



Matsumara Masatsure, Hizuchi Elementary School, Yawatahama, Japan, 1958. View from the river after renovation. © Architectural Institute Japan Shikoku Chapter, Toru Kitamura, 2009.

Conservation and Renovation Project of Hizuchi Elementary School: First Challenge to Treat a Post-war Wooden Architecture as a Cultural Property

BY YOSHIAKI HANADA

Hizuchi Elementary School is an example of timber modern architecture completed between 1956 and 1958. It was recognized as one of the twenty representative modern buildings in Japan by **docomomo** in 1999, and from 2006 to 2009 it was meticulously restored. The consortium members for its conservation and renovation were awarded the Annual Award of the Architectural Institute of Japan and World Monuments Fund/Knoll Modernism Prize in 2012. This paper outlines the project of the Hizuchi Elementary School and the architect Matsumura Masatsune who designed it.

Hizuchi Elementary School is located in Yawatahama City, Ehime Prefecture, which is about 725 kilometres south-west of Tokyo on the western shores of Shikoku Island. It was designed by the municipal architect Masatsune Matsumura (1913–1993)¹ and completed between 1956 and 1958.

Hizuchi Elementary School is such an important example of timber modern architecture that it was selected as one of **docomomo** Japan's 20 Selections in 1999.

However, despite this recognition, it did not meet modern seismic protection standards. Also, due to the advanced deterioration of the structure over its fifty-year life, it had suffered from many functional problems. The extended debate over these matters was finally resolved when a consortium of experts, through working closely with the Yawatahama City Board of Education, developed a plan that would restore the structure whilst adapting it to meet modern safety and educational requirements.

The consortium was formed in 2005, after Yawatahama City established a planning committee for Hizuchi Elementary School's renovation. Six experts, who were architects and university professors, came together to work on the project with city officials. In addition to the City, the individual members of the consortium were: Hiroyuki Suzuki², from Aoyama Gakuin University, Kiyotada Magata from Ehime University Yoshiaki Hanada from Kobe Design University, Kouichi Wada, president of Wada Architectural Design Atelier, Kazutomi Takechi, CEO of Atelier A&A Ltd, and Mikio Koshihara, from the University of Tokyo.

The conservation and renovation project of Hizuchi Elementary School is believed to be Japan's first case of the restoration of an architecturally significant modern timber building. The consortium members won the Annual Award of the Architectural Institute of Japan, the World Monuments Fund/Knoll Modernism Prize in 2012, and

docomomo Japan's 2013 Architectural Heritage Conservation Award. Furthermore, Hizuchi Elementary School was designated as a Japanese national cultural property in 2012.

Architect: Masatsune Matsumura

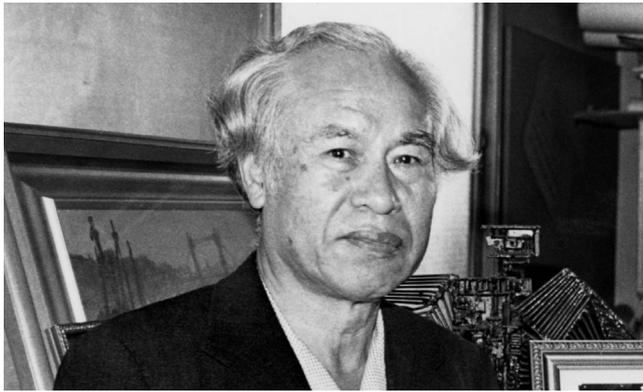
The architect who designed Hizuchi Elementary School is Masatsune Matsumura. He was born in 1913 to a prominent samurai family in Ozu, a small town near Yawatahama in Ehime Prefecture. While his family was wealthy, Matsumura had a hard childhood. His father died when Matsumura was 2 years old and he was raised by his grandmother separated from his mother. This painful experience must have been hidden behind the graceful atmosphere of Matsumura's architecture.

Matsumura entered Musashi Senior Technology School (the current Tokyo City University) in 1932 and trained under Chikatada Kurata who had traveled in Europe and studied in Germany with Bauhaus founder Walter Gropius.

After graduating from Musashi Senior Technology School in 1935, Matsumura landed on a job at the office of Kameki Tsuchiura by recommendation of Kurata. Tsuchiura Kameki was an apprentice of Frank L. Wright. There, Matsumura designed private international style residences for rich modern Tokyo families. After the office moved to Manchuria he experienced a hard life in the colony.

