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**DISEMINASI HASIL PENELITIAN PADA INTERNATIONAL CONFERENCE ON ENGINEERING,
CONSTRUCTION, RENEWABLE ENERGY AND ADVANCE MATERIAL**

ICECREAM#1

**IDENTIFICATION OF BUILDING ARRANGEMENTS IN
VERNACULAR RESIDENTIAL : THE CASE OF HOUSES IN
KUDUS OLD CITY**



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**PROGRAM STUDI ARSITEKTUR
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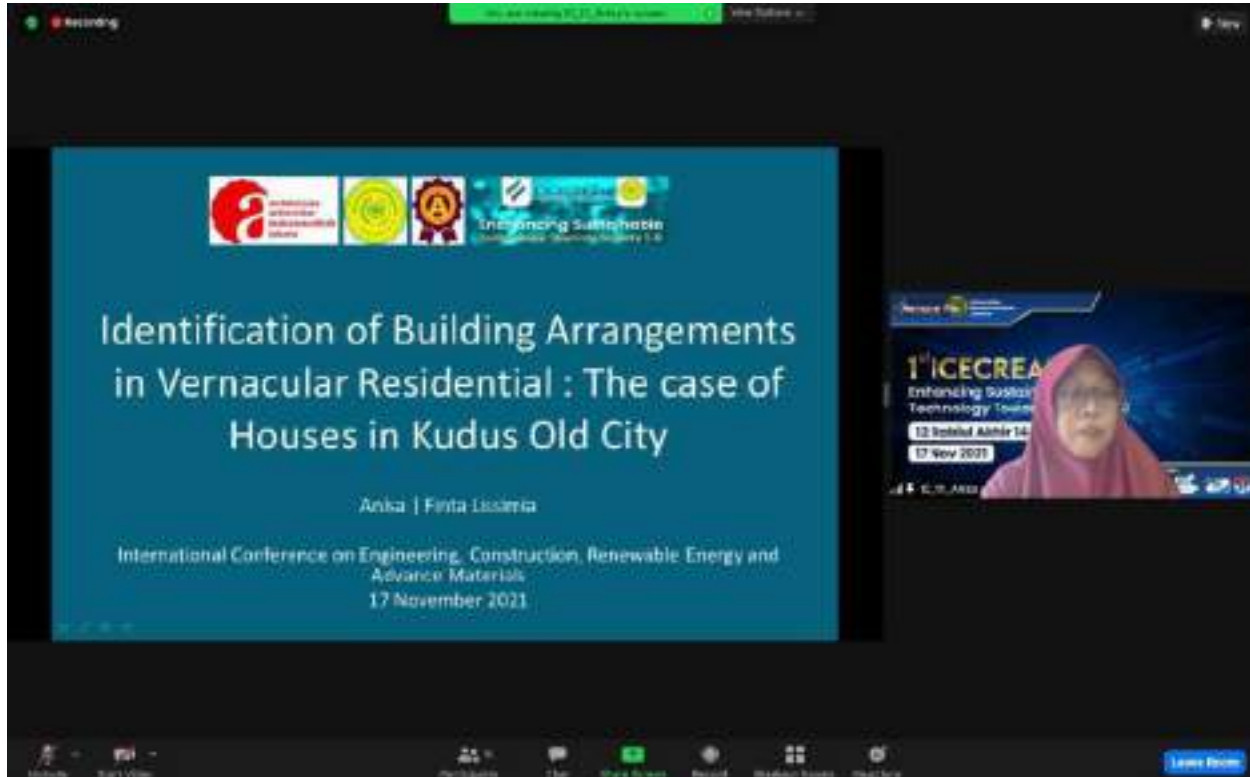
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Abstract:	Vernacular architecture is an architecture that arises because of the needs of the local community. Vernacular architecture also translates local concepts that exist in society. Occupancy is an example of a vernacular architectural work. This study aims to identify the arrangement of buildings in vernacular housing by taking the case of houses in the Old City of Kudus which were built in the period 1800-1900. This research is a qualitative descriptive study that uses a phenomenological approach and takes data purposefully on 14 vernacular residential in the Old City of Kudus. The findings obtained are that there are two types of building structures in vernacular dwellings. Type 1 building arrangement is centered and oriented to the front yard. Type 2 building arrangement facing 2 elements, namely the front yard and the back yard. In type 2, the arrangement of the main building is facing the front yard, while the backyard is used as the orientation of the supporting buildings.
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Identification of Building Arrangements in Vernacular Residential : The case of Houses in Kudus Old City

