Wisdom of Traditional Japanese Homes Lives on Today

A Hint for Your Smart and Tasteful Living

Wisdom of Traditional Japanese Homes Lives on Today

From ancient times, the Japanese houses have been built with wooden frames including elements such as columns, groundsills and beams, mud walls coated with finishing materials and roofs with thatch, wood boards, bark, or tiles. Regional architectural styles utilize an abundance of natural materials produced and processed locally, and are passed on from generation to generation.

Looking over the exterior of the homes, you will see that roofs are sloped and have overhanging eaves. Because Japan gets a lot of rain, it is essential to take measures to prevent damage to wooden structures from penetration by rainwater. The sloped roofs swiftly drain off rainwater and the overhanging eaves protect external walls from rain. Those eaves also effectively shield the external walls from strong sunlight in summer. Large windows between columns and beams allow wind and outdoor air to enter the house as well as sunshine. These eco-symbiotic techniques which wisely control and utilize the local climate may also be applicable to today's housing. We should furthermore re-evaluate these measures especially now that energy demand restriction has become a critical problem.

Inside of the house, you will find some Japanese-style rooms with grass mat floors, a wood-floor veranda which serves to connect the inside space and the outside, an earthen floor hard-packed with plaster or concrete, and spaces with wooden floors, each of which had its own function. Japanese-style rooms were used to entertain guests or as a living room for the family. Rooms with earthen floors were used for kitchens works and for work related activities such as repairing farming/fishing equipment. It was indispensable to have all of these-functions integrated into a single housing unit in those days, but is no longer required for modern living. However, when we imagine the people's lifestyles and various activities carried out in the house in those days, it is conceivable that this integrated functions of a house considerably contributed to adding tastefulness and profoundness to their daily lives. It may therefore be worthwhile to re-evaluate these functions and to explore the possibility of adopting them to modern housing and lifestyles.

In olden days, various techniques and innovations were incorporated in houses to make them last long, self-sustained in the region, and comfortable to live in, while accommodating diversified lifestyles. The booklet "Wisdom of Traditional Japanese Homes: A Hint for Your Smart and Tasteful Life" revisits building techniques and styles of living of the Japanese traditional homes offer, while introducing some ideas and techniques that may be applicable to modern residential architecture.

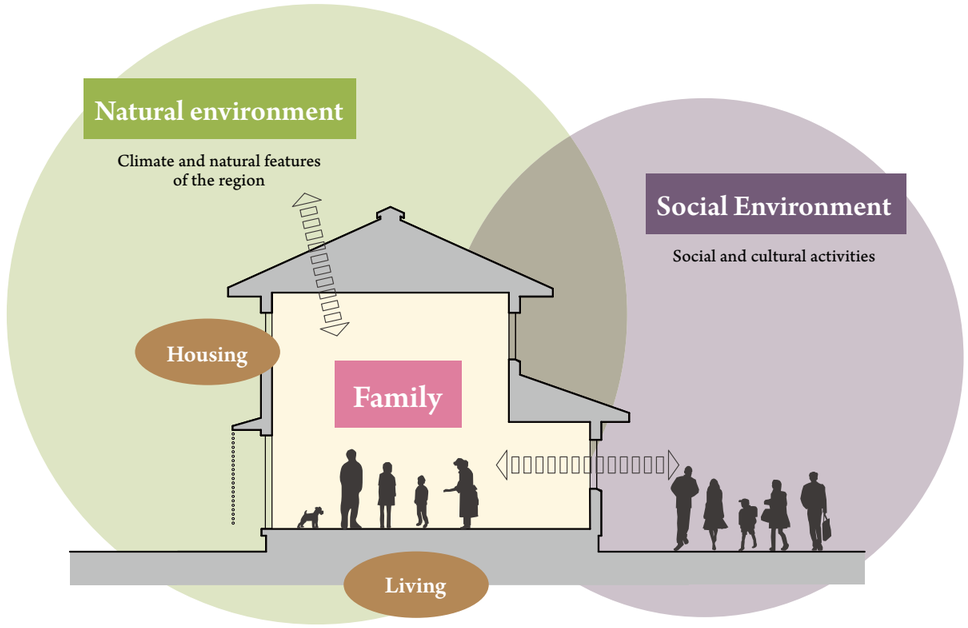
Sloped roof with tiles (Toyama Prefecture)

Overhanging eave, veranda and sweep-out door (Kumamoto Prefecture)

Adjacent Japanese-style rooms partitioned by *fusuma* and *shoji* sliding doors (Yamagata Prefecture)

Objectives of Residential Architecture

Japanese homes and lifestyles have evolved in harmony with the natural environment of each region and also correspond to changes in social conditions and family relationships. Revisiting traditional residential architecture and lifestyles formed in close relationship with the natural, social and family environments may offer some ideas and designs that can be integrates into modern residential construction.



