

## Tradition in Mid-Century Houses of Shinohara and Kikutake

Marika Neustupny

The University of Queensland / NMBW Architecture Studio

### Abstract

*'In 1960, I wrote an article for "Shinken-chiku" in which I said that though tradition may be a person's starting point, it is not always the point to which he returns. My attitude remains unchanged. As I discard traditional Japanese spatial styles and attempt to give form to abstract spaces, I am constantly spurred on by a desire to return these spaces to daily life. This is not an easy thing to do. I am possessed with the pursuit of abstraction based on a completed form, and within me is being born a real sense of a different aspect of space.'* So wrote Kazuo Shinohara in *The Japan Architect*, October 1967, as re-printed by *The Japan Architect* in 2014. Shinohara was proposing it is important to understand the principles of culture in daily life in order to make new architecture – and since reprinted so recently, it seems that this idea still holds currency. In the 1960s, Shinohara's work rearranged and reconfigured traditional components of the Japanese minka ('people's house') typology to make a new whole. The Metabolist Movement shared with Shinohara an interest in comprehending and transcending tradition, although the precise parts of history to be investigated and how to interpret them was seen differently. Original drawings and photographs are presented of 'House with an Earthen Floor' (Shinohara, Kitasaku Nagano, 1963) and 'Sky House' (Kikutake, Bunkyo-ku Tokyo, 1958). These houses are considered in detail with regards to how the works interact with the past. This paper posits that their detailed scrutinising of vernacular typologies can be regarded as a form of quotation, and that through undertaking such a process in design, something inherent to the original can be retained even in further renditions of the idea, which may no longer be regarded as 'quotation.'

### Tradition in Houses of Shinohara and Kikutake

By selecting “House with an Earthen Floor” (Shinohara, Kitasaku Nagano, 1963) and “Sky House” (Kikutake, Bunkyo-ku Tokyo, 1958) as the main objects of study, it would seem that the intent is to make a strong contrast between “Earth” and “Sky”. But it can also be noticed that “earth” and “sky” inhabit the same axis of nomenclature. Although there is no doubt that the philosophies of the architects of these houses are in opposition to a large degree, this paper sees these projects as contributing two sides within a single architectural interest that was in high favour during the mid-twentieth century in Japan. Namely, both of these houses were in direct debt to the cultural history of day to day building forms, and by their adept use of quotation from the past they have been part of a body of work paving the way towards a strong cultural identity merging modern, western and local techniques.

In fact, these particular houses have not been chosen because of their names or their symbolic quality. They are seen as useful for this paper on two fronts. First, their plans are comparably small in scale and both highly diagrammatic, and so can serve as models representing a multitude of more complex house plans. Secondly, and importantly for the present discussion on “quotation”, they are both early projects in the oeuvre of each architects’ work – they present initial opportunities for the development of the architects’ stance towards base questions of architecture, including how to think about the profusion of changes arriving with Modernism and how to respond to the question of tradition.<sup>1</sup> Given the propensity to detailed study by Shinohara and Kikutake, there is a chance that these houses’ relationship to tradition is one of quotation.

### Background to the Mid-Century Interest in *Minka* typology

Mid-twentieth century Japanese architecture saw the burgeoning of a new force in the international scene of Modernism through the efforts of the Metabolists, led by Kenzo Tange. It was a period of radical opportunity in re-construction of the city after World War II, spurred by the advent in Japan of further technological development and prefabrication in the housing industry. A well-publicised biological analogy of buildings being able to grow and renew themselves was the basis of the Metabolist Movement’s theory, which sat well with the moment in history. But when visiting Tange’s Hiroshima Peace Memorial Museum (1955), it is not only the sense of seriousness yet optimism of the re-birth of the city after the atomic bomb that is striking. The balcony railings of the administrative eastern wing are reminiscent of Buddhist temple detailing. There is no doubt that in terms of actual constructions, the strong individuality of the ensuing work by Tange and his followers is related to referencing local buildings.<sup>2</sup>