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Identification of Building Arrangements in Vernacular Residential : The Case of Houses in Kudus Old City

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ABSTRACT

Vernacular architecture is architecture that arises because of the needs of the local community. Vernacular architecture also translates local concepts that exist in society. Occupancy is an example of a vernacular architectural work. This study aims to identify the arrangement of buildings in vernacular housing by taking the case of houses in the Old City of Kudus, built-in 1800-1900. This research uses qualitative descriptive methods, a phenomenological approach that takes purposive data on 14 vernacular residential in the Old City of Kudus. The findings obtained are that there are two types of building structures in vernacular dwellings. Type 1 building arrangement is centered and oriented to the front yard. Building Type 2 faces two sides which are the front yard and the back yard. In type 2, the main building faces the front yard, while the supporting building faces the back yard.

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Keywords: identification, building arrangement, vernacular residential

1. Introduction

The study of vernacular architecture is still an interesting theme because there are many factors behind the formation of the vernacular built environment. Vernacular architecture is a built environment that emerges and develops because of the needs of its people. That's why vernacular architecture cannot be equated with one another.

Vernacular architecture is tied to the location and conditions in which the building is located because vernacular architecture is a solution to local problems and solutions for the surrounding community.

Masner (Saraswati, 2008) states that vernacular buildings are buildings made of local materials at that location. One of the characteristics of vernacular buildings is human needs that affect their shape and structure.

One example of vernacular architectural work is traditional houses. Traditional houses are built based on the community's needs with local materials and technology owned by the community. In addition to traditional architecture, examples of vernacular architectural works are buildings/built environments that solve local problems. This is the background of the houses in the Old City of Kudus as the research case.

The Old City of Kudus or more often referred to as Kudus Kulon is an area that became the forerunner of the founding of Kudus City, Central Java. Kudus City is a historic city because one of the Wali Songo, namely Sunan Kudus, preaches in this area.

Sunan Kudus preaches and lives in settlements around Menara Kudus. This settlement is unique because there are towers, mosques, and the tomb of Sunan Kudus and because of the unique settlements.

The settlements around Menara Kudus are dominated by houses located inside high walls,

creating a road like a long alley. In this settlement in Kudus, houses were found as works of vernacular architecture when they were built.

Some of the houses which are works of vernacular architecture can still be traced today. This research is a preliminary study that aims to identify and describe the arrangement of buildings in vernacular dwellings in the Old City of Kudus.

This research continues previous research, namely the House in the Kilungan in the Old City of Kudus (Anisa, 2004) and the Study of Vernacularity in the Kilungan House in the Old City of Kudus (Anisa and Nuraini, 2020). This study focuses on identifying the arrangement of buildings in the vernacular dwellings in the Old City of Kudus, based on previous research that found several buildings that became a unity in the houses in the Old City of Kudus.

Research publications related to vernacular architecture and vernacularism have been traced in several journals, including the writings of Saraswati (2008), Anisa & Nur'aini (2020), Wulandari et al. (2018), Sinaga (2017), and Anisa (2021), as well as various other studies. Saraswati (2008) explained the vernacularism of the Los building. Anisa and Nur'aini (2020) explained the vernacularism of the kilungan house in general. Wulandari et al. (2018) studied the expression of the Bengkulu Mosque's architectural form. Sinaga (2017) studied the Minangkabau vernacular expression of the gantiang mosque.