Nature/Society/Family Surrounding our House and Living – Unvarying in the Past and Present

Based on the history of the Japanese houses developed and used in close relationship with the natural, social and family environment, we have identified the following 4 items as the objectives of residential architecture.

Objectives of Residential Architecture

- **To facilitate sound human relationships**
- **To enjoy everyday lives**
- **To support comfortable and eco-friendly living**
- **To protect against the external environment**

Elements of Japanese Homes

The four objectives of modern residential architecture require management of two aspects. One is a hard aspect, including type of structure, materials and design; the other is a soft aspect including maintenance and management of the house.

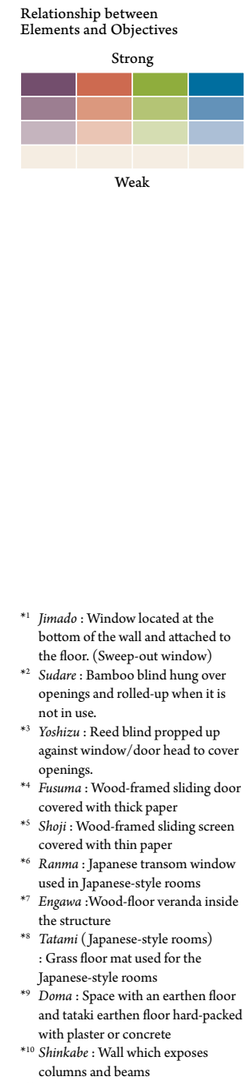
For the hard aspect, we have identified 36 building elements of the Japanese housing shown in the following photographs. The items presented here were selected from a wide range of traditional and modern residential architecture.

The following matrix table shows the relationship between elements and objectives of Japanese residential architecture. In order to achieve the objectives of construction, it would help to select from the table the elements which correspond to your objectives and adopt them for your house.

We invite you to use the table to identify the elements that will help you realize ideal home for you.

Relationship between Elements and Objectives of Japanese Residential Architecture

Elements of Japanese Architecture			Objectives of residential architecture: To facilitate sound human relationships	
			Entertain guests	Family members watch over each other and grow together
	Roof/Eave	Sloped roof		
		Tiled roof		
		Monitor roof		
		Large-Projection Eave		
	Exterior wall	Board wall		
		Plaster-coated wall		
	Opening	High Window/Sylight		
		Jimado[*1]		
		Sweep-out door		
		Window eaves		
		Sunshade (*Sudare*[*2]/*Yoshizu*[*3])		
		Lattice	■	
		Sliding storm doors		
	Interior doors & windows	*Fusuma*[*4]		■
		Sliding door		■
		Shoji [*5]		■
		Ranma[*6]		
	Interior space	Adjacent rooms	■	■
		Engawa[*7]	■	
		Entry Hall	■	
		Open ceiling space	■	■
	Floor	*Tatami* [*8]		■
		Wooden-floor rooms		■
		Doma[*9]	■	■
	Interior design	*Shinkabe*[*10]		
		Central pillar		■
	Interior cultural fixtures	*Tokonoma*[*11]		
		Family Buddhist/Shinto alters		
		Irori [*12]	■	■
	Materials	Mud wall		
		Natural/local materials		
	Outdoors	*Nure-en*[*13]	■	■
		Tsubo-niwa/naka-niwa[*14]		
		Planting	■	
		Front garden	■	
	Layout	Layout	■	