Although the Metabolists dominated publication and discussion in that era, the architectural department at Tokyo Institute of Technology was forming another school of thought that would go on to be a strong influence in contemporary architecture. This was also based on understanding tradition, in this case meticulously researching vernacular techniques to aid design.<sup>3</sup> The topic of their studies, traditional housing styles of the Edo Period (1603-1868), was highly refined in that until the Meiji Restoration of 1868 Japanese architecture had been essentially developing its construction typologies independently to the rest of the world. After the Emperor bowed to the West, architects were encouraged by Government to follow a nationalistic approach; for example, certain Buddhist monuments were taken as templates to make new buildings of authority.<sup>4</sup> However, following World War II, governmental control was under question, causing retraction of such grandiose precedent selection. At the same time, there was high pressure for new construction due to destruction of large quarters of the city after bombing. The focus was on housing. It made sense for architects to shift to looking at precedents of everyday life.

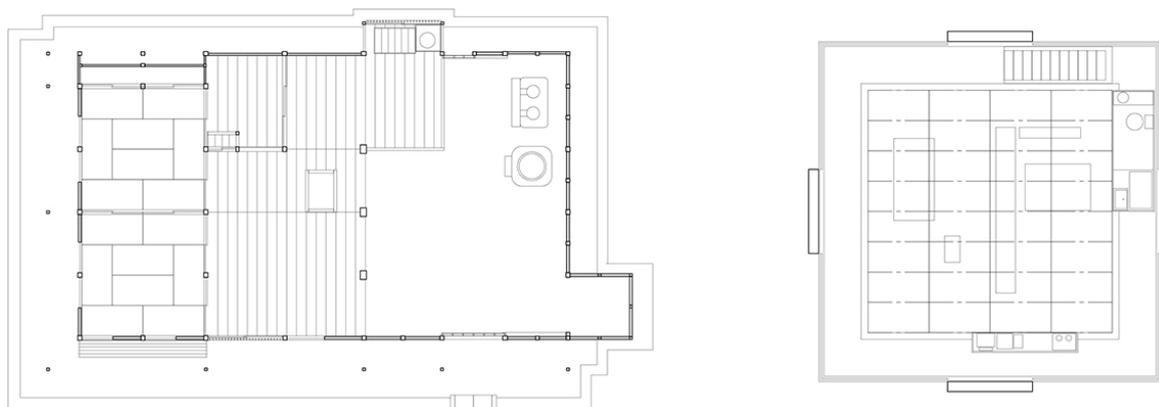
The traditional Japanese spaces of commoners’ daily lives are known as *minka* (people’s house). Within this overall category are two main sub-categories; *machiya* (town house or row house) and *nouka* (farm house or cottage). Specific historic houses are not referred to by the architects, yet visual

comparison indicates that in the 1950s and 1960s, Metabolist, Kiyonori Kikutake and Tokyo Institute of Technology Professor, Kazuo Shinohara's work rearranged and reconfigured traditional components of the Japanese *minka* typologies to make a new whole. By a detailed comparison of these two mid-century houses with a selected *nouka* house, this paper hopes to isolate what the objects of reference were, why they were of interest and how they were taken directly or indirectly into the context of a different time. The larger aim is to extrapolate from there to gain an understanding of the act of quotation in design.

The *nouka* example used is Tsunashima family home from c. early 18<sup>th</sup> century.<sup>5</sup> It is the simplest detached *minka* displayed at the Edo-Tokyo Open Air Museum. Although this choice may be seen as random, it is a close fit to a study of "tradition" in that on the one hand it is close to the standard conceptual figure of 'house' in Japan, and yet it is also a real house with real conditions it was dealing with at the time of construction.

