

For victims of the Tohoku tsunami and earthquake:

# Supporting independence with a new residential and commercial building system



Proposal

Makiko Tsukada Architects

# For people who want to start a new life in a place of their own

- without depending on temporary housing provided by the local government.

For people who are thinking of building a temporary residence or store on an empty piece of land while they wait for a permanent construction site to be decided.

For people who need to build temporary housing on their own land while they wait for partially or completely destroyed buildings to be repaired.

For those who are forced to temporarily leave their hometown, but hope to return in the future.

For people who want to re-start their fishing business or shop, but need a temporary commercial space in order to do so.

## We have designed an architectural system that you can use now - and into the future.



Following the Great Hanshin Earthquake, thousands of disaster victims constructed their own temporary housing independent of public efforts. An expert says the existence of those houses contributed to a rapid post-disaster recovery.

(Reference: Yoshimitsu Shiozaki et al, Study concerning independently-built temporary housing following the Great Hanshin Earthquake)

## Introducing the Wood Ring System.

## What is the Wood Ring System?

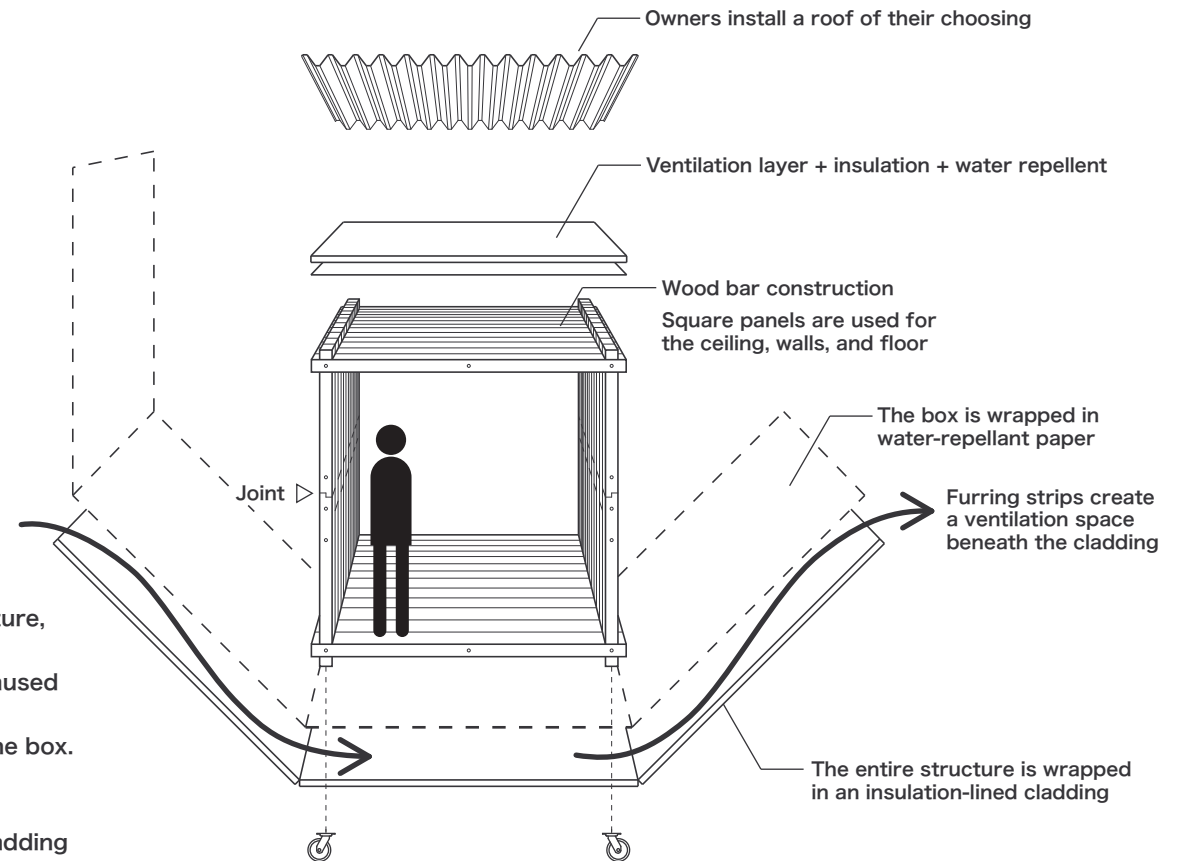
Structural panels that include interior finishing are transported to the construction site, where they are assembled into a box with two open walls and four wood panels linked in a “ring.” Simply add exterior finishing material, and one “Wood Ring” is complete.

The “Wood Ring System” refers to a support mechanism based on this architectural design that is aimed at disaster victims in the Tohoku region.

