

## A RIVERINE HOUSE IN KOCHI

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The house is located at the riverbank of the Yoshino river, crossing steep mountain valleys in Shikoku island. The site is sloping down to the south and covered with chestnuts woods.

How to be responsive to the rich natural surroundings is a wish of the client family who hope to live close to the nature and a theme of passive design of this house that utilize the environmental potentials given to this region in the relatively temperate climate.

The main floor is rose up for minimizing the earth work with less foot prints to the original landscape and is accessed by the slender bridge from north side. This is for avoiding the risk of river flood as well.

A direct gain solar system for passive heating and a night-time ventilation system for passive cooling, the two simple passive techniques in this house work well and succeed to reduce the heating- and cooling load drastically. This design is carefully proceeded with an interactive computer design tool which was developed by the authors and results in good thermal performance. An important advantage of passive design allows the life style to be responsive to the environment as well as to contribute for the reduction of environment impacts.

This is a case study as one of prototypes for eco-conscious passive and sustainable design in temperate climate.



Facade



The area of the sun



3D model



The conceptual sketches

Photo of working cardboard model



The model is made of cardboard, it is made of the same accumulating water to...



Facade at evening illumination



The circuit of solar heating and aeration of a building



Cross-section scale 1:200