### ***Minka* + Sky House**

Sky House was one of few single homes actually built by any architects of the Metabolist Movement. From the external view, the initial impression is very Modern, with a concrete living plate raised high above the ground on wide, central piloti. On closer inspection, there is a hint of tradition in the dimension of the verandah railing and glazing divisions. From the inside, both the scale and materials are more strongly reminiscent of the *minka* or *nouka*. Here, there is a predominance of timber in sliding screens and joinery, as well as white sheet materials within a reasonably low ceiling height. But beyond moments of looking like the vernacular, Sky House can also be seen to operate like the vernacular.



**Figure 1.** Comparison of Tsunashima Farmhouse + Sky House: both the traditional and Modern utilise projection of wet areas from an essentially singular interior space.

Drawings: Marika Neustupny

Sky House was Kikutake's own family home, and he used the opportunity to present the Metabolist theory of urban growth and renewal with two main gestures; the potential to add bedrooms and services under the main level, and flexibility of spatial use on the living level.<sup>6</sup> The sub-floor zone has gradually become completely filled with renovations, meaning this space has become unclear in relation to Metabolism.<sup>7</sup> However, the main floor plan maintains an important aspect of the flexibility theory in terms of the relationship between versatile and less versatile areas of domestic space – and the origins of this thinking shows a clear debt to tradition. The *nouka* example shown above is the Its form acknowledges the inflexible nature of the kitchen wash area by projecting it into the space of the eaves on the northern side, at the same time leaving the rest of the interior as an essentially whole space. Sky House also included bathroom and kitchen projections, in this case into the circumscribing *engawa* (verandah). Nine layout options accompanying initial publication of the project indicated the

potential for these spaces to be located anywhere around the perimeter of the square plan of the interior proper.<sup>8</sup> Presumably, the same plan could also be used in any location to suit desired internal configuration of sleeping and living areas, and preferred blockage of outward views. Keeping private spaces and rooms requiring fixity (plumbing services) outside the single main space expressed flexibility of interior and potential for change, in line with Metabolist dictum.



**Figure 2.** Gapparo Teahouse, Katsura Detached Palace, Kyoto: exemplifies luxurious spatial extension and picturesque views by use of *engawa* around both sides of the *tatami* room.

Photo: Alex Ramsay / Alamy Stock Photo

Another kind of traditional reference is included in the way the projection motif is experienced at Sky House. Not only does the timber lattice and white paper of its sliding *shoji* (screens) directly address the sensibility of traditional construction methods, but by dimensioning the kitchen and bathroom units in relation to the system of sliding partitions, Sky House treats these wet areas as if they were also, albeit thickened, screens. They are strategically placed around the perimeter to permit and block certain views, and their thickness acts as thermal buffer to the interior. However, there are two important ways in which Sky House's screening differs from the Tsunashima Farmhouse version. Firstly, unlike *shoji*, plumbed wet area units cannot easily be moved, as they are fixed into the infrastructural system. Secondly, *shoji* opening onto *engawa* verandahs around the full circumference of the single interior space is not a reference to the traditional every day. The *nouka* has just one simple room width *engawa*; the perimeter *engawa* is more likely associated with the spatial generosity of higher level Samuri or Imperial gentry homes; a famous example is the Gepparo Teahouse at Katsura Detached Palace in Kyoto. Although the quoted traditional spatial tool is the adjustable control of *shoji* screens, Kikutake's work separates the idea of "screening" from the original *nouka*'s *shoji* functions of sliding and modest spatial extension. Again, singular internal space is prioritised.

There are more ways by which Kikutake's study of projection and screening detaches these gestures from traditional lifestyle. Although these spatial motifs are inherently related to the culturalised practices of domestic wet and private spaces, Kikutake's study of them sees them fundamentally as formal manoeuvres. In the *nouka*, the raised timber floor that the sink projects from has a calculated dimensional relationship to the ground below, related to placing a pot under the spout outside for easy carrying away of waste.<sup>9</sup> This isn't necessary for Sky House, because waste water is piped away by this time, allowing the house freedom to be located in the dramatically sloping site. Further, the sink in the *nouka* cannot be placed anywhere on the periphery of the house. It should be on the far side of the entry to be nearer the rear garden pond and maximise southern daylight for other activities. It would also be on the raised timber floor rather than anywhere near the *tatami* (straw mat) flooring,

