

Environmental Systems Case Study



Project Name: Marika Alderton House

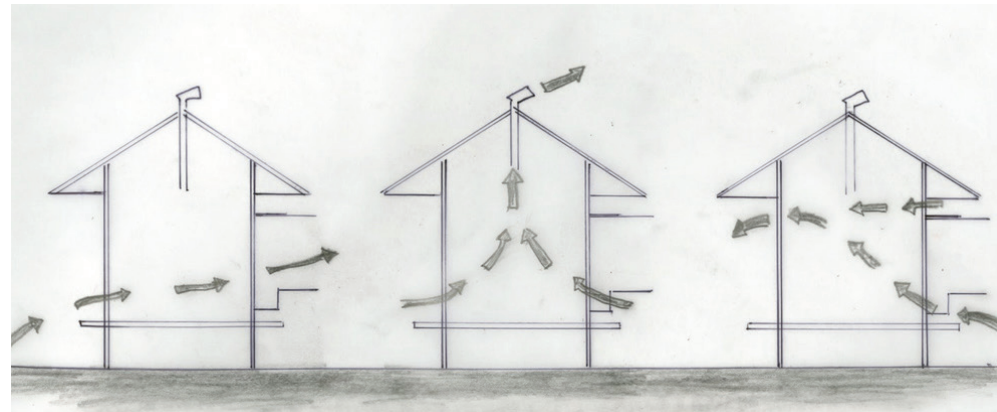
Architect: Glenn Murcutt

Location: Eastern Arnhem Land, Northern Territory, Australia

Climate: This region of the Northern Territory features a tropical monsoon climate with wet summers and dry winters. During the summer, temperatures average 33°C with hot winds from the north-west. During the winter, wind comes from the south-east and temperatures never drop below 25°C.

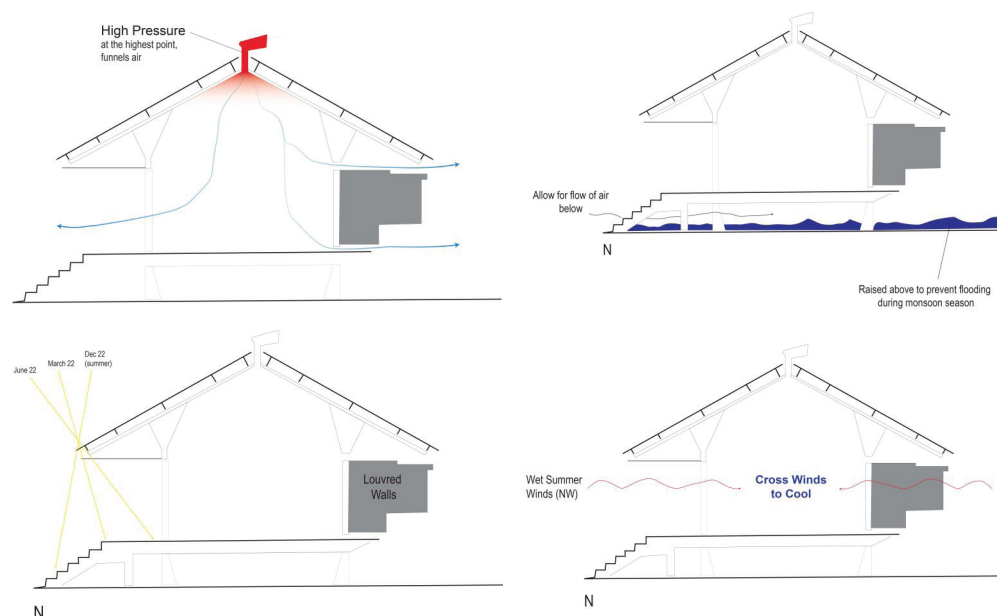


Design Intent: Glenn Murcutt designed the Marika Alderton House for the artist Banduk Marika and her partner Mark Alderton. Murcutt was asked to design a house that would allow for comfortable living without the use of unnatural technologies such as air conditioning. In addition to combating the tropical climate, the structure would need to stand up to hurricane force winds, flooding, and invasions from local wildlife and poisonous species.



Design Changes: It would be interesting to see how much further the design of this house could be pushed towards total self-sufficiency. As this area experiences monsoon rains I would suggest incorporating a rain capture system into the design. Perhaps power could also be collected from the high winds and intense sun experienced here.

Environmental Design Strategies: The structure of the house is made up of affordable local materials (solid steel structure, corrugated roof, eucalyptus blinds) that are able to withstand hurricane winds and monsoon rains. The house is raised above the ground to protect from flooding and wildlife and to allow for air flow from below. The overhang of the eaves provides year-round shading to protect the house from the intensity of the sun. The house employs the Venturi effect along with the Stack effect in order to funnel hot air out of the house through a tube in the roof. The zoned layout of the house results in each space being used during the time of day when it is most comfortable.



Sources:

- » <http://www.ozetecture.org/2012/marika-alderon-house/>
- » <https://en.wikiarquitectura.com/building/marika-alderon-house/>
- » <https://arielchesley.wordpress.com/2014/09/25/assignment-2-marika-alderon-house/>