2. Material and Methods

This research on the arrangement of buildings in vernacular dwellings is a phenomenological study that takes qualitative data inductively. The case taken for this is the kilungan house in the Old City of Kudus. A total of 14 houses were taken by purposive sampling.

Based on the objectives, this research can be classified as descriptive research, namely identifying and describing the arrangement of buildings in vernacular dwellings.

The descriptive method is used to get a complete picture of a problem. With the description method, it is hoped that the research objectives can be achieved. Qualitative methods are used in the process of data collection and analysis.

The material studied includes physical and non-physical material. Physical material is the buildings in the kilungan house and their arrangement. Non-physical material is the socio-cultural conditions that contribute to the physical form.

The analysis in this study was carried out in stages and on a case-by-case basis. In case 1, data were obtained and analyzed to find the findings and unit of analysis. After completing case 1, then proceed to case 2 in the same way. This stage is carried out until the findings of the case are repeated up to 3 times.

3. Results and Discussions

3.1. History of the Kudus City and Settlements in the Old City of Kudus

According to Prof. Dr. R. Ng. Poerbatjaraka Kudus comes from Arabic which means Kudus, clean. The inscription contained in the mihrab of the Kudus Ancient Mosque marked the year 956 H or coinciding with the year 1549 AD mentions Al-Quds as the name of the city where the mosque is located (Salam, 1977). Solikhin Salam also stated that the word Kudus comes from Arabic, namely Al-Quds, which means holiness. The word Quds which means Kudus, then in the Indonesian tongue turns into Kudus.

According to historical records, Kudus had a local government known only for certain in the 19th century (Tjie, 2000). In general, the

establishment of the Kudus City is associated with Sunan Kudus, Dja'far Shodiq, one of the saints who in the 16th century was buried in the middle of the old city and is still respected today. (Castle, 1982)

During the first development period of the cigarette industry, Kudus had already become a developed city, bigger and more prosperous than the district. The buildings made of wood are neater, cleaner, and more graceful than anywhere else in Java. This city is so attractive that the residents of Kudus City, the active brokers, and the profit-bearers return after exploring the country from end to end, sometimes years together, so that they can enjoy the rest of their income from the results of their efforts. (Castle, 1982)

Among the indigenous factory entrepreneurs three groups can be clearly seen. First of all, there are related family groups in Kudus Kulon that have been happening in the industry since the company's inception. Some of them built large Italian-style villas that stood out, while others lived in houses with high walls, apparently to remind the group's efforts to separate themselves socially and protect themselves from the pressure of their countrymen and co-religions who were not rich. The second group of indigenous kretek factory entrepreneurs consists of new people who have succeeded since World War II. (Castle, 1982)

Although in general, it seems to be confined by a reasonably high wall around the house, one of the prominent characteristics of the Kudus house behind the wall fence is the presence of a spacious and spacious yard or front yard of the house, which is generally in the form of a rectangular base. The embodiment of the Kudus house's form, including the spatial arrangement, reflects the relationship with the social status of the owner of the house concerned. (Triyanto, 2001)

In particular, the spatial arrangement of the Kudus house is also expressed to show the identity or social position of the owner as santri. Separate reception areas for women and men in the jogosatru room, show how strong the homeowner is in maintaining Islamic religious norms in the association of women and men who are not their relatives. Likewise, the placement of a well or a place for ablution in the front yard of the house is indirectly one way to show their identity as devout Muslims in carrying out the teachings of Islam. (Triyanto, 2001)

3.2. Vernacular Architecture

Vernacular architecture is an architecture that has locality or locality properties. Vernacular architecture also means architecture that adapts to the local climate, uses local techniques and materials, and is influenced by the local community's social, cultural, and economic aspects. Vernacular architecture can also be expressed as unity between physical formation and abstract meaning content realized through technical, culturally-based and influenced by the environment (Mentayani, et al, 2017).

