



Article

Islamic Influence on the Local Majapahit Hindu Dwelling of Indonesia in the 15th Century

Aruji Sulaksono , Yasser Ahmed Adas * and Ayad Almaimani *

Department of Architecture, King Abdulaziz University, Jeddah 21589, Saudi Arabia; aruji.s@mail.ugm.ac.id

* Correspondence: yads@kau.edu.sa (Y.A.A.); ealmaimani@kau.edu.sa (A.A.)

Abstract: Majapahit was one of Indonesia's most prominent and last Hindu kingdoms in the 12–15th centuries. During this time, there was a process of changing religious beliefs among the Javanese population, who then embraced Hinduism to eventually become Muslim. In the 14th and 15th centuries, according to estimates, Islam began to spread throughout the Majapahit Empire. There was also a cultural shift in the Majapahit Kingdom's society, from how they dressed to the shape of their houses. This study aims to determine how structures from that time were interpreted using a 3D model based on field surveys and previous studies. This documentation's findings are divided into typology, spatial distribution, and architectural elements. Each of these three groups was further defined through Islamic law to determine the extent of Islam's Influence on dwellings throughout the Majapahit Era. The impact of Islam on Majapahit architecture during that time was characterised by openness in terms of building typology, compactness in the internal layout of buildings, and the employment of ornamental architectural features based on plant and abstract patterns.

Keywords: Majapahit; documentation; dwelling; typology; spatial distribution; architectural elements



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1. Introduction

In the 13th Century, Islam came to Indonesia via the establishment of the Samudra Pasai kingdom in Aceh [1] (p. 36). At that time, Java Island and Bali Island were influenced by the Majapahit Kingdom, one of the strongest Hindu kingdoms in Indonesia [2] (p. 470). Furthermore, the Majapahit Empire controlled two crucial areas in the 15th Century, including Trowulan as the kingdom's capital and Bintoro, a site under Majapahit rule and the centre of Islamic da'wah activities for the Majapahit people [3] (pp. 63–64).

In the 14th Century, some people who lived in the Majapahit Kingdom's capital city converted to Islam [4] (pp. 4–7). At the time, Raden Fatah, the son of Majapahit King Brawijaya V, was given an area called Bintoro to establish a centre for Islamic da'wah activities. The people of Majapahit converted to Islam to gain knowledge in that area and some lived there, and the site is still growing [5] (p. 41). Islam had a considerable influence on the Majapahit Kingdom during its history. The result of this is not only related to art, politics, and society but also to architecture. One of the changes that occurred was in private dwellings. Buildings changed with regards to their typology, spatial distribution, and architectural elements. The differences between houses in the Bintoro and Trowulan areas is evidence of the Influence of Islam from the perspective of the Majapahit people in managing their homes. One of these differences is in the façade of their houses, as in Figure 1. The left side of the picture is a Majapahit house reconstruction by the municipality of Trowulan based on archaeological excavations and conducted research in the Trowulan area. Meanwhile, the right side is a vernacular house in the Bintoro area.

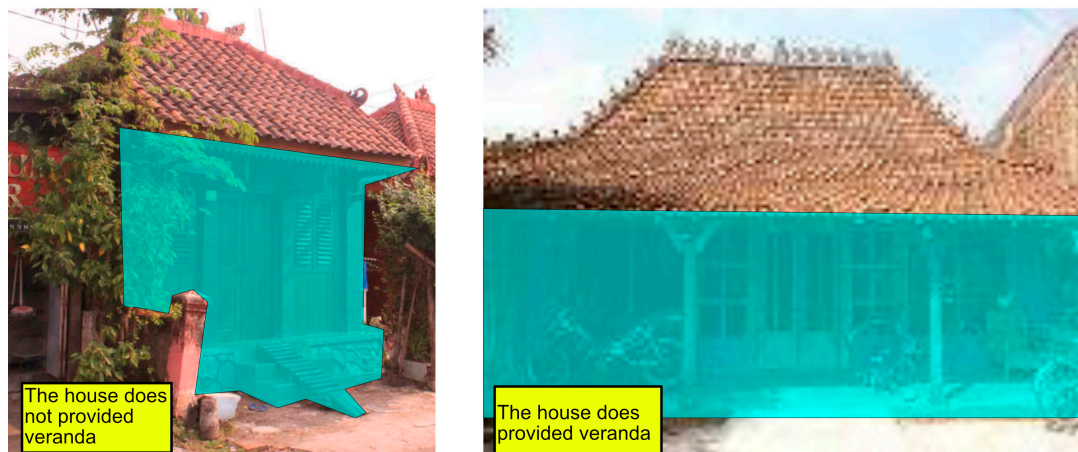


Figure 1. Differences in a Majapahit house in Trowulan (**left**) and a Majapahit house in Bintoro (**right**). Source: [2] (p. 475), [6] (p. 16).

The façade of the Majapahit community building in Bintoro has a veranda to receive guests, which was not found in their buildings when they were still in Trowulan. This evidence is also reinforced by [7] (p. 105), who states that in Islamic architectural terms, having a space for receiving guests in the house is compulsory.

The locations for Bintoro and Trowulan were chosen because these areas are closely related, primarily to the transition to Islamization in the people of the Majapahit Kingdom. In the 14th Century, Bintoro was part of the Majapahit Empire, which became an active centre of knowledge and the spreading of Islam and attracting people to study Islam in those places [8] (p. 25), [9] (p. 75). Furthermore, the Trowulan area at that time was the capital of the Majapahit Kingdom, where many data and artefacts from the Majapahit Kingdom were found.

The simplification of the shape of the temple at the Trowulan site on the roofs of houses in Bintoro and the resemblance of the house ornamental patterns to the Balinese architectural ornaments that represent Majapahit culture proves that the vernacular settlements in the Bintoro area are a legacy of the Majapahit Kingdom, see Figure 2, [10] (p. 20), [11] (p. 67).