## Unique Features of the Wood Ring System

- Easy to transport
- In order to facilitate the linking of several “rings” to make a larger structure, the measurement of the height, width, and depth is the same.
- The strong structure remains intact even in the case of soil liquefaction caused by an earthquake.
- Owners can install windows or doors as desired in the two open sides of the box.
- External insulation protect against dew condensation in the walls.
- Construction is quick.
- The building is wrapped in a protective cladding to allow for re-use; the cladding also protects against fire.

In areas without fire prevention regulations, wood paneling may be used as an exterior covering. In warm areas without fire prevention regulations, the exterior covering may be omitted altogether (the standard cladding is backed with insulation to improve heat retention). However, when wood paneling is used or where the cladding is omitted, we recommend installing a roof with extended eaves.

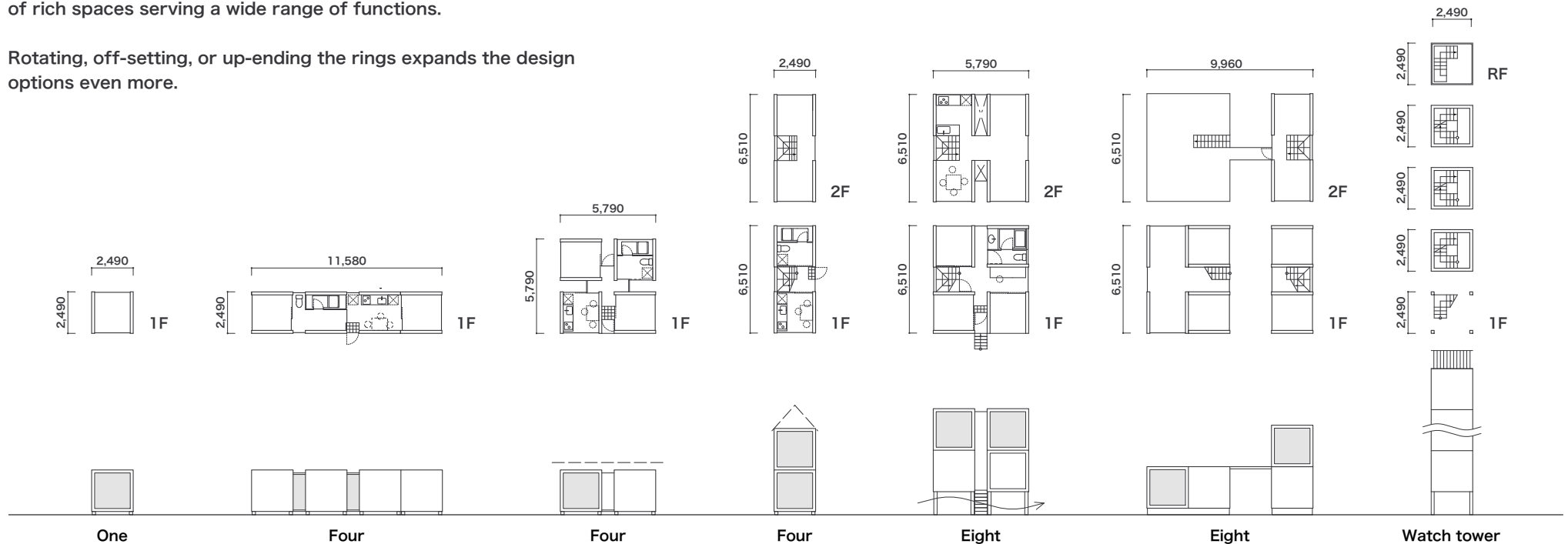


※ Structural analysis completed with the design of Nieda+Hisaeda Architects

# Example of using Wood Ring

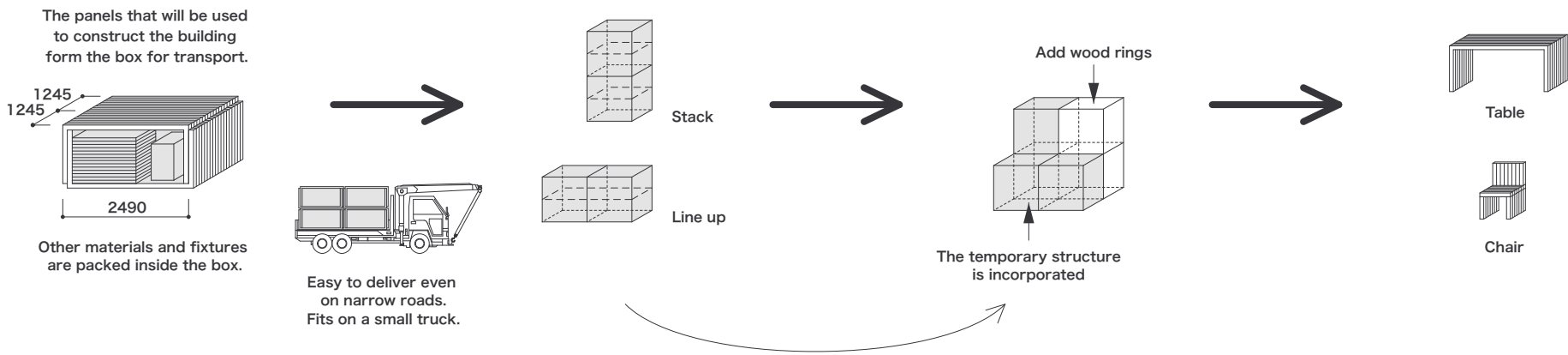
A single wood ring may be used on its own, but by combining two or more of the simple structures it is possible to create a variety of rich spaces serving a wide range of functions.

Rotating, off-setting, or up-ending the rings expands the design options even more.



# Development of using Wood Ring

Transportation and construction are simple, and the structure may be expanded in stages using the basic unit of the wood ring. As a result, it can continue to serve a purpose after life returns to normal. Even if the owner no longer wishes to use the structure as a residence or shop, the panels may be re-used as furniture or building materials.



## Visualization showing Wood Ring



## A Vision of Revitalization

The drawing below represents our image of residents gathered together on high ground to start a new life, using temporary houses and shops they have built on each empty lots. However, we recognize that due to a shortage of flat land in areas like Minamisanriku-cho, as well as the desire of residents to live in areas where fishing is possible, in the past many communities were built directly along the coast.