In 1941, Matsumura, having some doubts about Tsuchiura's trendy thinking of architecture, left the Tsuchiura Architectural Firm and joined the Agricultural Land Development Authority and was engaged in the investigation of housing in poor farm villages in Japan.

Matsumura was self-taught and acquired the latest architectural planning knowledge from many English books and Japanese architecture magazines published in the 1930's about new buildings in Europe. *Kokusai Kenchiku*



01 Matsumura Masatsune in his later years. © Architectural Institute Japan Shikoku Chapter / Former property of Matsumura family.

(“International Architecture”) was one such influential Japanese magazine. Enjoying the favor of the chief editor of this magazine, Masakazu Koyama, Matsumura translated many English articles into Japanese for the magazine.

Thus, it was through his mentor, Kurata and the many magazine articles and books published before the Second World War that familiarized Matsumura with Gropius’ ideas and those of the evolving Modern Movement in Europe. I found in his house three handwritten files full of the latest architectural planning knowledge which Matsumura made before the World War 2. They are indeed proof of his effort.

When the World War 2 was over, Matsumura moved back to his hometown Ozu and served as a municipal architect for Yawatahama City for 13 years from 1947 to 1960. During these 13 years, he designed about 37 buildings. They are what should be referred to as modernist architecture. However, by employing a timber-steel hybrid structural form and a gable roof, he succeeded in embodying architecture that is neither so-called “white box” International Style nor Le Corbusier like concrete style.

In 1960, Matsumura was recognized as one of the top ten architects in Japan by the influential magazine *Bungei Shunjyu* along with Togo Murano, Kunio Maekawa and Kenzo Tange. But even the jurors who recommended Matsumura had not met him and had not seen his works including the Hizuchi Elementary School at the time.

In the same year, Matsumura left Yawatahama municipal office before retirement age, and he started his own architectural design office in Matsuyama city which is the prefectural capital of Ehime Prefecture.

His career lasted until his death in 1993, and he designed more than 400 buildings, including private residences, apartment buildings, private schools, and private hospitals.

In the meantime, he loved calligraphy and classical comic theater “kyogen”, and also spent a lot of effort in preserving modern architecture.

His words and writing delivered at every opportunity were Confucian-like in their critique of what architecture or architects ought to be like. In other words, Matsumura, whilst being based in the philosophy of modern architecture, never had a dogmatic attitude. Rather, he made what he considered the ideal form of education or life

into a space by using a tool called architecture. The ethical architectural view he had exhibited still covers the effective range of envisioning what a society should be like.

Architectural Characteristics of Hizuchi Elementary School

Hizuchi Elementary School is located in a canyon surrounded by tangerine orchards in Yawatahama City.

Looking from the playground, the right-hand building, the so-called “Middle Building”, was constructed in 1956 and the left-hand building, the “East Building”, was constructed in 1958. The river side elevation is very dramatic, including a suspended outdoor balcony and floating staircases that protrude over the Kiki River. The Middle Building contained teachers’ rooms and other specific rooms. The East Building contained six classrooms in a so-called “cluster style”, which means that the classrooms are separated from the corridor by a “daylight garden” or small atrium.

Hizuchi Elementary School has a number of architectural characteristics. They are summarized in the following six points.

Important example of a cluster-style school

Its classrooms are arranged in the cluster-style where the classrooms and corridor are separated from one another and two classrooms as one unit lead to a corridor via a front room that branches out. And this created an extremely rich space rather than schematic view. This format of the cluster plan was researched and implemented by the Yoshitake Laboratory at Tokyo University after World War 2. But it was only a theoretical experiment, whereas at Hizuchi Elementary School it was completely designed and implemented.

Fenestration on two facades which allows natural light into classrooms throughout the day

The cluster-style made it possible to enhance the penetration of light and flow of air throughout the building with the daylight garden. When Hizuchi Elementary School was completed, it did not have any light fittings and the fenestration on two facades of each classroom was the only source of light within the classrooms.

Hybrid structural system which combines timber and steel
Hizuchi Elementary School is often said to be a timber building, but in fact it is made of a hybrid structure in which steel is incorporated effectively into the timber structure. For instance, in the East Building, circular steel rod braces are used to resist the lateral forces so that the outside wall on the river side turns into a curtain wall, opening the classrooms to the expansive exterior view.

Rich spatiality which contemporary architecture lacks
The “remarkable spatiality” of the school’s architectural character is immediately observable. Every single space in the school is a comfortable place for children. Staircases, hallway, library, the terrace on the river side and the outside staircases were all carefully detailed.