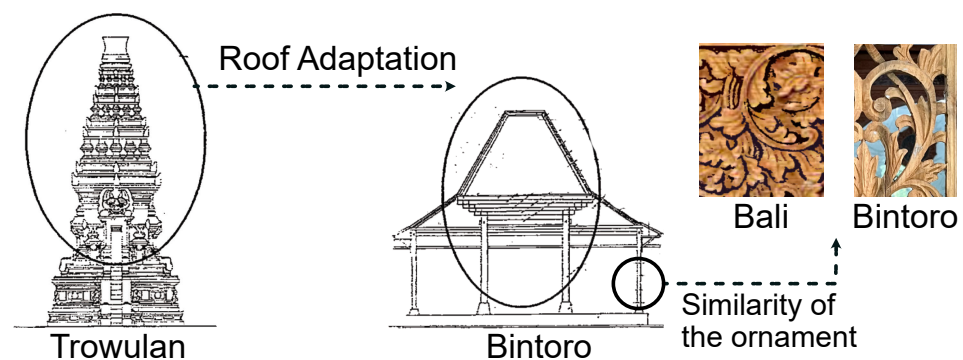


Figure 2. The adaptation of the shape of the temple roof and its similarity with the Balinese architectural ornaments of the Bintoro houses. Source: [10] (p. 20), [11] (p. 67).

In Indonesia, research has been conducted concerning the dwellings of the Majapahit Era. One of the studies that became the reference for this research was Transformation in the Traditional Architecture Settlement on Java from the Hindu-Buddhist Era to the Islamic Era, written by [11]. This research analyses the transformation of Javanese vernacular architecture from the Majapahit Era to the present. However, this research shows the physical transformation of the buildings in Javanese society in general, such as their construction, layout, and form. In the previous year, ref. [12] also studied the aesthetics of Majapahit architecture (Kajian estetika desain arsitektur Majapahit). In this research,

he shows the various forms of buildings in the Majapahit Era based on artefacts and archaeological excavations in Trowulan. Another study related to Majapahit architecture was also carried out by [13] in a research journal entitled *arsitektur rumah di kawasan cagar budaya trowulan (studi pemukiman majapahit abad ke-14 m)*. It explains the overview of the layout of cities and houses in the era of the Majapahit Empire, concerning the functions that existed at that time. However, this study has minimal visual explanations so that the reader only imagines what the Majapahit architecture was like in that era.

This research is proposed to see the transformation through the Islamic point of view in order to see the Influence of Islam in the conversion of Majapahit's dwellings.

1.1. Research Objectives

- This study aims to comprehend the impact of Islamic teachings on the architectural transformation of the building typology of houses during the Majapahit Era as a Hindu kingdom.
- This study aims to understand the Islamic teachings that influenced the transformation of spatial distribution within the houses.
- This study aims to understand the transformation of architectural elements in the Majapahit Kingdom during the Influence of Islamic teachings.

1.2. Research Limitations

The scope of this study is limited to residential buildings influenced by the Majapahit Kingdom, such as Trowulan and Bintoro, as seen through the lens of Islamic law and architecture related to their typology, spatial distribution, and architectural elements.

1.3. History of Islam in the Majapahit Kingdom

1.3.1. Geographical Information of the Kingdom

Indonesia is an archipelago country located in the Indian and Pacific oceans. It is a country in Southeast Asia. However, Indonesia once consisted of several regions before becoming a republic, each led by various kingdoms. One of the kingdoms that is the focus of this research is the Majapahit Kingdom. It stands out because, in that era, there was a transition from a Hindu society to an Islamic society [14] (p. 244). The Majapahit Kingdom was one of the kingdoms centred on East Java Island and was quite victorious by having many areas of power. More details can be seen in the map in Figure 3.



Figure 3. A map of the Majapahit Empire based on the Nagarakertagama manuscript. Source: [15].

According to initial data, this research focuses on Trowulan and Bintoro. Trowulan is the capital of the Majapahit Empire, where traditional buildings from the Majapahit Era have been reconstructed in previous studies. At the same time, Bintoro was an area under Majapahit rule from the 14th to 15th centuries, see Figure 4, which was the centre of da'wah activities for the Majapahit Muslim community then (Figure 5).

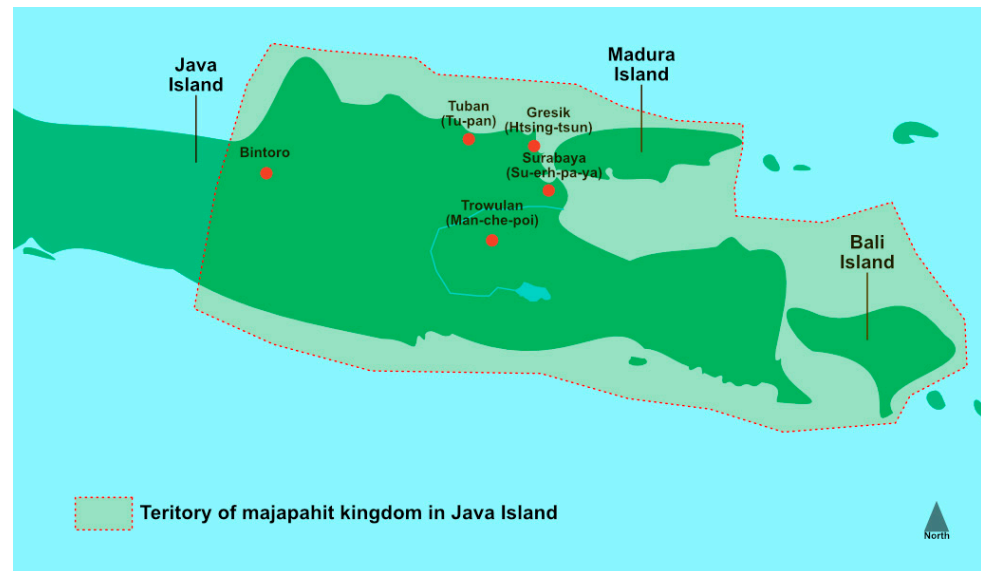


Figure 4. The territory of the Majapahit Kingdom in the 15th Century in the islands of Java and Bali. Source: [16].

