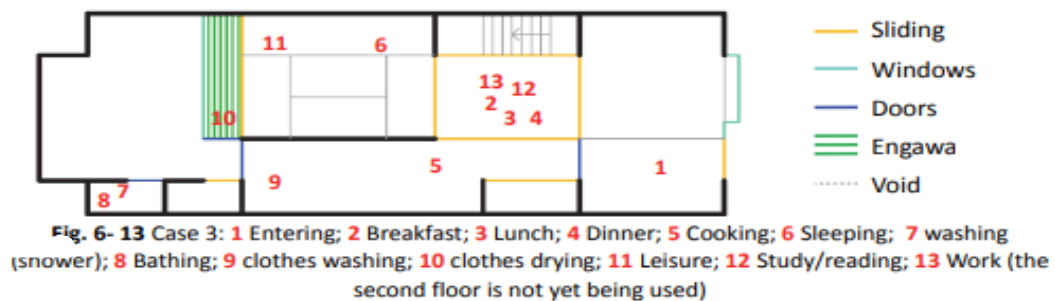


Fig 7 Plan of Machiya

**Fig 8****The Town House's exterior****Fig 9****The Town House's interior**

Cooking is also included with clothes washing and drying, even though it is closely related to this core activity (in Machiya, these activities would be considered less formal than leisure, study, or work-related activities).

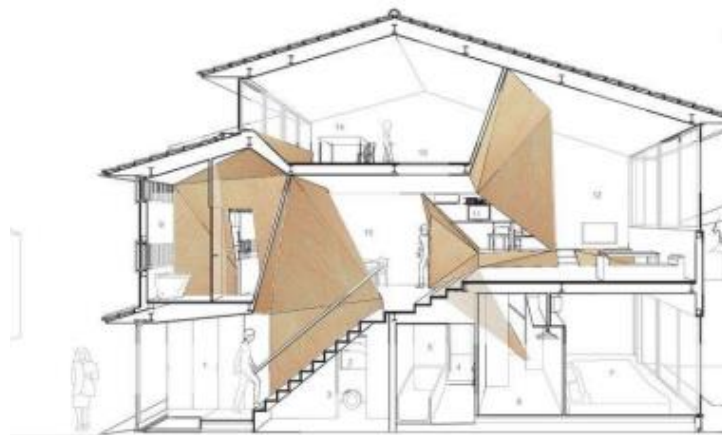
Machiya, as we can see from the entrance connected to the cooking area, the latter connected with a void to the clothes washing area, and with sliding panels to the living core (although we can still see that there are many activities taking place in the same space as not all of the rooms are yet ready for use).

How has New Kyoto Town House modified it?

Like the other traditional Kyomachiya, New Kyoto Town House is a residence situated on a small site in the heart of Kyoto. Traditional Kyomachiya line both sides of the street in this location.

The New Kyoto Town House has adopted the traditional shape and composition of the traditional Kyomachiya by having a linear flow space from the front to the rear due to the landscape regulation and the physical surroundings of the neighborhood. The order of the spaces, from the front public space to the rear most essential and private space, was still intact.

By experimenting with the height of the areas and their spatial arrangement, the New Kyoto Town House has managed to achieve three-story spaces in only double-story height.

**Fig 10****The New Kyoto Town House's exterior****Fig 11****The New Kyoto Town House's cross section**

In the layout, the main entry leads one up some steps into the family's living room, which has a view of the backyard courtyard through some sizable windows. The location where the guests are served is located here. The dining area and open concept kitchen are connected to the living area, which descends to the bedroom, which is the most private space. The most private bedroom is oriented towards the back of the house, providing the best view of the back courtyard. The bedrooms and study areas for the kids will be on the upper floor.