02 Matsumara Masatsure, Hizuchi Elementary School, Yawatahama, Japan, 1958. Shortly after its construction. The right-hand building, the so-called "Middle Building", was constructed in 1956 and the left-hand building, the so-called "East Building", was constructed in 1958. © Architectural Institute Japan Shikoku Chapter / Former property of Matsumura family.



03 Matsumara Masatsure, Hizuchi Elementary School, Yawatahama, Japan, 1958. A suspended outdoor balcony and floating staircases protrude over the river. © Architectural Institute Japan Shikoku Chapter / Former property of Matsumura family, 1958.

Spatial embodiment of democratic thought of education
after World War 2 in Japan

Hizuchi Elementary School has neither an overbearing porch nor a symmetrical elevation. Children search out comfortable spaces by themselves and have a dialogue with others, themselves and the environment. Its delightful and liberal spatial atmosphere is a concrete example of democratic educational thought in post-war Japan.

Original interpretation of western modern architecture

The combination of horizontal continuous windows and gable roofs in Hizuchi Elementary School is unique because the horizontal continuous window is a symbol of the International Style and the gable roof is that of the local traditional architecture. This co-existence of internationality and locality is the essence of Hizuchi Elementary School and Matsumura's design. Modern architecture was brought into Japan from the West and entered the country in two phases. During the first phase, before the Second World War, the ideas of modern architecture were largely imported from Europe and followed the designs and ideas of the International Style. During the second phase, following the war, a new type of modern architecture began to emerge in Japan and evolved under master architects such as Jyunzo Sakakura, Kunio Maekawa and Kenzo Tange. Masatsune Matsumura, however, diverged from the mainstream ideas of his peers. But his distinctive interpretations might be characterized best as a localization of modern architecture rather than a wholesale importation.

These architectural lexicons or compositions are not something that was invented all in one step in the Hizuchi Elementary School. The cluster-style classroom arrangement and the two facade fenestration started out by being applied through small ingenuities to a common, one-sided hallway format, and the design evolved in an extremely analytical manner every time Matsumura worked on a new building. Detailed design was also continuously refined in response to experiments conducted at hospital-related facilities he designed in the Yawatahama Municipal Office at the time.

There is, however, no evidence of him having been bound by some type of ideology there either. Matsumura skillfully managed to use his knowledge and techniques from a variety of areas encompassing architectural planning, design, structure and environmental engineering. He simply turned his own philosophy concerning schools or architecture and furthermore, what public architecture should be like, into spaces. Hizuchi Elementary School is truly the culmination of Matsumura's philosophy in the Yawatahama Municipal Office.

Process of Restoration³

As stated above, Hizuchi Elementary School has both historical value and contemporary value. Therefore, we, consortium members, concluded that it should be restored and kept being used as an active school.

But having passed 50 years since completion, Hizuchi Elementary School was badly deteriorated. **docomomo**

Japan's selection was the beginning of the restoration efforts. Hizuchi Elementary School was selected as one of the twenty most representative modern buildings in Japan by **docomomo** Japan in 1999.

At first, we held several symposiums and a kind of summer school in Hizuchi Elementary School. At the summer school we gave classes regarding the school and modern architecture. But an unexpected incident happened in 2004. A strong typhoon heavily damaged the school.

After this typhoon, a two-year stalemate over whether to demolish and replace or preserve Hizuchi was resolved only after concerted city efforts and the creation of an architectural consortium planning group in 2006.

In 2006 a detailed survey of the then current situation was undertaken. Based on the result of this survey, the consortium developed a concrete plan for renovation. As a result, the school was meticulously restored from 2008 to 2009. Its basic principles are summarized in the following 7 points.

To restore the whole of the building to the original design,
respecting its value as a cultural property

Original materials were preserved where possible or replicated; 207 of 209 original wooden pillars were reused in the Middle Building; 252 of 253 original wooden pillars were reused in the East Building; about 50% of floor, wall and ceiling finishes were reused; about 90% of fittings were repaired and reused; paint colors were restored through paint scrapes; damaged tiles were reproduced using original molds.

To seismically retrofit to satisfy the current Building Standards Act Seismic retrofitting was installed inside the walls, ceilings, and floors, so as to keep the building's value as a cultural property. The only structural elements added you can see are the double steel braces of the glass curtain wall in the East Building. But we could reduce damage to the cultural significance to a minimum here by keeping the same number of braces as before.

To restore original classrooms into specific rooms
and specific rooms into classrooms

In the East Building, accepting the demand of those who advocated demolition and replacement, original general classrooms were converted into rooms with specific uses, such as a home economics room, arts & craft room and music room. But damage to the cultural significance could be kept to a minimum in these instances by putting kitchen counters or desks on the floor of classrooms which were otherwise restored to their original state.