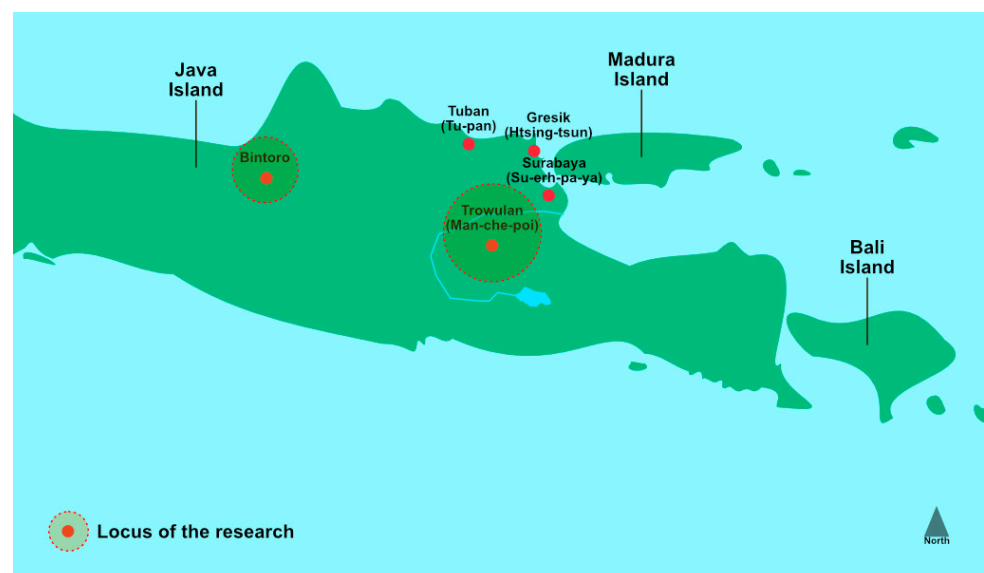


Figure 5. The locus of this research—Trowulan and Bintoro. Source: Author.

1.3.2. The Majapahit Kingdom

Majapahit was the last Hindu kingdom in Indonesia; it rose in 1293 in East Java Island and extended its power to Bali in 1343 [17] (p. 67). Furthermore, Lombok, Sumatra, Kalimantan, Sulawesi, the Maluku Islands, and Irian were also influenced by the kingdom [18], though its influence in these regions was not as strong as that present in the islands of Java and Bali. The kingdom itself showed a complex lifestyle and had a neat bureaucratic system [19] (p. 90). The Majapahit Kingdom began to fall in 1401 as a consequence of a civil war known as *the Paregreg* war. The lack of a comparable leader to change King Hayam Wuruk and General Gajah Mada also became a factor in the downfall of the kingdom [20].

There are two different claims in the literature regarding the year of the kingdom's fall. One opinion states that the fall of the Majapahit Empire was in 1478 [21] (p. 323); another opinion states that it was in 1527 [22] (p. 67).

1.3.3. Housing in the Majapahit Kingdom, Trowulan

According to Ma Hua [23] (p. 130), the centre of Majapahit on Java Island had four towns: "Tu-pan", "Htsing-sun", "Su-erh-pa-ya", and "Man-che-po-I". They further state that small ships went from "Su-erh-pa-ya" to a port named "Chang-ku", where they were ashore and then journeyed for a day and a half to reach "Man-che-po-I" or Trowulan, the central state of the kingdom, see Figure 6. Pigeaud states that the Majapahit Kingdom was a mountainous river region, forcing them to rely on water transportation for their commercial pursuits [23] (p. 132).

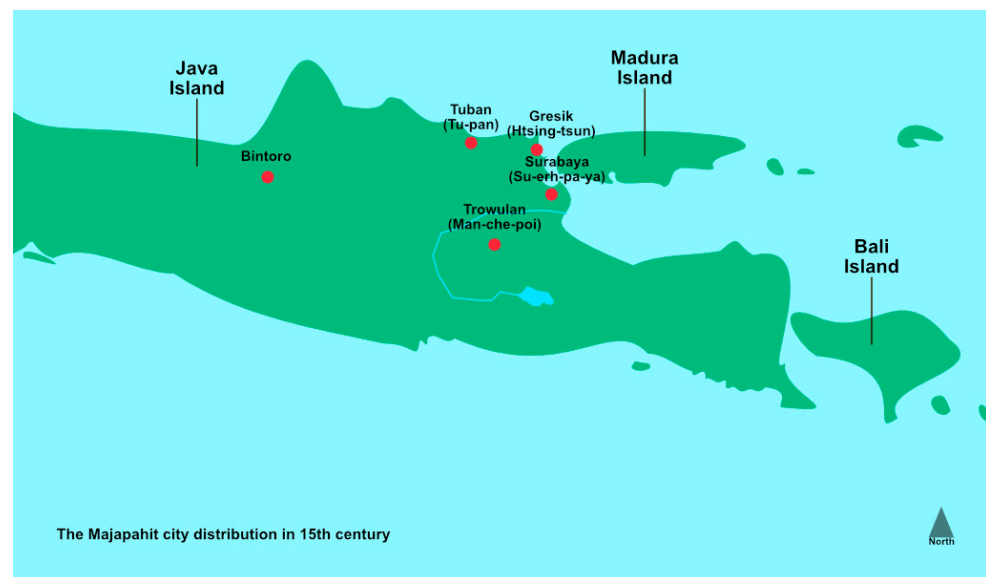


Figure 6. Interpretation of the Majapahit Kingdom's city. Source: [23] (p. 132).

The Majapahit Trowulan settlements were made up of village patterns, surrounded by canals, as shown in Figure 7 [24] (pp. 323, 324).