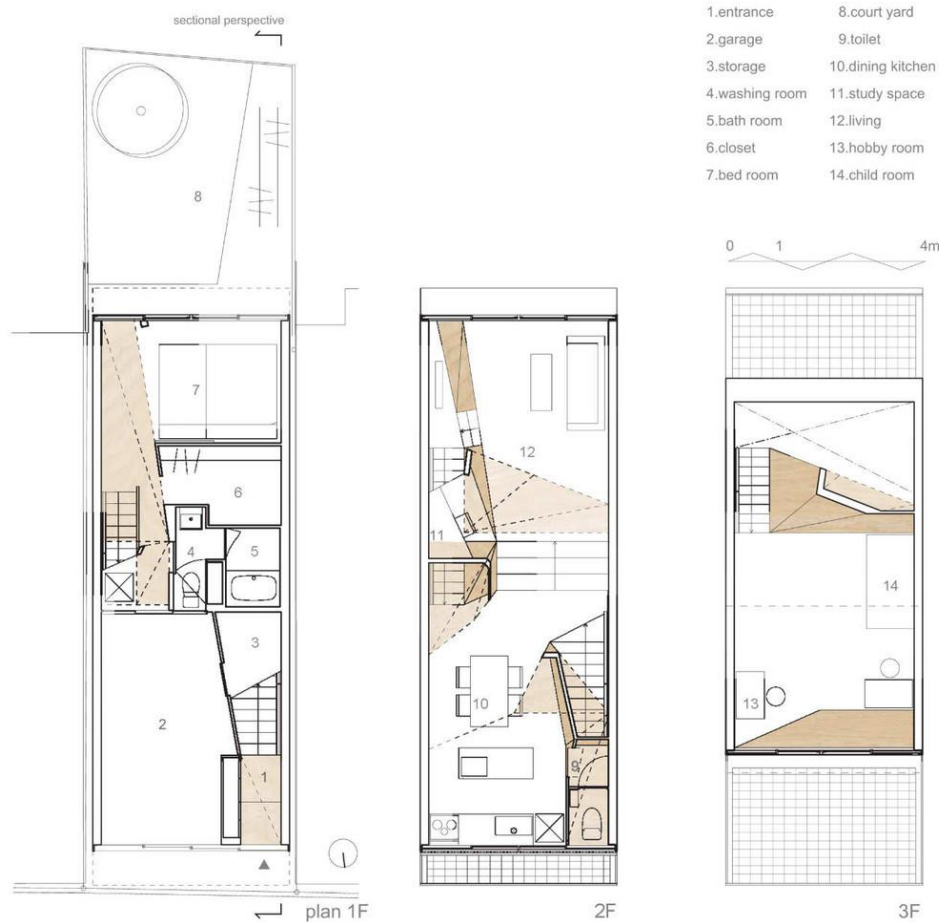


Fig 12

The three-story New Kyoto Town House's floor plan

What are the similarities and differences between the traditional Kyomachiya and the Modern Kyoto Town House's floor plan?

1. The linear flow spaces of the New Kyoto Town House and historic Kyomachiya feature comparable floor designs.
2. To work within the confines of the site, the New Kyoto Town House modifies the traditional Kyomachiya's linear spatial design.
3. There are not many spots on the long, narrow site.

4. Maintaining the hierarchy of areas, the public space faces the front street, while the bedroom faces the back courtyard.
5. In this form, the usual idea that a space gains significance as a building gets deeper still holds true.
6. There were a few changes made to the conventional spatial layout.
7. To better reflect on the times, changes were made.
8. The traditional idea of a shop has been replaced by the front garage because the building no longer needs a facade for commercial uses.
9. The traditional zashiki bedroom has been changed into a truly private chamber.
10. Instead of the bedroom, the visitor is shown to the first floor living space.
11. Views of the gorgeous courtyard garden may be seen through the living room's large windows.
12. In a traditional Kyomachiya, the living room offers guests the same level of comfort as the zashiki.



Fig 13 Stairs leading to the living area on the first level, facing the main door.



Fig 14

The kitchen and eating area were next to the living room.