and directly beside the *doma* space of entry to be able to carry fresh water in and out without water spillage being an issue. Again, water supply is not a matter of concern for the Sky House in the 1950s, meaning the figuration of the plan can focus on other spatial questions rather than being limited by practical zoning. This freedom of the age is emphasised by Kikutake's inclusion of the bathroom into the *engawa* zone.<sup>10</sup> In Sky House, traditional motifs are no longer answering issues of specificity embedded in everyday life, but rather have become tools to set up an abstract set of relations between wet areas, which are piped and fixed, and dry areas, which are free to be defined by lightweight separation devices such as furniture or screens.

### **Minka + House with an Earthen Floor**

House with an Earthen Floor can also be understood to study traditional *minka* spatial ideas, but where Kikutake uncouples formal gesture from its original logic, Shinohara's writing indicates that he believed it is important to understand the principles of culture in daily life in order to make new architecture.

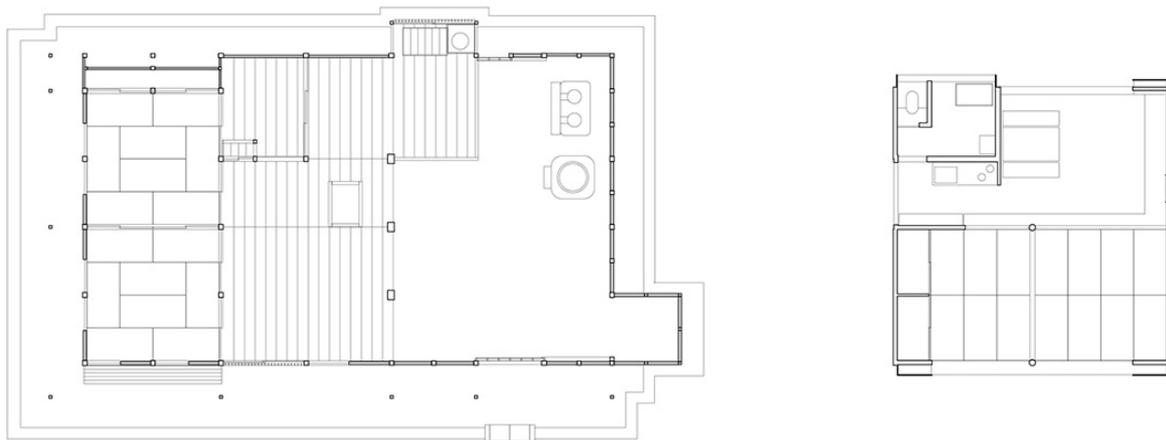
In 1960, I wrote an article for "Shinken-chiku" in which I said that though tradition may be a person's starting point, it is not always the point to which he returns. My attitude remains unchanged. As I discard traditional Japanese spatial styles and attempt to give form to abstract spaces, I am constantly spurred on by a desire to return these spaces to daily life. This is not an easy thing to do. I am possessed with the pursuit of abstraction based on a completed form, and within me is being born a real sense of a different aspect of space.<sup>11</sup>

If House with an Earthen Floor succeeds in "returning spaces to daily life", however, the first reading from today's standpoint might be that the house is so strongly reverential to traditional lifestyle that it is difficult to comprehend its modern aspects. Externally, the roof form and overall scale are comfortable as *minka* format. Upon entry, rendered walls, lattice screens, *tatami* mats, battered earth floor and exposed timber for post and roof structure are all standard *nouka* experience. A more in-depth reading is required to understand how this house is not simply a well-crafted reinterpretation of the vernacular.