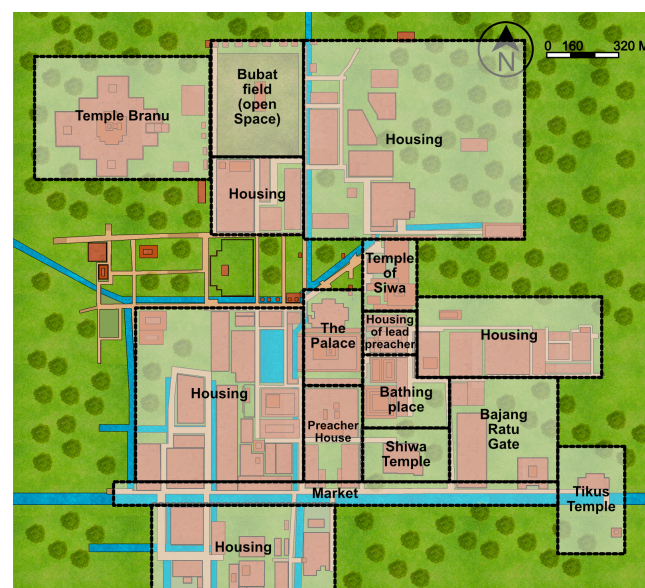


Figure 7. An overlay map reinterpretation of the Majapahit city by Pont (1924), and a Bakosurtanal map (1981) by Yuwono (2007). Source: [24] (p. 323). Redrawn by Author.

The existence of a canal in Majapahit Trowulan was also described based on an illustration from Pont 1924 [25]. Furthermore, the interpretation of the Majapahit built environment can be seen in Figure 8.

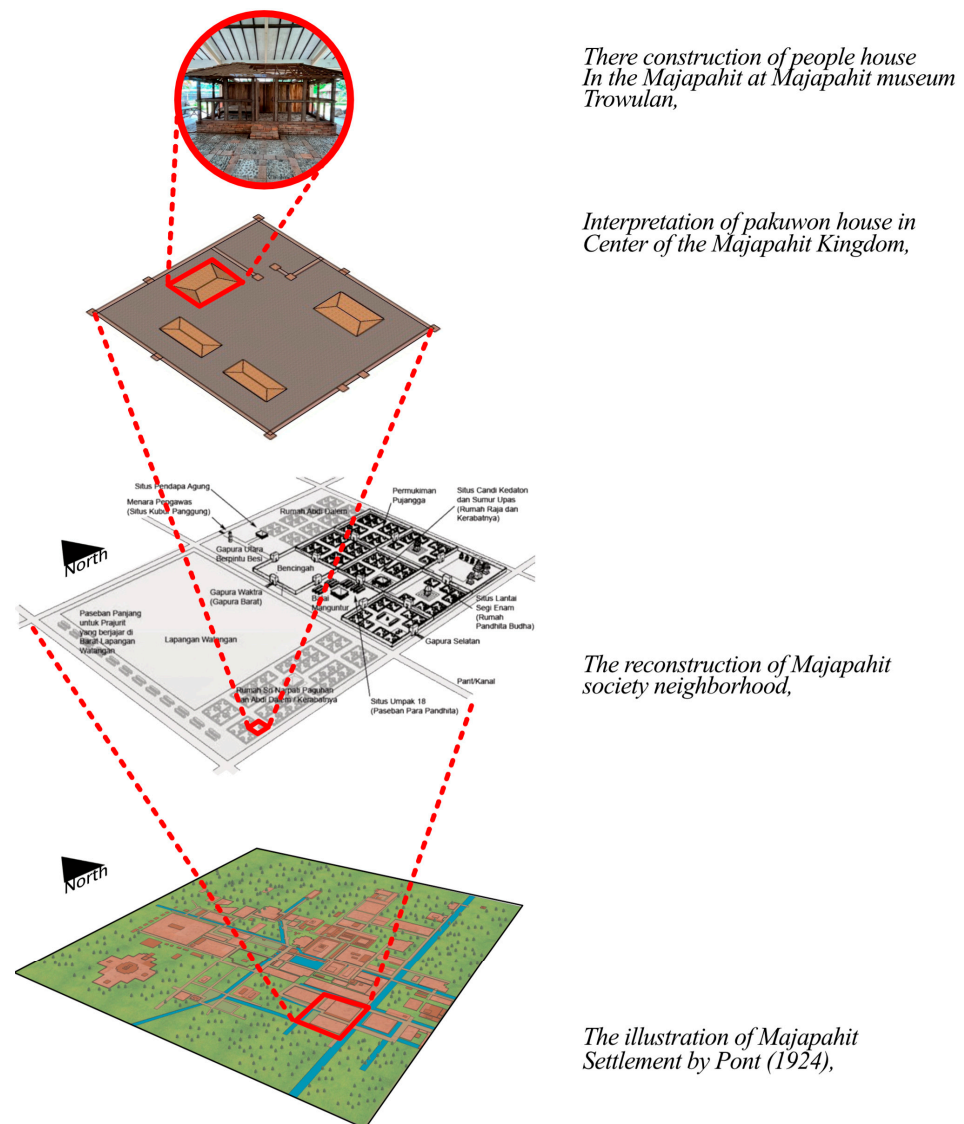


Figure 8. An interpretation of a Majapahit-built environment. Source: [24] (p. 321), [24] (p. 325), [25], [26] (p. 6) (Redrawn by Author).

In his research, ref. [24] (p. 325) disclosed that he interpreted the pattern of spatial layouts in the Majapahit community's houses, see Figure 9, which always had a place of worship, a notion known as "Pakuwon". According to [27] (p. 66), in terms of the spatial layout of the Hindu buildings, there were three levels based on "Tri Mandala" which used cardinal directions, including "Utama" or Primary, "Madya" or Secondary, and "Nista" or Tertiary. The primary level functioned as a place of worship and was usually used to perform rituals, such as a religious procession. In contrast, the secondary level was more dominant than the primary residence or yard, while the tertiary level was more devoted to the kitchen and barn.