*1 *Jimado* : Window located at the bottom of the wall and attached to the floor. (Sweep-out window)
*2 *Sudare* : Bamboo blind hung over openings and rolled-up when it is not in use.
*3 *Yoshizu* : Reed blind propped up against window/door head to cover openings.
*4 *Fusuma* : Wood-framed sliding door covered with thick paper
*5 *Shoji* : Wood-framed sliding screen covered with thin paper
*6 *Ranma* : Japanese transom window used in Japanese-style rooms
*7 *Engawa* :Wood-floor veranda inside the structure
*8 *Tatami* (Japanese-style rooms) : Grass floor mat used for the Japanese-style rooms
*9 *Doma* : Space with an earthen floor and tataki earthen floor hard-packed with plaster or concrete
*10 *Shinkabe* : Wall which exposes columns and beams
*11 *Tokonoma* : Japanese style alcove in Japanese-style rooms
*12 *Irori* : Open fireplace made by cutting away part of the floor
*13 *Nure-en* : Open veranda made with wood or bamboo
*14 *Tsubo-niwa/naka-niwa* : Small courtyard

Roof/eave

Sloped roof

勾配屋根 *Koubaiyane*

Because Japan gets a lot of rain, sloped roofs are used to swiftly drain off rainwater.

Sloped roofs quickly drain off the rain to make roofs more resistant to rainwater. (Oita Prefecture)

The roofs are covered by metal and a snow dividing ridge attached to the top of the roof so snow does not accumulate. The sloped roofs are well harmonized with the landscape of mountain range. (Toyama Prefecture)

Roof/eave

Tiled roof

瓦屋根 *Kawarayane*

The history of Japanese roof tiles dates back to Asuka Period (550-710 AD). The tiles fit the climate and natural features of Japan and are considered to be a desirable roofing material offering durability as well as beauty.

Roof range with beautiful roof tiles (Yatsuo, Toyama Prefecture)

Unique scenery of the region with the locally produced red roof tiles (Iwami, Shimane Prefecture)

Roof/eave

Monitor roof

越屋根 *Koshiyane*

A monitor roof is a small roof built on the top of the main roof which was originally developed to allow smoke from the open hearth and cooking stove to escape. It is still cleverly employed in modern architecture.

Beautiful landscape created by monitor roof

Gentle sunlight through the monitor roof window

Roof/eave

Extended eave

深い軒 *Fukai-noki*

Homes are provided with extended eaves to protect external walls from rainwater as well as to shut off the sunlight in summer.

Extended eaves protect exterior walls from rainwater. (Yamagata Prefecture)

Beautiful scenery with shade created by large eaves (Minamata Eco-House, Kumamoto Prefecture)

Exterior wall

Board wall

板壁 *Itakabe*

A board wall is an exterior finished material originally used to protect the painted surface of the external wall from wind and rain. The boards can be mounted in the form of wood siding or vertical paneling.

External wall finished with plaster coat at the top and boards on the bottom where the wall is exposed to rain.

Partially replaced boarding and repainted so the repaired part is not conspicuous. (Washima, Niigata Prefecture)

Exterior wall

Plaster-coated wall

漆喰壁 *Shikkuikabe*

The plaster used for the Japanese houses primarily consists of calcium hydroxide (slaked lime). It may be used for interior walls as well as exterior walls.

Plaster coated wall of a traditional Japanese house

Plaster coated interior wall produced by skilled plasterers.

Opening

High window/ skylight

高窓・天窓 *Takamado/Tenmado*

Windows are placed in the upper part of walls while a skylight is mounted in the ceiling. These are effective for providing light and ventilation while letting heat escape.

High windows and skylight provide lighting and ventilation for earthen floor rooms in a traditional townhouse

High windows mounted in the upper portion of inner opening in a room with a normal ceiling height

Opening

Jimado window

地窓 *Jimado*

A *jimado* is a window mounted low in the exterior wall attached to the floor. It provides lighting, ventilation, and enables you to see outside.

Opening facing a small courtyard in a traditional townhouse

Jimado window to provide ventilation

Opening

Sweep-out window

掃き出し窓 *Hakidashimado*

A sweep-out door opens outward from the floor up to the lintel (covering the inner size). Sweep-out doors enable you to enter or exit each room. There are several types of sweep-out doors, such as double sliding doors and retractable doors.

Sweep-out doors enhance connected feeling between inside and outside in a traditional Japanese house.