**Figure 3.** House With an Earthen Floor interior (current condition):  
Left: Custom Shinohara dining bench seat on compacted earth  
Right: View from dry space of *tatami* mats towards narrow, *engawa* like timber step between raised and earth floor surfaces, with working space of *doma* beyond. Photos: Marika Neustupny, 2014

One area of abstraction in this house can be appreciated in the way that semi-externality is featured in the *doma*. The earthen floor devotes half the floor area of the house to its robust activities. Resilient materiality and approximately 300mm floor level difference between external-grade and raised floors are the defining characteristics of this traditional spatial technique. Tsunashima Farmhouse includes stove and water pot on the fireproof and waterproof compacted ground. The front entry allows for dripping shoes and umbrellas in the annual monsoon season, shelter for chickens and storage for firewood, as well as a direct view towards the main social gathering space of the fire pit within the *hiroma* (wooden floored space). House with an Earthen Floor also brings together hot, wet and dirty activities of daily life into the *doma*. It increases the role of the earthen floor by transferring the sociality of eating with others from the *hiroma* fire pit to the *doma* as signified by the dining table (designed by Shinohara). Significantly, the dining table is an imported western type of furniture – because it is accessed from a standing position, it makes sense to relocate the eating function to the *doma*, for the fire pit embedded into the *hiroma* surface developed around the custom of sitting on the floor. Likewise, the kitchen sink was traditionally attended to from a kneeling position on timber boards, but if the water supply is by pipe rather than carried storage pot and the western stand-up kitchen bench style is adopted, it is appropriate for the *doma* to accommodate the cooking activity. Change in custom precipitated the earthen floor encompassing additional activities of dining and cooking, but the *doma* also retains its circulatory importance; the kitchen has its own side door, just as the *nouka*'s second entrance gave direct access between sink and water supply/ drainage. Shinohara's design expresses an understanding of the changing nature of everyday practices of sitting and standing, resulting in prominence to the *doma*'s semi-externality.



**Figure 4.** Comparison of Tsunashima Farmhouse + House With an Earthen Floor: Both the traditional and the Modern employ two standardised *tatami* rooms and a proportionally large internalised *doma* space including wet areas, plus front and back entries. House with an Earthen Floor has compressed the social spaces of the *hiroma* (wooden floor) into the *doma* whilst allowing the impurity of the traditional *doma* to intrude into the entry-dining. Drawings: Marika Neustupny

Another kind of Shinohara abstraction is expressed in the compressive feeling of entry, dining and kitchen spaces in relation to the raised areas because of the solid wall closing off the bathroom-laundry. “Bathrooms” did not exist in the Edo Period; *minka* dwellers would have either bathed casually with temporary barrels beside the kitchen stove in the *doma* or walked to a local public bathhouse. The absence of privacy requirement in the *minka* typology is a large factor in allowing the connected space of the interior. Sky House made a singular and flexible interior similar to the *minka* ideal even despite the inclusion of a bathroom, by treating it like a thickened sliding screen. However, Shinohara's project allows the incorporation of this Modern space of privacy to overtly embody the inherent visual interruption. Although the bathroom-laundry also makes reference to wet area

protrusion in the traditional plan by stepping into the underside of the eaves overhang, its larger impact is in how it gives over a corner of the *doma* to spatial blockage. Because the blockage cuts into the wholeness of the rest of the interior, the entry-dining-kitchen might be interpreted as a left-over space. This intrusion into the purity of the interior is acceptable to the traditional *doma*, for on close inspection it is riddled with extensions and doglegs. Tsunashima Farmhouse integrates a walled off storage room within the *hiroma*, further pushing the kitchen portion into the *doma*. In diagrams, the *nouka* has a clear and single interior, but in reality, spaces such as this storage room have a physical impact on the continuity of the interior.<sup>12</sup> Likewise, everyday life has been admitted into the simple diagrammatic underlay of House with an Earthen Floor, and disrupts its clarity. Similarly, to the “semi-externalisation” strategy described above, it is the practice of the occupants – how people do things – and what that has traditionally meant in spatial terms, which has informed the selection and emphasis of quotation for this house.