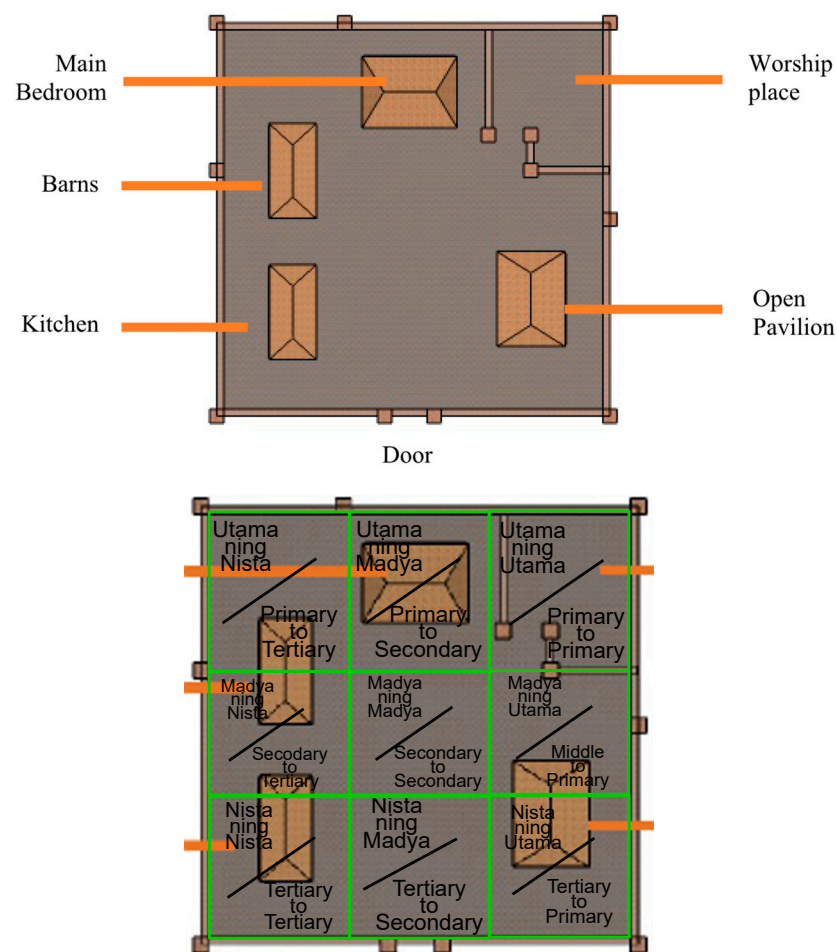


Figure 9. An interpretation of a Pakuwon house in the centre of the Majapahit Kingdom. Source: [24] (p. 325), [27] (p. 66). (Redrawn by Author).

Moreover, brick was commonly employed as a construction material during this period. It can be seen in the results of archaeological reconstructions using the CGI method that, in addition to bricks, houses in the Majapahit Era comprised a variety of materials, including wood for the main construction pillars and supports, and “gedhek” or woven bamboo skin for the walls. Some of the remnants of the houses had andesite stone or mountain stone flooring, while most floors comprised scattered gravel or bare earth [28] (p. 732). Moreover, the material of buildings that existed at that time depended on people’s affordability to obtain them [29].

1.3.4. The Islamic Community in the Majapahit Kingdom

Geographically, Majapahit was located near the Brantas River, which was connected to the coastal area. This caused Majapahit to become an advanced kingdom in the field of international trade, thus attracting various international traders to visit Majapahit, including traders from Islamic countries [30] (p. 734). The first arrival of Islamic scholars in Majapahit was the arrival of Sheikh Jumadil Kubro in the 14th Century; arrivals then progressed into the 15th Century [4] (p. 47). The Islamization process was successful in Majapahit because of its freestyle of governance. The Muslim population kept expanding, particularly in the coastal regions [30] (p. 732). As an example, Islamic scholars served as governor of the Majapahit Kingdom’s domain. Raden Rahmat or Sunan Ampel, one of the Walisongo who had a significant role in the development of Islam in Java, experienced this [31] (p. 62). Besides Islamic scholars, the spread of Islam in the Majapahit Kingdom was also influenced by Muslims from Champa, one of the Vietnam region’s kingdoms [4] (p. 40).

According to [4] (p. 74), the Muslim community of Champa brought a culture that until now is believed to be the culture of the Muslims, such as mourning a death for seven days, 14 days, and 100 days. As stated in [32] (p. 79), Muslim scholars at that time had a soft character so that they could dampen and change the nature of the Majapahit society, which had a rough attitude and did not want to succumb. A tomb with Arabic inscriptions in the Troloyo area, see Figure 10, which is within Majapahit's capital, is evidence of the existence of Muslims during the Majapahit Kingdom's reign. Besides this, other artefacts evidence the existence of Muslims under the rule of Majapahit, such as Figure 11.



Figure 10. A tomb and signage with Arabic inscriptions. Source: Author.



Figure 11. A reconstruction of people's houses in Majapahit at the Majapahit Museum Trowulan. Source: [24] (p. 321).

1.3.5. Islamic Housing in Majapahit Kingdom, Bintoro

At present, research and archaeological excavations are still being carried out to find possible forms of houses from the Majapahit Era, at that time in Trowulan, see Figures 12 and 13. One of them might be from the Islamic settlers in the Kingdom. Several researchers carried out sketches and digital reconstructions that might be used as guidelines for reconstructing Muslim housing in that era.



Figure 12. The archaeological excavation of a Majapahit house. Source: Author.



Figure 13. The archaeological excavation of a Majapahit house. Source: Author.

In their journal, ref. [28] (p. 732) reconstructed a house from the Majapahit Era in a 3-dimensional form related to blocking. They made several representations associated with the material of the house from that era. The reconstruction and representation can be seen in Figures 14 and 15.

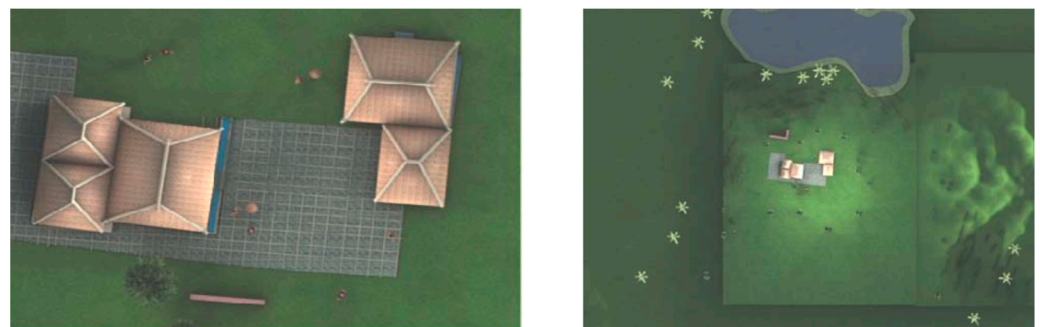


Figure 14. A reconstruction of house blocking in the Majapahit Kingdom. Source: [28] (p. 732).