In Middle Building, two functionally specific rooms were restored into two general classrooms and a corridor which leads to the new West Building.

To improve the student security

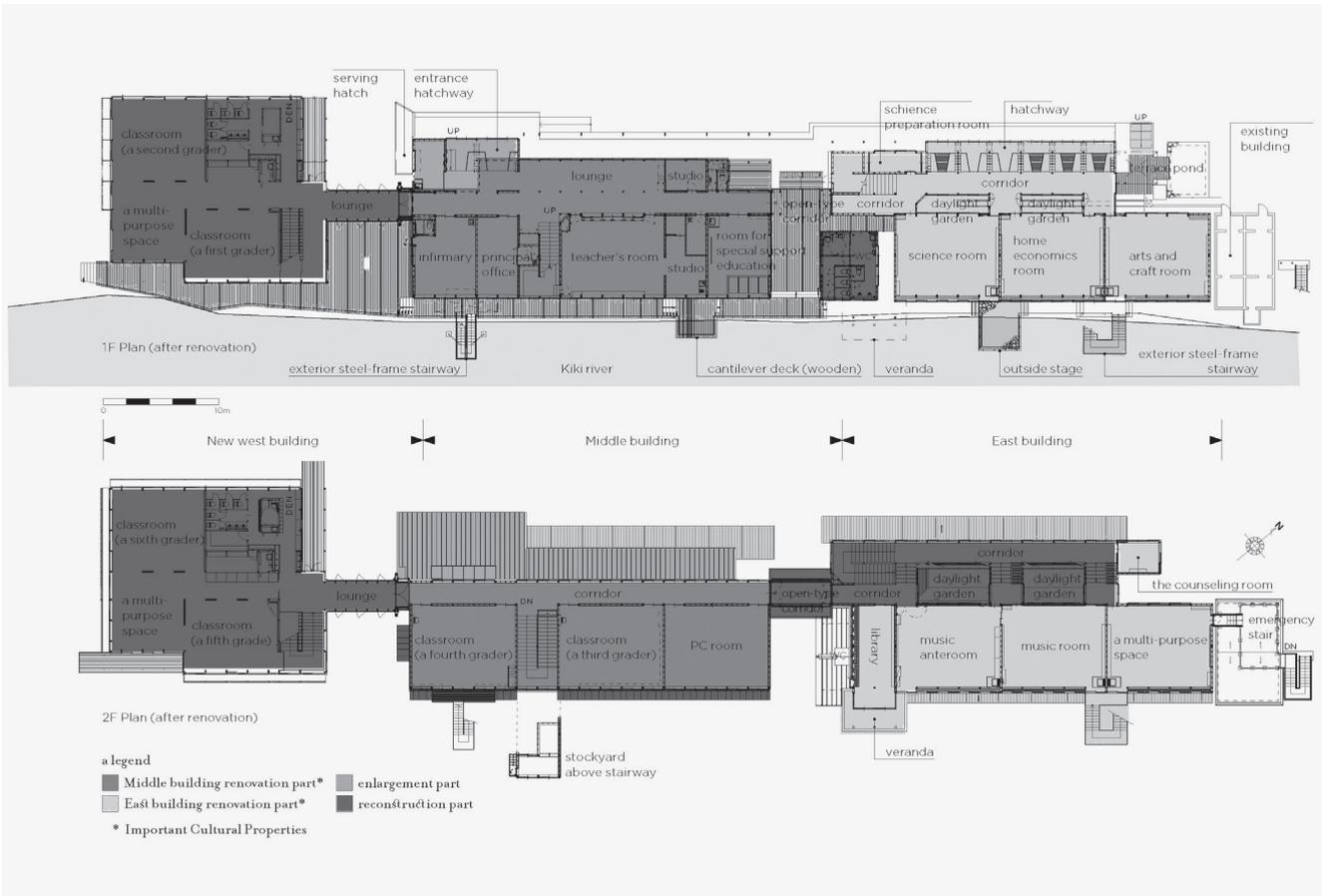
In the Middle Building, also responding to those who advocated demolition, the wall between teachers' room and the corridor was made more transparent for greater student security.



04 Matsumura Masatsune, Hizuchi Elementary School, Yawatahama, Japan, 1958. Roof of the corridor of the East Building was blown away by a typhoon in 2004.



