

# The Application Construction of Fala Kanci as Healthy House for The Future

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**Abstract.** House is everything during the current Covid-19 pandemic. The house does not only function as a place to live, but more than that it is used for work, study, sports, and others. The concept of a healthy home that must be presented during this pandemic cannot be separated from the washing of health protocols, namely an optimized natural ventilation system, the availability of isolation rooms in each home, and the provision of hand sanitizing facilities (washtafel). The concept of structuring houses in traditional houses in North Maluku is following the concept of the current health protocol. Considering that the concept of traditional houses, especially people's houses, in several aspects are following health protocols, for this reason, it is necessary to model a healthy house after the Covid-19 pandemic to get a decent healthy house as a mitigation effort from biological disasters. The purpose of this study was to observe traditional houses that apply the principles of health protocols and the basics of these houses in the form of concept drawings. The result of the research is to make a new prototype to be modeled by considering natural ventilation systems, social distancing, and sanitation systems.

**Keywords:** Healthy house, Thermal comfort, Traditional house, Covid-19

## 1 Introduction

A healthy house condition is important, especially during a pandemic like this, because an unhealthy house can have an impact on the health of its residents [1]. Indirectly, an unhealthy house can increase the risk of its residents experiencing various diseases [2]. The people of Ternate city began to get used to doing all activities in the House. However, the condition of the house for each city resident is different, so it will affect daily activities.

The priorities of residents in the design of residential premises are natural lighting, visibility, the acoustics of interior spaces, and open or semi-open spaces (terraces). Overall, mental health parameters have become the most important priority for residents during the Covid-19 pandemic, demonstrating the importance of homes to undergo quarantine periods and prevent psychological damage from staying at home [3]. The concept of a healthy home that must be presented during this pandemic cannot be separated from health protocols, namely optimized natural ventilation systems, the availability of isolation rooms in each house, and the provision of sanitation, especially hand washing facilities (washtafel).

The concept of home arrangement in traditional houses in North Maluku corresponds to the concept of Health protocol applied today. This can be seen from the shape of the room plan, there is a room space that is on

the outside of the house or called a bachelor room can be for a quarantine room if there is a family who is affected/confirmed positive for covid and must carry out self-isolation at home.

One of the concepts of a healthy home is the existence of ventilation for natural ventilation to drain air into and out of the building. The ventilation system in traditional houses is made in such a way that cross ventilation occurs. It is also a basic concept in designing a natural ventilation system based on the theory used in the design of residential homes today. With the development of the Times, then created a smart ventilation system (smart ventilation). Smart ventilation systems with controls based on CO<sub>2</sub>, humidity, combined CO<sub>2</sub> and total volatile organic compounds (TVOC), occupancy, or outdoor temperature [4].

Community preferences and priorities for choosing healthy homes post-COVID-19 crisis it is worth considering that all parameters of Healthy Homes should be considered in the design and implementation of interior spaces, knowing housing priorities and preferences will provide better solutions and improve housing development programs to improve housing quality [3]. Considering that the concept of traditional houses, especially people's houses, in some aspects has been by health protocols, it is necessary to model healthy houses after the Covid-19 pandemic to get healthy houses that are habitable as an effort to mitigate biological disasters.

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## 2 Research Methods

The focus of this study is the modeling of thermal comfort in traditional houses in North Maluku by taking samples in folk houses in the city of Ternate. The method used in this study is an empirical measurement and simulation model using the Envi-MET System, to show the thermal conditions and the results of a thermal analysis performed using existing data. This is done to obtain healthy home modeling with a traditional architectural concept approach that is livable for the current Covid-19 condition.



**Fig.1** Location of Fala Kancing House

## 3 Result and Discussion

### 3.1 Building Facade

The facade of the building is one of the first visual elements observed and leading to an architectural work (literature, 2013). Such visual impressions help to identify the typology of the building. Facade components consist of Gates and entrances (entrance), ground floor zones, windows and entrances to buildings, guardrails, roofs, and building endings, as well as signs and building ornaments (Krier, 1983). Facade usually implies micro cosmos (culture) when the building was built, describing the criteria of order and arrangement, as well as revealing the sign (sign) and ornamentation and decoration (Krier, 1988; Arif, 2014). The facade of the building in the Fala buttonhole House expresses a distinctive shape by having its characteristics, which are characteristic of the appearance of a deliberately exposed space frame structure that not only functions as a structural element but also for the aesthetics of traditional house buildings in North Maluku. In the front of the house, 4 pillars support the terrace with a seat (half leger) flanking between the columns. The veranda consists of two rooms, namely the terrace and The Bachelor Room. To enter the terrace room must go up 4 steps. The facade has a door and on the right side, there is a window and ventilation. Window and door frames are made of wood that is installed vertically and serves also as a supporting structure for Beam and roof construction. The height of the roof is rather low with a slope of about 15° C.