### How Tradition is Treated in these Mid-Century Houses

Both houses reference spatial techniques set up in the traditional housing typologies of the *mink*, adapting them to attain Modernist spatial effects. Both use tradition to deal with Modern problems of fixity of internalised services and the attendant privacy requirements of the serviced spaces whilst accepting the new western lifestyle becoming widespread in Japan from the 1950s.<sup>13</sup> Further, both projects can be likened to characters in Japanese script: “projection” = *deko* (to jut out), “screening” = *kai* (to revolve), “semi-externalise” = *ta* (rice paddy – i.e. a divided field), ‘intrusion’ = *boko* (to jut in).<sup>14</sup> So, the plans of both architects’ work relate strongly to Modern aims and problems, as well as being able to be reduced to abstract ideograms in a Modernist, although particularly Japanese manner.

However, the selection of traditional strategies for investigation is quite different in the two houses. This is mainly precipitated by the difference in theories between the architects; although both Modernist, Kikutake was working towards flexibility whilst Shinohara targeted abstraction. Sky House focuses on the potential of the *nouka*’s central *hiroma*. “Projection” and “screening” are noticed in the traditional house as methods of dealing with wet areas and breaking view lines whilst retaining a singular interior. House with an Earthen Floor selects traditional strategies linked to the space of the *doma* to explore abstraction of daily life. It removes the *hiroma* except as a narrow landing and appropriates its activities to the *doma* space. ‘Semi-externalisation’ and ‘intrusion’ can be adapted to new practices and technology of bathing, cleaning and cooking whilst retaining principles of earthen and raised floors in use.

| Architect / theory:     | Modern issue:  | Explanatory notes:   | TRADITIONAL STRATEGIES: |
|-------------------------|----------------|--|-------------------------|
| KIKUTAKE / flexibility  | pipe fixity    | tends to be wet areas out of main perimeter ( <i>deko-boko</i> ) | PROJECTION              |
| KIKUTAKE / flexibility  | bodily privacy | wet areas act like screens ( <i>shoji</i> )                      | SCREENING               |
| SHINOHARA / abstraction | pipe fixity    | adds wet areas to interior ( <i>doma</i> )                       | SEMI-EXTERNALISE        |
| SHINOHARA / abstraction | bodily privacy | wet areas act as visual blockage ( <i>deko-boko</i> )            | INTRUSION               |

**Table 1.** Traditional Spatial Strategies in relation to Modern spatial theory-aims and Modern issues, as found in the work of Mid-Century Japanese Architects: Kiyonori Kikutake, Kazuo Shinohara  
Author: Marika Neustupny

| quotation type      | KIKUTAKE  | SHINOHARA  |
|---------------------|---|--|
| divisional strategy | ☐<br>screening<br>(re: privacy)                         | 田<br>semi-externalise<br>(re: pipe)                        |
| volumetric strategy | 凸<br>projection<br>(re: pipe)                           | 凹<br>intrusion<br>(re: privacy)                            |
| quotation approach: | function as technology-form<br>/ detachment from social | function as social practice<br>/ intensification of social |

**Table 2.** Traditional Spatial Strategies as ideograms in relation to quotation types and approaches

Author: Marika Neustupny

The differences between Kikutake's and Shinohara's approaches becomes clearer by further considering why particular spatial sets were chosen for detailed focus, and how they sit when placed in their new context. In Sky House, traditional methods have been picked in accordance with what the spatial component does. The function of wet areas is seen as an operational technology, able to give priority to the formal aim of singular interior. However, this happens in such a way that the form of the quotation has been detached from functional aspects of the traditional lifestyle that originally brought the component into effect. By contrast, the strategies in House with an Earthen Floor intensify the everyday experience of traditional spaces to make a new interaction between vernacular form and social practice. The design moves start by identifying the logic of how people use the space of *doma*, and then focus on understanding how its spatial characteristics can find new voice in the Modern context. In this scenario, the function of wet areas is seen as social practice. In summary, with regards to attitude to quotation of traditional elements, Kikutake is interested in the motif's formal function as a technology, whereas Shinohara emphasises lifestyle function of the piece of tradition.