Vernacular architecture is an architecture that grows and develops from folk architecture born from ethnic communities and based on ethnic traditions. In addition, vernacular architecture is also built based on the experience of the local community, using local techniques and materials, and is an answer to the environmental conditions in which the building is located. Vernacular architecture also allows for transformation (Turan in Tarigan, 2016). Rapoport revealed that vernacular architecture could be interpreted as architecture born from specific communities created by and for particular communities or cultures (Rengkung, 2011).

The heritage of Indonesian vernacular architecture has strong characteristic values

following cosmological thinking and the way of life of the indigenous people. The critical thing for vernacular architecture to have is ecological value, which is a value that is responsive to the environment and refers to local potential, abilities and skills, practical knowledge, and traditional techniques (Wiranto, 1999).

3.3. Variety of Vernacular Residential in the Kudus Old City

Vernacular housing as an architectural work made based on the community's needs in the Old Kudus City can be seen in several types of buildings. In the Kudus Old City Area, there is an area in the center, namely the Kudus Tower area. The Menara Kudus area is characterized by 3 elements, namely the Kudus Tower, the Al Aqsa/Al Manaar Mosque, and the tomb complex of Sunan Kudus.

The area around Menara Kudus has unique settlements and houses called vernacular residential works. Traces of vernacular dwellings that we can see up to now are Kudus traditional houses, kilungan houses, and gedong houses. The Kudus traditional house is a work of vernacular architecture found around the Menara Kudus area. The traditional Kudus house is made of carved wood. The layout of the traditional Kudus house is jogosatru, gedongan, and pawon which are in one building. In addition to these buildings, traditional Kudus houses are usually equipped with separate gutan and bathroom wells. In a complete type traditional Kudus house there is an additional building, namely the sisir building. So it can be concluded that in the Kudus traditional house there is 1 main building, and 2 supporting buildings, namely the gotakan-bathroom-well and the sisir building.

The sisir building is a place used for business. Meanwhile, houses that do not have sisir

buildings will place their business activities in Jogosatru or Pawon.

In addition to the traditional Kudus house, there are also other forms of vernacular housing in this area, although just a few. The building in question is a gedong house or a European-style house. Its uniqueness is that successful cigarette entrepreneurs build the European-style house in the Old City of Kudus. This house is a testament to the success of the Kudus people in the cigarette industry in the 19th century.

While the traditional architecture of Kudus is quite universal, it can be said as evidence of the success of the Kudus community in the field of trade in general. The sisir building is the embodiment of the palawija trading business building, which later developed into a cigarette factory business building and developed according to the community's needs.

In addition to the gedong house and the traditional Kudus house, one more residence is a work of vernacular architecture, namely the kilungan house. Kilungan house is a local term used to refer to a house within the scope of a high fence. This kilungan house was built at the same time as the traditional Kudus house and the gedong house. The interior of the kilungan house is the traditional Kudus house and the gedong house.

The Kudus Kulon community or the Kudus Old City is famous for making a living as traders. There were two main activities attached to the Kudus community, namely the Koran and trading. Both of these activities are reflected in the dwellings in them. vernacular housing as an architectural work

3.4. Buildings as part of the Vernacular Residence in the Kudus Old City

The previous discussion explained that 3 vernacular dwellings can still be traced in the Old City of Kudus, namely the Kudus traditional house, the gedong house, and the kilungan house. The three houses have several buildings which are part of the completeness of the house.



Figure 1: Kudus Traditional House

Kudus traditional house, the main building is a house with 3 rooms in it, namely jogosatru, gedongan, and pawon. Jogosatru is a public space in nature and may be entered by everyone, both residents and guests. In this jogosatru section, there is one pillar in the middle, which serves to support the blandar and separates the male and female areas in the traditional Kudus house. Behind jogosatru there is a gedongan room which is elevated from jogosatru and is private. This gedongan section is more extensive than jogosatru and is used as a resting place and to store valuables. Inside the gedongan there are 3 rooms as in a traditional Javanese house. The size of the gedongan room is about 2 times larger than jogosatru. The third room in the main building of the traditional Kudus house is the pawon. Pawon in the traditional Kudus house means a semi-private space that is used for daily activities. Pawon room is also used in some houses as a place of business, especially those bordering the road. Because the size of this pawon room is relatively large, several activities can be carried out in it. There is a

traditional Kudus house that has 2 pawon on the right and left of jogosatru.