Fully opening retractable sliding doors enhances the feeling of continuity of the living room, the external deck and the garden.

Opening

Window eaves

窓庇 *Madohisashi*

Window eaves are mounted above each window to keep out rainwater and sunlight, especially when there is no roof above the window, or the roof eaves and verge are too small or mounted too far from the window.

Window eave mounted above window on the gable side

Window eave above sweep-out doors mounted in wall without an eave

Opening

Sunshade

日除け *Hiyoke*

Sunshades are made of reed or bamboo strips woven with strings or thin ropes. Hanging sunscreens outside windows or under eaves screens sunlight.

Sunscreen hung under an eave; would be more durable if hung a little more inward.

Hooks attached underneath the eaves to hang sunscreens.

Opening

Lattice

格子 *Koshi*

A lattice is made by assembling thin wooden strips vertically and horizontally. Lattices are attached to the building exterior or windows/doors. Lattices function to keep people outside from seeing in, while allowing air and light to get in.

In this traditional townhouse, the lattice was set to keep people outside from seeing in.

When lattice doors are closed, one can see from inside but cannot be seen from outside, while allowing ventilation and cutting glare of sunshine.

Opening

Sliding storm doors

雨戸 *Amado*

Wooden doors are mounted outside openings to protect them against wind and rain. Some modern houses have shutters and movable louvers instead of wooden storm doors.

Wooden sliding storm doors of a typical traditional house

Movable louver type sliding storm doors

Interior Doors & Windows

Fusuma sliding doors

襖 *Fusuma*

Fusuma is a wood-framed sliding door which is lined with thick paper and then covered with paper or cloth. *Fusuma* offer a variety of components such as covering paper, lining paper, a frame, and door pulls.

Retractable-type *fusuma* (with a pocket)

Contemporary use of *fusuma* in modern living

Interior Doors & Windows

Sliding doors

引き戸 *Hikido*

Sliding door is a generic term for doors which open/close by sliding them horizontaly. The types and the specifications vary significantly, such as a single sliding door, double sliding doors, board door and lattice, etc.

Wood board sliding doors for partition in a traditional house

Interior doors which incorporate muso (window made of narrow boards connected on two rails each of which slides for opening and closing) on the top for interior ventilation

Interior Doors & Windows

Shoji

障子 *Shoji*

Shoji is a wood-framed sliding door or window covered with thin paper. Depending on the assembly technique and the proportion of the wooden frame, it can create a variety of design features, including the Japanese style and Western style.

Yukimi shoji elegantly keeps people outside from seeing in

An example of using *shoji* in the Western interior design.

Interior Doors & Windows

Ranma transom

欄間 *Ranma*

Ranma is a Japanese transom or an ornamental screen mounted between the ceiling and lintel. *Ranma* used to located above *fusuma* or *shoji* in Japanese-style rooms. *Ranma* are however sometimes used above swinging doors in Western-style rooms.

Traditional *ranma* above *fusuma* in traditional residence

Ranma that closes to control ventilation

Interior space

Adjacent rooms

続き間 *Tsuzukima*

Large Japanese-style rooms can be divided by *fusuma* sliding doors, or can be restored to a large room whenever necessary by just removing the *fusuma*. A combination of Japanese-style room attached to the Western-style room has recently become popular. This type is included in this booklet.

Japanese-style room partitioned with *fusuma*

Tatami grass mats on the portion close to the Japanese-style room give a unified feeling to the two adjacent rooms.

Interior space

Engawa wood floor veranda

縁側 *Engawa*

Engawa is wood floor veranda running separating main rooms from the outdoors. *Engawa* verandas serve as a passage to and from the main rooms and supplementary spaces to the main rooms. Unlike *nure-en*, *engawa* verandas are located inside the structure.

Engawa veranda connecting room and garden provides a solemn atmosphere in a traditional house.

Engawa veranda facing Japanese-style room in a modern home

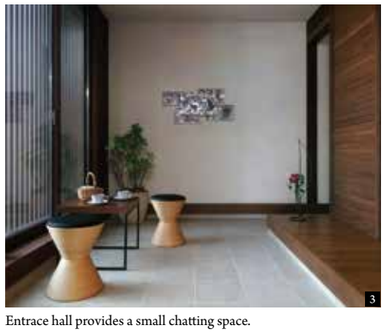
Interior space

Entry hall

玄関 *Genkan*

This is a main entry hall of a house. Compared to older houses, the space has generally been reduced today but we now see many unique fixtures in the entry hall such as a storage and a small reception space.