\*1 As we think about plans for reconstruction, we feel it is important to take into account geography and the fact that many residents need to work in marine-based industries like fishing.\*2

\*1 : Meiji University Laboratory of Architectural History and Theory, "The Villages of Minamisanriku-cho: Disaster and recovery, 1896, 1933, 1960."

\*2 : 10+1 website Norio Maki x Akihito Aoi, "Thinking about the Great East Japan Earthquake (2) : Mechanisms of movement and attachment/Lessons from the history of past disasters."



# Support for the Wood Ring System to be provided by Makiko Tsukada Architects

## Emergency Phase

- Our office will offer this technology to construction companies in the disaster area. (We will make an effort to find companies that deal honestly with disaster victims.)
- We will search for ways to secure public funding for disaster victims forced to build their own temporary housing. (According to the Act Concerning Support for Reconstructing Livelihood of Disaster Victims, households whose home has been completely destroyed are entitled to a maximum payment of 3,000,000 yen.)

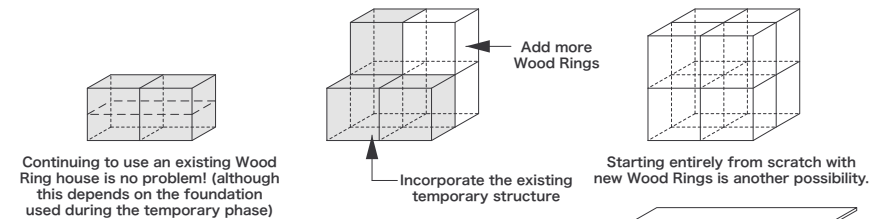
## Reconstruction Phase

- Our office will offer technological support to local firms in the disaster area designing homes or commercial facilities for clients who wish to (re)use the Wood Ring system. We hope local firms will incorporate the system into a range of great designs to help revitalize the Tohoku area. (When using the rings in a structure that is more than two stories, please consult with a structural design office.)
- During this phase, we hope local firms will also be working with the construction companies who built temporary Wood Ring structures during the emergency phase. Time for carpenters to show off their versatility and skills!

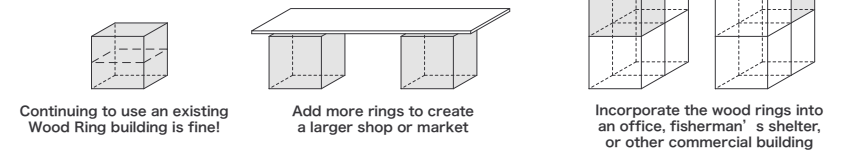
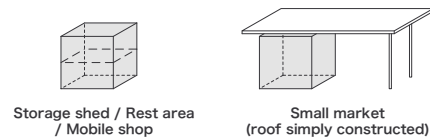
## Residence



Reuse or expand Wood Ring structures



## Commercial facility



<https://makikotsukada-architects.jp/> (homepage)