Figure 15. The type of house form in the Majapahit Kingdom. Source: [28] (p. 733).

The article shows houses with a terrace that can receive guests for the house owner. These typical houses resemble traditional buildings in the Bintoro area, a vassal of the Majapahit Kingdom, whose residents adhered to Islam and lived there (Figure 16).



Figure 16. A traditional house that has a veranda that has a function to receive guests. Source: Author.

The Bintoro area was established by Raden Fatah, the son of King Kertawijaya from the Majapahit Kingdom, who embraced Islam [33] (p. 35). Bintoro was a part of the region under the Majapahit Kingdom that his father, King Kertajaya, gifted to him in the 14th Century. Raden Fatah married Nyi Ageng Malaka, the daughter of his teacher Sunan Ampel. He then settled and spread Islam in the Bintoro area, Glagahwangi [34] (p. 3). Like his teacher Sunan Ampel, Raden Fatah spread Islam by establishing the Islamic School that had an important role not only as a place of worship but also as a place of knowledge and assembly to support the spread of Islam [8] (p. 18), [33] (p. 36). According to Ref. [33] (p. 36), after the Islamic school he founded advanced, the developed area attracted the kingdom's people to visit it [35] (p. 68).

In Ref. [6] (p. 18), traditional houses in the Bintoro region had various architectural features that distinguished their residential buildings, such as double-layered doors and different column types that supported the veranda's roof. This is shown in Figure 17.



Figure 17. Architectural elements in traditional houses in Bintoro. Source: [6] (p. 18).

Shape buildings in the Bintoro area were one of the heritage buildings from the Majapahit community which began to embrace Islam at that time. In his book, see Figure 18, ref. [36] (p. 95) has redrawn a typical building. This building formed a new perspective for the people of Majapahit in building a house after being influenced by Islam.

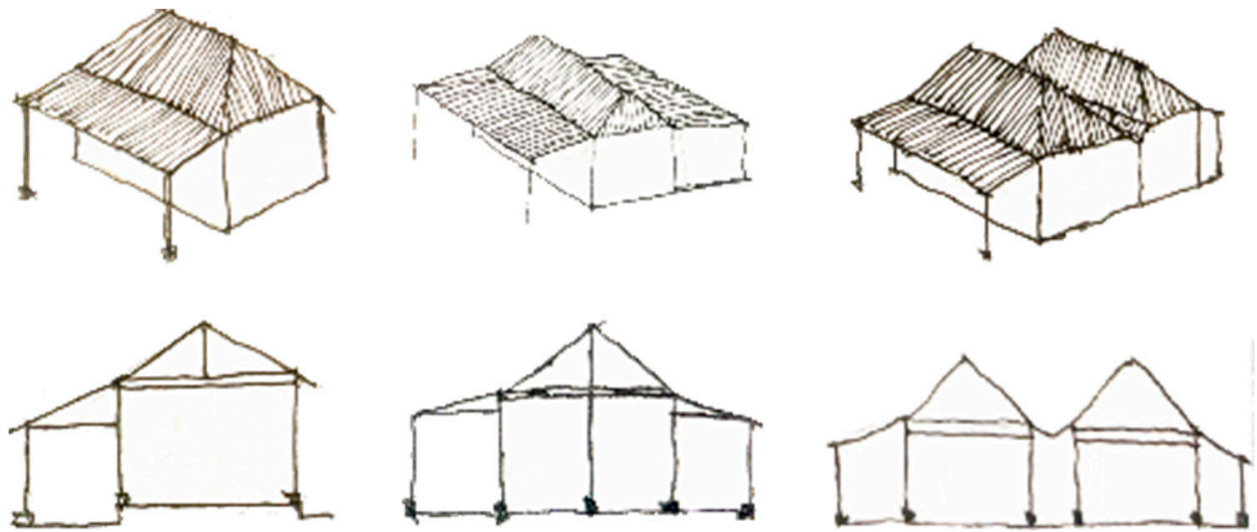


Figure 18. Redrawings of traditional houses in Bintoro. Source: [36] (p. 95).

2. Materials and Methods

2.1. Architectural Documentation Methods

In the architectural documentation process, many methods are used both digitally and non-digitally. One of the methods used in architectural documentation is the BIM (building information modelling) method [37] (p. 4949). This method uses digital devices to redraw an architectural object, which is inputted into data related to the physical building and to the history of the building. As further explained by [37] (p. 4950), [38] (p. 4), this taxonomic method was the initial classification of heritage buildings based on various written sources, which were then outlined in a 3-dimensional form in detail, based on the classification scheme that had been carried out previously. The scheme can be seen in Figure 19.



Figure 19. Hierarchical schema of the digital classification. Source: [37] (p. 4950), [38] (p. 4).

One of the goals of classification using the BIM (building information modelling) method is to make it easier for designers to retrieve accurate data to apply to their designs. A compelling case related to the use of components in this design appears in the design of the Haramain speed train station. In this case, ref. [37] (p. 4957) show the need for more adaptation of the Islamic architectural style of Saudi Arabia in the ornamentation detail of the Haramain railway station in Saudi Arabia, see Figure 20.