In addition to the main building, there are separate bathrooms and wells at the front of the Pawon. There are also separate gutters in this section such as a dirty kitchen and a storage/warehouse.

In the traditional Kudus house, in front of the main building there is a sisir building, which is a building used as a place of business. Initially, the business that occupied this sisir building was the secondary food trade during the Dutch colonial period. This trade then developed when the cigarette industry entered the Old City of Kudus, these traders also turned to tobacco trading and producing cigarettes. In the 1900s, there was a boom in the trade of tobacco and home industry cigarettes in the Old City of Kudus, which were processed in sisir buildings.



Figure 2: Sisir Building

The element in the middle between the sisir building and the main building is the courtyard. This part has been preserved and is used as the orientation of the building.

Another vernacular residence, namely Rumah Gedong, is a European-style house located in the Old City of Kudus. Even though this house is in the same place as a traditional house, the shape and layout is very different. In the gedong house there is also the main building,

namely the residential building. The main building has a very steep roof, inclined 45 degrees and wide eaves. This gedong house is made with brick primary wall material, and the structure is like a modern house. The gedong house in the Old City of Kudus appears newer than the traditional Kudus house. This gedong house appeared around the 1900s when the cigarette industry was booming in Kudus.

The owner of the gedong house is usually a cigarette entrepreneur on a larger scale than the cigarette entrepreneur who is in the traditional Kudus house. The cigarette factory will be located separately from its home environment because the cigarette production process was still manual and involved many employees, starting from the tobacco mixing department, rolling the tobacco to the packaging process, and ready for distribution. At that time, various jobs were known, such as grinding, vanity, cutting, etc., all of which were related to turning tobacco into cigarettes that were ready to be marketed.



Figure 3 : *Gedong House*

The completeness of the gedong house apart from the main building is a building related to business, namely warehouses and offices. The warehouse in question is a tobacco warehouse as material to be processed. The warehouse in this gedong house is part of the warehouse and the other part is integrated with the factory. While the office in question is the office to take care of the administration of the cigarette factory.



Figure 4: Warehouse at *Gedong House*

The third vernacular dwelling is the kilungan house. The kilungan house is a local name for the Kudus Kulon community to refer to houses built in 1800-1900 within the scope of a high fence. The fence comes from a massive wall 3-4 meters high. In general, this kilungan house is around Menara Kudus to the limits of the Old city. The further away from the Kudus tower, the fewer kilungan houses are found.

The buildings in the kilungan house are related to the two vernacular dwellings that have been discussed previously, namely the Kudus traditional house and the gedong house. The buildings in the kilungan house can be divided into 3 types, namely traditional houses, gedong houses, and traditional pattern houses.

Type 1 is a kilungan house which consists of a traditional Kudus house, which means a kilungan house whose building is in the form of a traditional Kudus house. In this type, the traditional house is of complete type, consisting of the main building of jogosatru-gedongan-pawon, supporting wells-gotakan, the sisir building, and the courtyard in the middle.

Type 2 is a kilungan house which consists of a gedong house, which means a kilungan house whose building is in the form of a gedong. The building consists of a main building, namely a residential house, supporting buildings in the form of a separate kitchen, a warehouse larger

than a house, and a business building usually in the form of an office..