05 Matsumura Masatsune, Hizuchi Elementary School, Yawatahama, Japan, 1958. Restoration work in progress. Timber structures were strengthened to meet the earthquake resistance requirements under the current Building Standard Act. © Yoshiaki Hanada, 2008.



06 Matsumura Masatsune, Hizuchi Elementary School, Yawatahama, Japan, 1958. Ground floor plan (above) and first floor plan (below) after renovation. New West wing, Middle Building and East Building from the left. © Board of education of Yawatahama City.



07 Matsumura Masatsune, Hizuchi Elementary School, Yawatahama, Japan, 1958. General view from north after renovation. East Building, Middle Building and New West wing from the left. They are in harmony with each other and the surrounding landscape. © Architectural Institute Japan Shikoku Chapter, Toru Kitamura, 2009.



08 Matsumura Masatsune, Hizuchi Elementary School, Yawatahama, Japan, 1958. Entrance hall returned to the original design with the restoration of the luminous ceiling. © Architectural Institute Japan Shikoku Chapter, Toru Kitamura, 2009.



09 Matsumura Masatsune, Hizuchi Elementary School, Yawatahama, Japan, 1958. Library after renovation. The interesting design combines Japanese and Western architectural elements including paper-paned sliding doors, hand-adzed beams, ceiling covered with silver-colored paper, and unpainted columns looking like Japanese-type alcove posts. The bookshelves and furniture, too, were designed by Matsumura. The constellation depicted with sliced bamboo rings decorates the walls over the bookshelves. © Architectural Institute Japan Shikoku Chapter, 2012.



10 Matsumura Masatsure, Tuberculosis Ward of Yawatahama City General Hospital, 1953. Matsumura designed many hospital related facilities in the Yawatahama municipal office. Their design was characterized by large openings, shading eaves, hopper windows, hybrid structure of timber and steel, carefully selected furniture and partition details, and pastel coloring. They reflect Matsumura's concept of modern living. © Architectural Institute Japan Shikoku Chapter / Former property of Matsumura family.

To improve the functional performance
To secure the environment for continuous use of the building, the functional performance of the building also had to be improved, including modern toilets and sound insulated floors.

To build a new classroom wing
to create four additional classrooms

To make four additional classrooms, a new west wing was built. It was a big challenge to design a new building next to Matsumura's masterpiece. We designed the "complex and contradiction" relation between the new building and the existing East and Middle Buildings, transforming the architectural vocabularies abstracted only from the existing buildings. That is, we maintained many of the hallmark features of the original buildings, primarily the timber architecture, abundant natural light, and harmony with the river.

Hizuchi Elementary School as a Carrying Device of Memory

The space of the rejuvenated Hizuchi Elementary School is filled with a specific atmosphere. I think it can be explained from the viewpoint of time. For example, in the East Building, putting furniture temporarily in the original space, "past" and "present" are coexisting, but in terms of architectural elements, the percentage of "past" is higher than "present". Meanwhile, in the Middle Building, remodeling many places to satisfy new functions, "present" and "past" are coexisting, but in this case the percentage of "present" is

higher than "past". Also, in the West Building, incorporating "past" into "future" like DNA, "future" and "past" are coexisting, but the percentage of "future" is higher than "past". In this way, it has become possible for plural time periods to coexist in the space of the school. Consequently the Hizuchi Elementary School has become a carrying device of memory inherited by children, their parents, teachers and local people who had spent time there.

The rejuvenated Hizuchi Elementary School has begun its new life as a school loved by children, blending harmoniously with the local community and the environment, as Matsumura Masatsune hoped. ■

Notes

- 1 For more details about Masatsune Matsumura, please refer to Yoshiaki Hanada, *Architect MATSUMURA MASATSUNE and Another Modernism*, Kajima Institute Publishing Co., Ltd, 2011.
- 2 Hiroyuki Suzuki, former Chair of **docomomo** Japan, passed away on February 2, 2014. I along with all other members of the Consortium wish to convey our deepest condolences.
- 3 You can see many photos of rejuvenated Hizuchi Elementary School on the web site of *World Monuments Fund* and its video on YouTube [<https://www.youtube.com/watch?v=NdrXMBYdyul>].

Yoshiaki Hanada

(b. Ehime Pref., Japan, 1956). Dr. of Engineering, University of Tokyo. Professor of Environmental Design at Kobe Design University. Expert in architectural theory and history of modern architecture. Yoshiaki Hanada has made a wide and deep research on Masatsune Matsumura and his works since 1994, which contributed to obtain precise images of the original design of Hizuchi Elementary School in its conservation and renovation project.