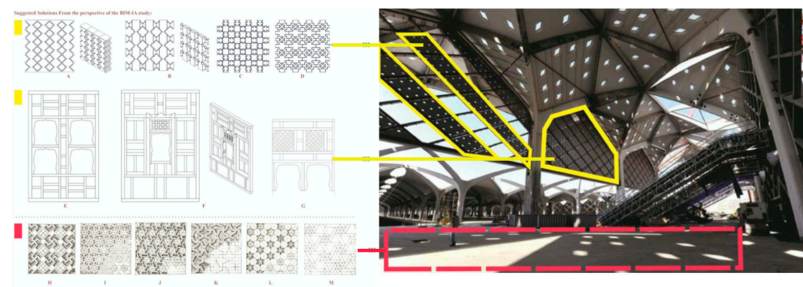


Figure 20. Haramain High-Speed Railway, 2009, Makkah, Jeddah, and Madinah: <http://www.fosterandpartners.com/projects/haramain-high-speed-rail/>, accessed on 25 January 2022, Source: [37] (p. 4959).

2.2. Majapahit-Style Architectural Documentation

This research includes a taxonomic study to produce classifications for buildings of the Majapahit Era, which were then documented on a 3-dimensional component model in the documentation related to the architecture of residential buildings in the Majapahit period. According to [39], taxonomy is a study of the general principles of scientific classification, while according to [40], taxonomy is the process of naming and classifying things within a more extensive system according to their similarities and differences. Furthermore, this taxonomic study was conducted on the related differences in buildings from the Majapahit Era that covers the buildings' typology, spatial distribution, and architectural elements in order to track the changes between the Islamic buildings and the Hindu buildings. These schema classifications can be seen in Figure 21.

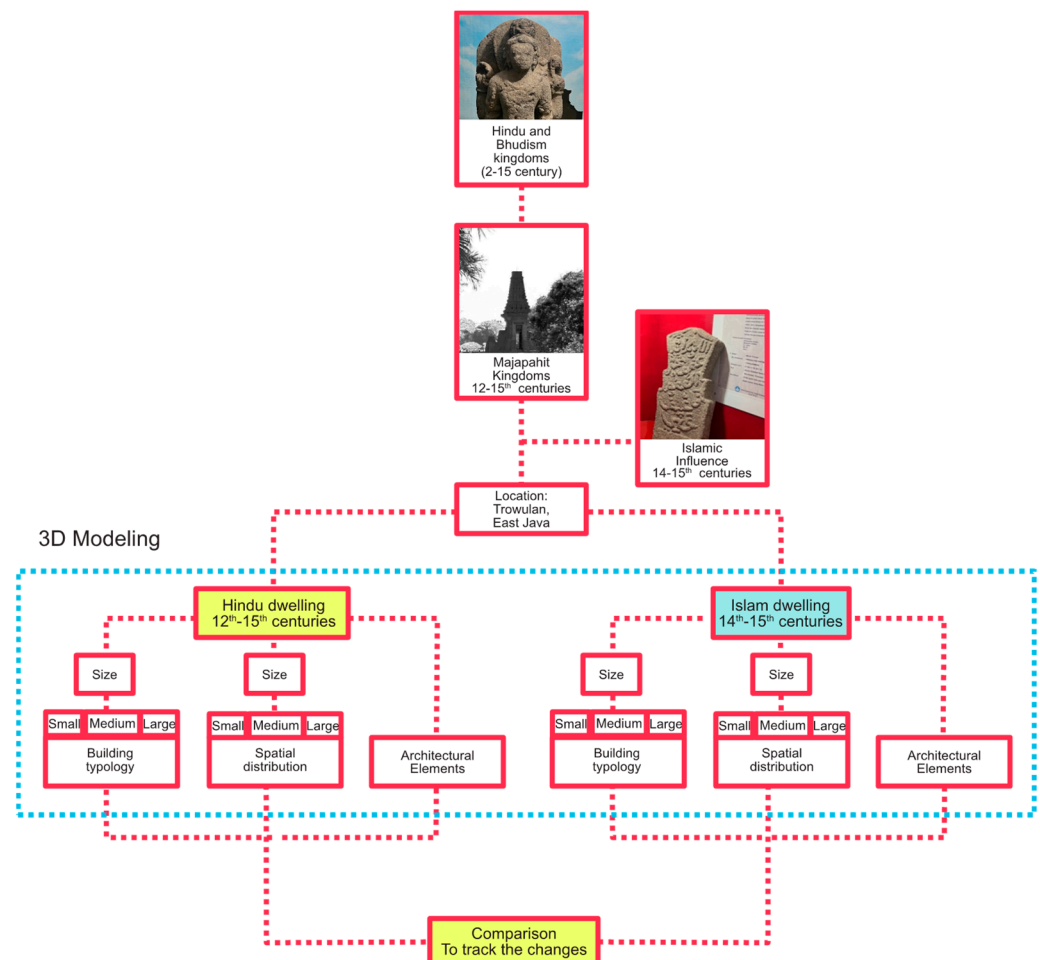


Figure 21. Classification schema of Majapahit houses. Source: Author.

According to the information gathered, the Majapahit Era's first Hindu-style structures are thought to have appeared around the 12th Century. At that time, the Majapahit monarchy succeeded the Singosari Kingdom [19] (p. 88), [41] (p. 103). Islam began to spread throughout the kingdom in the 14th Century due to the arrival of Islamic scholars, who implemented Islamic da'wah activities until the 15th Century. Therefore, the Majapahit Kingdom applied Islamic influences on Hindu-style buildings in the 14th Century. This information is depicted in the timeline below (Figure 22).

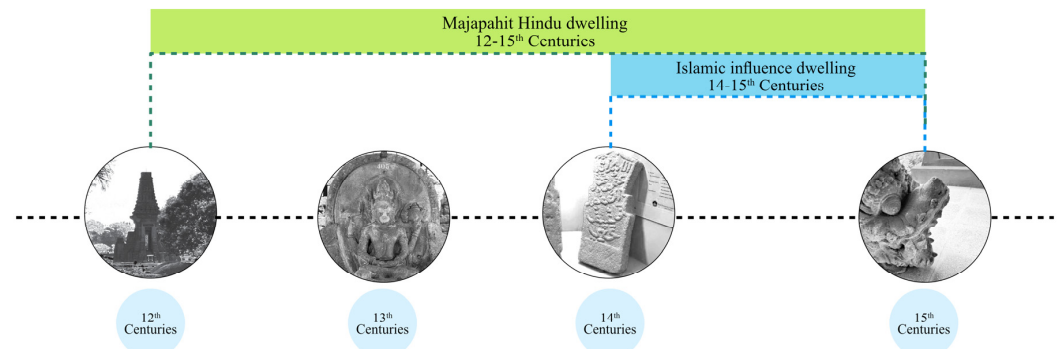


Figure 22. The timeline of Islamic Influence on Majapahit houses. Source: [4] (p. 48), [41] (p. 103), [42] (p. 42), [43] (p. 29), [44] (p. 124), [45] (p. 10).