Type 3 is the kilungan house, which consists of a traditional pattern house. The building inside the kilungan is in the initial form of the traditional Kudus house, but when the survey was carried out the rooms had changed without changing the pattern of the traditional Kudus house itself. For example, in one of the cases studied by Jogosatru, the shape remains fixed, but the middle part is used as a room. The pawon on the side of the road is then used as a living room, while the pawon on the other side served as its original function, namely the dining room and kitchen. Gedongan has a fixed shape and is used for living rooms and bedrooms.



Figure 5: *Kilungan House*

3.5. Building Arrangements in Vernacular Residential

Based on the analysis described in the previous section, it can be explained that there are 2 types of building arrangements in vernacular housing in the Old City of Kudus. The findings in the form of 2 types of building arrangements were obtained from a qualitative analysis of the 14 cases studied, namely houses built in 1800-1900 according to the local community's needs at that time.

Tabel 1: Building Arrangements in Vernacular Residential

Type 1	Type 2
Orientation centered on <i>latar ngarep</i>	Separate orientation on <i>latar ngarep</i> and <i>latar mburi</i>
K1, K2, K3, K7, K8, K9., K11, K12, K13, K14	K4, K5, K6, K10

The findings obtained in type 1 are the arrangement of buildings in vernacular dwellings centered on the courtyard, which is often called the ngarep background. The main building, supporting buildings and sisir buildings look forward to the courtyard. In contrast, the entrance or entrance to the house is on the side. This type is commonly found in vernacular dwellings in the form of Kudus traditional houses and kilungan houses. For the traditional Kudus house, which is lined up without turning, this yard can also be used as a connecting road with its neighbors.

The finding in type 2 is that there is a more complex building arrangement due to several building masses in the vernacular dwelling. This type is found in vernacular dwellings in gedong houses and kilungan houses, especially in kilungan houses that have undergone changes in spatial function but have not changed shape.

4. Conclusion

Based on the problem formulation and research objectives, it can be concluded as follows:

1. The arrangement of buildings in vernacular dwellings can be identified and described based on three types of vernacular dwellings in the Old City of Kudus. The three types of housing were built in 1800-1900 according to the local community's needs.
2. The findings obtained are that there are two types of building structures in vernacular dwellings. Type 1 building arrangement is centered and oriented to the front yard. Type 2 building faces two sides, the front yard and the back yard. In type 2, the main building faces the front yard, while the backyard acts as the orientation of the supporting buildings.

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Introduction

- Vernacular architecture is a built environment that emerges and develops because of the needs of its people.
- Vernacular architecture is tied to the location and conditions in which the building is located
- One example of vernacular architectural work is traditional houses
- The Old City of Kudus or more often referred to as Kudus Kulon is a historic city because one of the Wali Songo, namely Sunan Kudus, preaches in this area.
- Sunan Kudus preaches and lives in settlements around Menara Kudus. This settlement is unique because there are towers, mosques, and the tomb of Sunan Kudus and because of the unique settlements.
- The settlements around Menara Kudus are dominated by houses located inside high walls, creating a road like a long alley.
- Some of the houses which are works of vernacular architecture can still be traced today.



Methods

- This research aims to identify and describe the arrangement of buildings in vernacular dwellings in the Old City of Kudus.
- Phenomenological study that takes qualitative data inductively.
- A total of 14 houses were taken by purposive sampling.
- The analysis in this study was carried out in stages and on a case-by-case basis.
- In case 1, data were obtained and analyzed to find the findings and unit of analysis. After completing case 1, then proceed to case 2 in the same way. This stage is carried out until the findings of the case are repeated up to 3 times

Variety of Vernacular Residential in the Kudus Old City

- The area around Menara Kudus has unique settlements and houses called vernacular residential works.
- Traces of vernacular dwellings that we can see up to now are Kudus traditional houses, kilungan houses, and gedong houses.
- The Kudus traditional house is a work of vernacular architecture found around the Menara Kudus area.
- The traditional Kudus house is made of carved wood. The layout of the traditional Kudus house is jogosatru, gedongan, and pawon which are in one building.
- In addition to these buildings, traditional Kudus houses are usually equipped with separate gotakan and bathroom-sumur.
- In a complete type traditional Kudus house there is an additional building, namely the sisir building. So it can be concluded that in the Kudus traditional house there is 1 main building, and 2 supporting buildings, namely the gotakan-bathroom-sumur and the sisir building.
- The element in the middle between the sisir building and the main building is the courtyard. This page is the part that has been preserved and is used as the orientation of the building.