Entrance hall covered by tatami mats so that the family can sit and receive visitors.



Entrace hall provides a small chatting space.

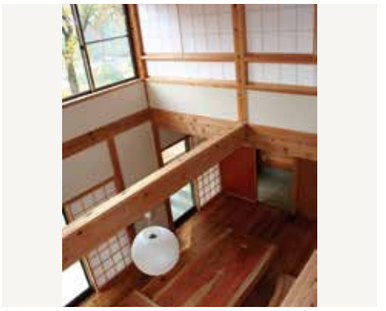
Interior space

Open ceiling space

吹抜け *Fukinuke*

An open ceiling provides a high ceiling extended over two floors in height. It provides a link between the upper and lower floors and facilitates circulation of air in the house.

Open ceiling space above a walk-through earthen floor a townhouse provides lighting and ventilation.



Open ceiling space provides the entire house with a sense of continuity.

Floors

Tatami (Japanese-style rooms)

畳 *Tatami*

Tatami is the representative floor finish material for rooms of a Japanese-style house. It was originally made with straws for the base mat (*tatami-doko*) and rushes for the covering (*tatami-omote*). *Tatami* is a natural product that effectively controls moisture.

The *tatami* room is facing the wood floor on two sides partitioned with Shoji doors which can open three quarters of each opening. This enhances the sense of continuity and unification of the entire space.

A half-size *tatami* mat without the edge covering provides a neutral atmosphere which fits the Western style design.

Floors

Wooden-floor rooms

板の間 *Itanoma*

These are spaces covered with wooden-floor and their species, thickness, width and the coating materials are widely diversified. A touch of the solid wood floors is specifically soft and warm.

Using a wood with a warm touch, it is possible to create a space comfortable for sitting on chairs and on flooring.

Depending on the type and color of paint, the light softly reflects and makes the whole of the room bright.

Floors

Earthen floor space

土間 *Doma*

Doma is a space with an earthen floor which was traditionally finished with mud and a *tataki* floor hard-packed with plaster or concrete. Today, we sometimes find *doma* covered with tiles instead of mud and *tataki*. Although *doma* are located inside of the house, they may often be used for outside spaces as well for multiple functions.

Doma extending from the entrance hall provides a space for various family activities such as chatting and bicycle storage.

Renovated a part of living room to *doma* which connects to the balcony. *Doma* may be constructed in an apartment.

Interior design

Shinkabe wall

真壁 *Shinkabe*

Shinkabe is a type of wall with exposed wooden structural members such as columns and beams. The rest of the space between them are filled with mud or a wooden boards finished with plaster or wallpaper. It is easier to check condition of the building structure with *shinkabe* than *okabe* walls, which do not have exposed structural members.

Using a room with *shinkabe* walls, which present a warm atmosphere with a western flavor.

A combination of *shinkabe* walls and *shoji* sliding doors creates a sense of continuity between the dining space and the Japanese-style room.

Interior design

Central pillar

大黒柱 *Daikokubashira*

Originally, the central pillar was a structually important thick pillar around which the building was built as a symbol of family status. In some of the modern houses, a central pillar is built in the living rooms to symbolize the family.

The central pillar stands between *doma* earthen floor and *zashiki* rooms. The door sills were originally designed slightly outward which required to cut the corner of the *tatami* mat to give a space for the central pillar. To avoide this, the door sills were moved inwards to match the inside corner of the central pilllar.

The main pillar in the wood floor room, combined with the open celling space, gives visual continuity to the second floor.

Interior cultural fixture

Tokonoma

床の間 *Tokonoma*

Tokonoma is The Japanese style alcove in *zashiki* rooms (a *tatami* mat room used as a drawing room). Recently however, it has been increasingly popular to freely design new style of alcoves and create spaces other than alcoves for placing flowers and seasonal interior decorations.