### The Act of Quotation in Design

Kikutake and Shinohara both produced a multitude of works after these houses, showing signs of what may be thought of as 'translations' or further adaptations of the traditional strategies identified in this paper. For example, Kikutake's Osaka Expo Tower (1970) is clearly a development of the "projection" motif, and the Administrative Building of Izumo Shrine (1963) shows an adaptation of the immovable "screen". According to specialist scholar, Shinichi Okuyama, Shinohara states that this project made him realise the potential of "intrusion", which is developed in the strongly abstract second style with houses such as Cubic Forest, Kanagawa and Repeating Crevice, Tokyo, both from 1971.<sup>15</sup> It is worth noting that the spatial power of the later works, particularly those from the 1970s, flowered from attempting to answer the problem of how to incorporate western modernity into the traditional typological system for house. However, the two main houses investigated here are more clearly using "quotation" as design tool; they take a specific traditional detail together with its real qualities to study in a new context.

In both Sky House and House with an Earthen Floor, the recognition of a real detail from history as containing a valuable condensation of meaning is the first step towards understanding the principles behind the design action, abstracting how it operates as a technique, and thereby being able to logically apply it in a new situation. The traditional strategies selected by the houses are not simply "precedents", because they are not taken as form alone but rather the application includes logic in

QUOTATION: What does history have in store for architecture today?

relation to the form. This use of logic also precludes the design process of these buildings being associated with mimicry (quotation without limits) or historicism (quotation as validation). Importantly, design quotation always includes a cultural side to any formal gesture, so for example although much social meaning has been lost in Kikutake's use of 'projection', this strategy continues to evolve and be re-referenced even today.

### **An Understanding of the Form and Function Maxim through Quotation in Design**

Shinohara expounded ideas about urbanity in "Towards Architecture" (1982).<sup>16</sup> His theory supported Tokyo as a city of vitality and "chaos", and directly refuted "the megalomaniac, technologically ordered city projects fashionable twenty years ago". This same essay also states that although the straightforward correlation of form and function by the Modern Movement has been shown to be ineffectual, the role of function shouldn't be seen to be invalidated. Rather, he says, "I suspect that soon the second act of modern architecture will begin, and it will begin with a redefinition of function". Writers in the 1980s such as Sanderson and Fawcett have suggested that symbolism and ritual could replace the Modern role of function.<sup>17</sup> However, this paper posits that through his experimentation in processes of quotation, Shinohara had already found a redefinition of function – with the human experiential logic of tradition as its basis.

## Endnotes

---

<sup>1</sup> Sky House was Kikutake's first constructed work. House with and Earthen Floor was Shinohara's seventh published house, out of at least 35.

<sup>2</sup> The origins of deciding on the biological term 'Metabolism' as representative of the group's belief that 'the city should be capable of continuous growth and renewal' is discussed in: Zhongjie Lin, *Kenzo Tange and the Metabolist Movement: Urban Utopias of Modern Japan*, (Oxford, New York: Routledge, 2010), 22.

The importance of the reference to tradition in the Metabolists' work is discussed for example in: Meike Schalk, 'The Architecture of Metabolism: Inventing a Culture of Resilience', *Arts*, 3 (2014): 280.

<sup>3</sup> Kiyoshi Seike introduced traditional joinery junctions to the world with the English translation of: Kiyosi Seike, *The Art of Japanese Joinery* (Tokyo & New York: Weatherhill, 1977).

Kazuo Shinohara's students had thesis topics focused on abstract concepts from the 1970s, but the earlier research consisted of studying particular villages and their housing typologies in detail. Shinichi Okuyama has listed 40 thesis produced between 1957 and 1977 looking at traditional spatial arrangements in various publications in Japanese.

<sup>4</sup> The "Problem" of Styles is discussed in David Stewart, *The Making of a Modern Japanese Architecture: 1868 to the Present*, (Tokyo & New York: Kodansha International, 1987).