How machiya benefits Japan's varying climate

Over the years, Machiya architecture has changed to accommodate Japan's unique climate, which is distinguished by hot, muggy summers, chilly winters, and a high frequency of earthquakes.

Machiya homes contain a few measures that help keep them warm in the winter and cool in the summer to solve these issues. For instance:

- Machiya homes' constrained design allows for cross-ventilation, which helps to cool the interior during the sweltering heat.
- Translucent paper used on the windows and doors allows some natural light to enter while maintaining a cool interior and shielding it from direct sunshine.
- The house is shielded from the sun and snow and rain by the roof's broad eaves.
- It is typical for Machiya homes to have a central courtyard that serves as both the occupants' personal outdoor space and an open area for ventilation and natural light.

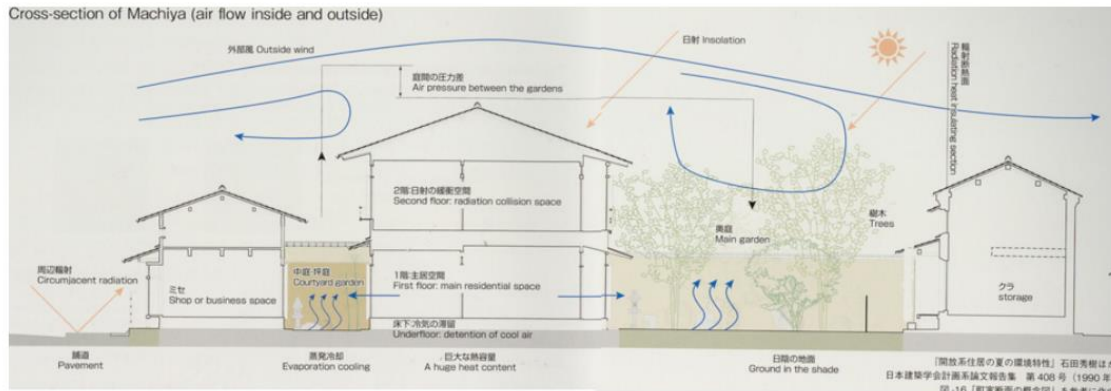


Fig 15

Cross section of machiya showing ventilation

What if machiya townhouses being built in india?

- Machiya houses are conventional timber townhouses that have changed through the years to accommodate Japan's unique environment.
- If Machiya homes were constructed in India, they wouldn't be able to fully adapt to the environment and would need to be adapted to fit the region's particular needs.
- Sikkim is a place where Machiya-style homes could be constructed, but there are several things to consider first.
- To begin with, the climate in Sikkim differs from that in Japan, thus the design and materials used to build homes in the Machiya style would need to be modified to accommodate the local climate.
- Finally, it is crucial to consider the environmental impact of building new structures in Sikkim, particularly in terms of the use of natural resources and the impact on the ecology of the area.
- Sikkim has a temperate climate with cool summers and cold winters, as well as high levels of rainfall throughout the year. The houses would need to be able to withstand these conditions.
- It is feasible to construct Machiya-style homes in Sikkim, but doing so would necessitate careful planning and environmental alterations.

Conclusion

- While maintaining the traditional culture and way of life of the Japanese people, new technology has successfully translated the traditional spatial layout of Kyomachiya into the modern design of New Kyoto Town House.
- Materials and construction methods have been modified to solve the limits of conventional Kyomachiya without losing spaciousness.
- Due to this, historic cities now have a fresh, exciting way of life that is unrestricted by the past.
- Northeast India can adopt machiya-style dwellings with careful planning, the use of environmentally friendly products and techniques, and environmental adaptation.
- They might not, however, be able to properly acclimatise to the regional climate of Indian states.
- The stable economy of Japan has made it possible to combine public and private areas of various heights into a single area, creating a more cosy and roomy living environment appropriate for the kind of life that the Japanese people currently lead.

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