Gedong House

- In the gedong house there is also the main building, namely the residential building.
- The main building has a very steep roof, inclined 45 degrees and wide eaves. This gedong house is made with brick primary wall material, and the structure is like a modern house.
- This gedong house appeared around the 1900s when the cigarette industry was booming in Kudus.
- The owner of the gedong house is usually a cigarette entrepreneur on a larger scale than the cigarette entrepreneur who is in the traditional Kudus house.



Kilungan House

- The kilungan house is a local name for the Kudus Kulon community to refer to houses built in 1800-1900 within the scope of a high fence. The fence comes from a massive wall 3-4 meters high. In general, this kilungan house is around Menara Kudus to the limits of the Old city. The further away from the Kudus tower, the fewer kilungan houses are found.
- The buildings in the kilungan house are related to the two vernacular dwellings that have been discussed previously, namely the Kudus traditional house and the gedong house. The buildings in the kilungan house can be divided into 3 types, namely traditional houses, gedong houses, and traditional pattern houses.
- Type 1 is a kilungan house which consists of a traditional Kudus house, which means a kilungan house whose building is in the form of a traditional Kudus house.
- Type 2 is a kilungan house which consists of a gedong house, and Type 3 is the kilungan house, which consists of a traditional pattern house.



Finding Dialog Theme

- There are 2 types of building arrangements in vernacular housing in the Old City of Kudus. The findings in the form of 2 types of building arrangements
- The findings obtained in type 1 are the arrangement of buildings in vernacular dwellings centered on the courtyard, which is often called the ngarep background. The main building, supporting buildings and sisir buildings look forward to the courtyard. In contrast, the entrance or entrance to the house is on the side.
- The finding in type 2 is that there is a more complex building arrangement due to several building masses in the vernacular dwelling. This type is found in vernacular dwellings in gedong houses and kilungan houses, especially in kilungan houses that have undergone changes in spatial function but have not changed shape.

Type 1	Type 2
Orientation centered on <i>latar ngarep</i>	Separate orientation on <i>latar ngarep</i> and <i>latar mburi</i>
<p>The diagram shows a central courtyard labeled 'Latar ngarep'. Above it is a building labeled 'Rumah tinggal'. Below it is another building labeled 'Bangunan lain'. To the left is another building labeled 'Bangunan lain'. An arrow labeled 'Pintu masuk' points to the right side of the courtyard. Arrows also point from the buildings towards the courtyard.</p>	<p>The diagram shows a complex arrangement of buildings. At the top is 'Rumah tinggal dan bangunan usaha'. Below it is 'Latar mburi'. Below that is 'Rumah tinggal'. At the bottom is 'Latar ngarep'. To the left of 'Latar ngarep' is 'Bangunan lain'. To the right of 'Latar ngarep' is 'Kamar mandi dan sumbu'. Arrows indicate separate orientations for 'Latar mburi' and 'Latar ngarep'. A side entrance is also shown.</p>
K1, K2, K3, K7, K8, K9, K11, K12, K13, K14	K4, K5, K6, K10

Conclusion

- The arrangement of buildings in vernacular dwellings can be identified and described based on three types of vernacular dwellings in the Old City of Kudus. The three types of housing were built in 1800-1900 according to the local community's needs.
- The findings obtained are that there are two types of building structures in vernacular dwellings. Type 1 building arrangement is centered and oriented to the front yard. Type 2 building faces two sides, the front yard and the back yard. In type 2, the main building faces the front yard, while the backyard acts as the orientation of the supporting buildings.

Thank You

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