The use of *shinden* style by architects such as Kunio Maekawa and Kenzo Tange is discussed in Marc Treib, "Converging Arcs on a Sphere: Renewing Japanese Landscape Design". in Marc Treib (ed.), *The Architecture of Landscape, 1940-1960*, (Philadelphia: University of Pennsylvania Press, 2002), 270-5.

<sup>5</sup> Terunobu Fujimori, *Shin-Edo-Tokyo Tatemonoen-Monogatari*, (Tokyo: Studio Ghibli, 2014), 307.

<sup>6</sup> The summary of the Metabolist agenda at Sky House being future change and spatial flexibility is common, for example: Lin, *Kenzo Tange and the Metabolist Movement*, 17.

<sup>7</sup> Contemporary photographs of Sky House can be seen in Charlie Koolhaas, *Metabolism Trip*, (Tokyo:Heibonsha, 2012).

<sup>8</sup> Although exhibited original drawings of Sky House are not included, a brief description of the original polemical intent of the project is given in the catalogue, Nobuyuki Yoshida, Yuji Akimoto (eds.), *Japan Architects 1945-2010: Shinkenichiku November 2014 Special Issue*, (Tokyo & Kanazawa: Shinkenichiku-sha & 21st Century Museum of Contemporary Art Kanazawa, 2014), 69.

<sup>9</sup> The sectional set up of the kitchen sink is well explained in Azby Brown, *Just Enough: Lessons in Living Green from Traditional Japan*. (Tokyo: Kodansha International, 2009), 38-39

<sup>10</sup> Traditionally, the toilet alone was sometimes accessed from the *engawa* but was generally found in a separate outhouse. Bathing's spatial parameters were traditionally as limited as for cooking. Brown, *Just Enough*, 44-7.

<sup>11</sup> Taken from the last part of Shinohara's statement in 1967 accompanying the publication of 'House in White' (Shinohara, Suginami Tokyo, 1966), the project directly following 'House with an Earthen Floor'.

Atsuko Nishimaki, ed., "Kazuo Shinohara: Complete Works in Original Publications", in Nobuyuki Yoshida (ed.), *The Japan Architect*, vol. No. 93. (Tokyo: Shinkenichiku-sha Co. Ltd., 2014), 30.

<sup>12</sup> An example of the open interior diagram of traditional Japanese farmhouse can be seen in: Richard Zgusta, *Dwelling Space in Eastern Asia*, Vol. 4 (Osaka: Osaka University of Foreign Studies Publications, 1991), 222.

<sup>13</sup> The widespread integration of Western and Modern lifestyles is discussed for example in: Chris Fawcett, *The New Japanese House: Ritual and Anti-Ritual Patterns of Dwelling*, (London: Granada, 1980), 12.

<sup>14</sup> Use of characters as a shorthand for discussion of plan types is embedded in Japanese architectural discourse, and is not exceptional to utilize here. Although the architects themselves have not referred to their work in this way, the author has experienced that these particular characters are often used to represent archetypes, particularly *kai* and *ta*.

<sup>15</sup> 'The clay earthen floor . . . [with its] narrow crevice-like space, foreshadowing the Second Style': "House with an Earthen Floor", in Enric Massip-Bosch, David B. Stewart, Shin-ichi Okuyama (eds.), *Kazuo Shinohara: Houses*, 2G Vol. N.58/59 (Barcelona: Editorial Gustavo Gili, 2011), 60.

<sup>16</sup> Kazuo Shinohara, "Towards Architecture", in Institute of Architectural and Urban Studies (ed.), *Kazuo Shinohara*, (New York: Rizzoli, 1982), 11-15.

<sup>17</sup> Warren Sanderson, "Kazuo Shinohara's "Savage Machine" and the Place of Tradition in the Modern Japanese Residence", *Journal of the Society of Architectural Historians* XLIII, no. May (1984), 109-18. Chris Fawcett, *The New Japanese House*.