**Fig.2** Facade of Fala Kancing House

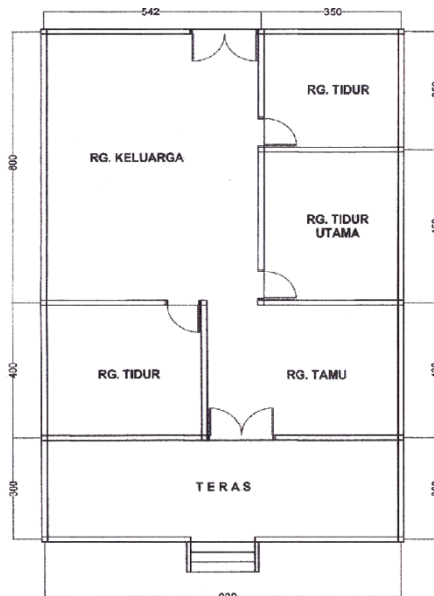
### 3.2 Floor Plan shape and space configuration

The Shape of the floor plan and configuration of the space in the Fala buttonhole House is made very simple which forms a linear circulation pattern. The linear circulation pattern is very favorable for evacuation, especially in houses in earthquake-prone areas. In addition, such a configuration pattern is also very beneficial for air circulation to be able to move in and out of the room.

The configuration of the space has no specific standards and usually depends on the wishes of the residents. But in general, the size of the Fala buttonhole House plan is rectangular with a difference in the size of the space on the front and side of the building. The length of the building is usually an even number, while the width is an odd number. The meaning of the difference in the size of the Fala buttonhole House plan is that the even size takes the philosophy of the size of the male body (homeowner) and the even size is the size of the female body (homeowner). So that the Fala buttonhole house contains the meaning of togetherness or bonding between homeowners (husband and wife, men and women).

The space inside the Fala buttonhole house consists of a waiting room (Sorabi), a living room (Fores), a bedroom, and a dining room. The kitchen and bathroom are usually separate from the main building. Each house has two bedrooms and on the left position of the living room. In the living room (Fores) provided one bed when there are guests dating stay. In the dining room, there is a dining table that is medium-sized and only intended specifically for fathers and guests. For mothers and children, both hosts and guests eat in the kitchen which also has a short table (Supapa) available. The living room (Fores) and terrace room (Sorabi) are available for a pair of table chairs made of wood or bamboo. The bathroom or latrine is located outside of the main building and is made very simply by using a wall of

bamboo called Biroteto and there is also a wall of thatched leaves. Likewise, the door leaf is made of vintage bamboo or thatched leaves. In the bathroom, there is a small bench called Dum-Dum which serves as a place to urinate.



**Fig. 3** Layout of Fala Kancing House

### 3.3 Fala Kancing Healthy Home Concept

Home to the Indigenous people and the Moloku Kie Raha (North Maluku) culture has a strong influence from the teachings of Islam. Moloku Kie Raha is the name of the area of North Maluku Province which is located in Eastern Indonesia. The Moloku Kie Raha region which symbolizes these four kingdoms has a territorial expansion from Morotai Island in the north to the Sanana Islands in the southern part of North Maluku Province. There are approximately 35 (thirty five) tribes in Moloku Kie Raha [5], almost each tribe has a traditional house. The diversity of traditional Moloku Kie Raha architecture can be felt from the physical form of the traditional buildings scattered in this area. Although traditional buildings have the characteristics of each tribe/region, these traditional buildings still have the same philosophy [6].

Fala Kancing House is a traditional house that applies the concept of a healthy home. During a pandemic like this, people need to pay attention to the comfort of their homes in order to avoid the transmission of this disease. The application of the healthy home concept at the Fala Kancing house is shown in the division of space in the house, air quality that utilizes natural ventilation and natural lighting. This division of space is marked by the presence of a front room adjacent to the terrace of the house, which can be used as an isolation room for Covid-19 sufferers. The front room is called the Single Room. This bedroom door is separated from the main door of the house, so people who occupy this bedroom do not need to enter the house. This can be used as an isolation room, so that Covid-19 sufferers do not have direct contact with their families at home.

## 4 Conclusion

The concept of structuring the Fala Button house can be used as an alternative to designing a healthy home today. This house can be designed as a prototype for the comfort of the occupants in it, if one of the family members has Covid-19 symptoms. The new prototype of the Fala button healthy home will be modeled taking into account natural ventilation systems, social distancing, and sanitation systems.

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