Standard style of the Japanese alcove

Tokonoma-like decorational shelves installed in the front of an entrance hall

Interior cultural fixture

Family Buddhist and Shinto alters

仏壇・神棚 *Butsudan/Kamidana*

These are the spaces for worship and performing religious services for ancestors, and also for reminiscing the precious memories for the family. Japanese culture calls for providing such spaces in a house.

A Buddhist alter placed in a Japanese-style room connected to the living room

A Shinto alter above the closet. Shinto alters are usually placed on a stand suspended from a wall, but this alter is kept in the space specially prepared for it.

Interior cultural fixture

Irori open fireplace

囲炉裏 *Irori*

This is an open fireplace on floor level formed by cutting away a portion of the floor in the house. *Irori* open fireplaces are used for cooking, dining and heating the house. Open fireplaces are not popular in Japan anymore, but recessed seating on tatami mats on the floor around a low table equipped with an oven and a wood stove are still sometimes seen.

Open fireplace surrounded by board to put things on

A living room equipped with a wood stove. Having an open ceiling, this room is closely connected to the second floor which makes the room suitable for family gathering.

Materials

Mud walls

土壁 *Tsuchikabe*

Mud walls are constructed by building a foundation on the ground called *komai*, which is a lath made with bamboo and wood strips. This is a traditional Japanese wall structure. *Shikkui* plaster used for the Japanese house and *juraku-tsuchi*, a high quality clay produced in *Juraku-dai* area in Japan, are applied as finishing materials.

To build mud walls, assemble the *komai* first and then plaster mud in several layers.

An interior designed with mud walls

Materials

Natural and local materials

自然素材・地域産材 *Shizen-sozai/Chiiki-sanzai*

There are various materials used for house building such as wood, paper, soil, rock, bamboo and so forth. The matrials that are procured in the region of the building site are called *chiiki-zai*, or “local materials.”

A natural house made with local wood (*Kanayama-sugi*) and other natural materials including *shikkui* plaster, *tatami* and Japanese paper.

A local house renovated using a variety of natural materials

Outdoors

Nure-en veranda

濡れ縁 *Nure-en*

A *nure-en* veranda is an open veranda exposed to rain, which consists of wood or bamboo boards. Similar to a wood-deck today’s housing, it is used as the additional space extended from the inside

Extentive view from inside, connected to *nure-en* and outside

Nure-en built under large extended eave (wood deck) which gives a feeling of open space extended from inside of the house.

Outdoors

Tsubo-niwa/ Naka-niwa

坪庭・中庭 *Tsubo-niwa/Naka-niwa*

These small courtyards are surrounded by the building and often seen in traditional townhouses. They facilitate light and ventilation and also let us enjoy the view.

A *naka-niwa* garden viewed from the 3 directions of rooms

Tsubo-niwa in front of the entrance hall provides an open and bright feeling for the entrance

Outdoors

Planting

植栽 *Shokusai*

In addition to preserving the landscape and its appreciation, planting has various practical functions such as providing shade, screening wind and providing a source of wood, foods (such as fruit) and fuel (firewood).

Plants on approach to the house and the housing lot border enhance the landscape of the area.

Green curtains of vines such as *yoshizu* provide shade.

Outdoors

Front garden

前庭 *Maeniwa*

A front garden of a house is a space for welcoming the visitors and taking them into the house. In old times, it was sometimes used as a half-public space open to the local community.

A front garden with a calm atmosphere in a traditional house

A parking space in an approach to the house, which may be used for a playing ground for children in the daytime.

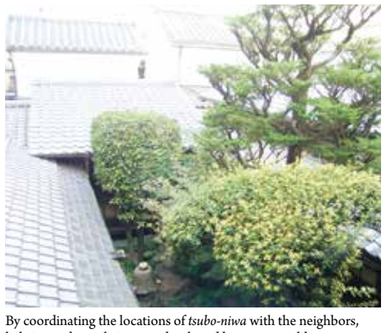
Layout

Layout of buildings

建物配置 *Tatemono-haichi*

A well-planned building layout contributes to protection against seasonal winds and enhances of the light intake and the ventilation in congested urban areas.

Azuma-dachi is a local way of building houses which face the east from which gentler winds blow. On the west side, vegetation called *kainyo* is planted. (Toyama Prefecture)



By coordinating the locations of *tsubo-niwa* with the neighbors, lighting and ventilation may be shared by every neighbor.