

TDR-cooling requirement	1.7	8.4
Overheated hours	89%	97%

Based on the results of this preliminary study, we received indications that the well-insulated, almost airtight and optimum shaded PB is always cooler than RB during the daytime. Under the weather conditions of tropical Malaysia with a residential comfort level of not exceeding 28.6 °C, the passive design will work best in a combination of nighttime usage of green cooling (i.e. forced mechanical ventilation), and daytime airtight and shaded – best of course without occupants as interfering heat generators. If an air conditioner was used, a lot of energy can still be saved by using an energy efficient, inverter-type air set-pointed conditioner or a non-inverter type in combination with a simple smart power interrupter system.

Conclusion

The configuration of the façade was found to have a tremendous impact on the ambient temperature thus the overall energy consumption of the building. Window commonly presents a small area of a building, but it has a significant effect on the immediate heat inflow to the building. Whereas this work so far measures the impact of double-glazed window, moving forward, the impact of other parameters such as the floors, walls, ceilings, and even shadings are being investigated by the research team to determine the contribution of all these building enclosures in order to achieve tropical residential thermal comfort. The challenge is to bring all these relevant parameters into play in different weather situations for a more sustainable green living in the age of global warming.

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