One of the essential procedures when documenting buildings from the Majapahit Empire is interpreting the building in three dimensions; this is conducted due to the need for more evidence from archaeological excavations. The collected data will be used as a reference for interpretation during this process.

In [46], interpretation can be defined as a method of explaining or expressing one's opinion about what something means. As a result, research interpretation is one way to explain how the possibilities of building formed in both Hindu and Muslim communities during the Majapahit Kingdom era. The process of interpretation used to create the three-dimensional structure of the Majapahit Kingdom's dwellings can be seen in Figure 23.

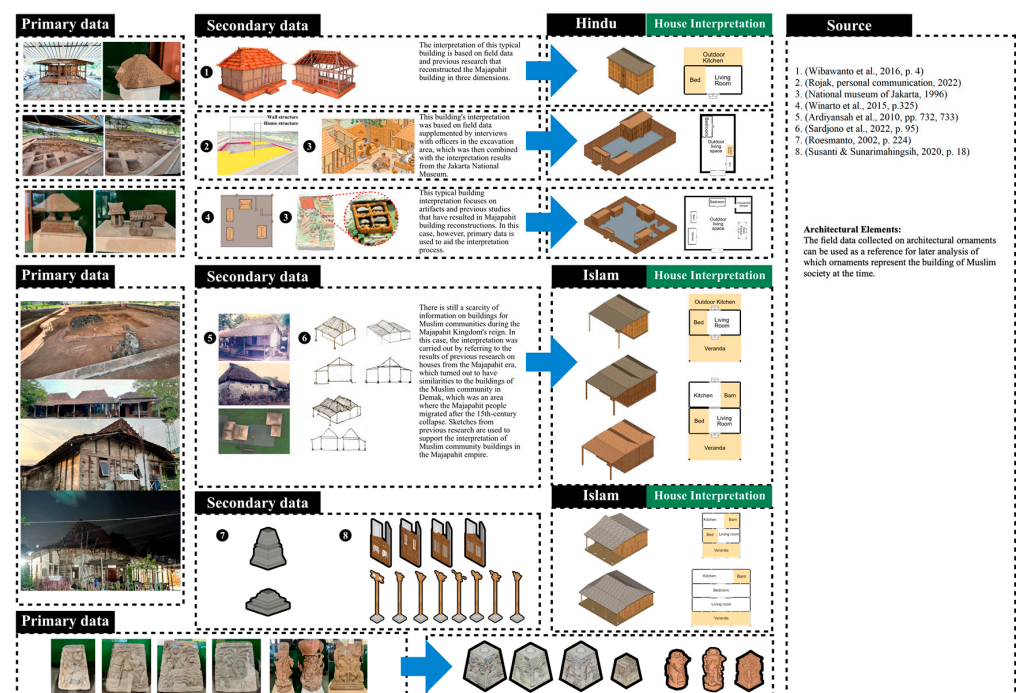


Figure 23. The process of interpretation emerging from typical dwellings in the Majapahit Kingdom. Source: Author and [6] (p. 18), [24] (p. 325), [26] (p. 4), [28] (pp. 732–733), [29], [36] (p. 95), [47], [48] (p. 224).

The data obtained related to the buildings' typology, spatial distribution, and architectural elements are classified into two periods based on this timeline, which include the 12–15th century and the 14–15th century, as outlined in Figure 24.

| Period | Documentation | | | |
|------------------------|---------------|---|-------|---|
| | Hindu | 14–15 th Centuries (1400–1427) | Islam | 14–15 th Centuries (1427–1500) |
| Building typology | | | | |
| Spatial distribution | | | | |
| Architectural Elements | | | | |

Figure 24. Interpretation of Majapahit dwellings. Source: Author.

2.3. Building Typology, Majapahit Kingdom

Theoretically, typology is a tool for creating architecture [49] (p. 75). Based on the opinion of [50] (p. 59), the typology of buildings is classified into several criteria. These criteria are shown in various aspects, such as the composition of the exterior mass, ornamentation, interior proportions, and the building's orientation toward the city. In this case, the obtained typology of buildings was a form of three-dimensional reconstructions related to the mass composition of the structure and the material form used during the Majapahit Empire's reign.

2.4. Spatial Distribution, Majapahit Kingdom

According to ref. [51] (p. 50), spatial distribution in architecture is the space used according to the building owner's needs. The spatial distribution could emerge as the typical space pattern that can be deliberate. Documentation regarding spatial distribution was collected, and the spatial distribution in one dwelling in the Majapahit Era was interpreted.



















2.5. Architectural Elements, Majapahit Kingdom

In ref [52] (p. 36), elements in architecture are structural components that form the building. This notion was later enhanced by [53] (p. 4), who showed architectural aspects such as windows and doorways, including the ornaments that formed the building. In a building's architecture, ornamentation as a decorative element that expresses a sense of beauty [54] (p. 50). Data related to the ornamentation on Majapahit buildings, which are the results of archaeological excavations and interpretation, were outlined in a three-dimensional form, which was then classified better to understand the Influence of Islam on the architectural elements.

3. Results

3.1. The Influence of Islam Related to the Building Typology

The available documentation demonstrates that Majapahit buildings were distinct. These distinctions illustrate the prevailing social structure in the area. The type of architecture and the materials used were also affected by this hierarchy. Based on the building data, this case divides the size of the building into small, medium, and large. Additionally, mass composition forms are classified in Figure 25.

| Period | Hindu | | | Islam | | | Material | Islam | | | Material | Changes in building typology | | | | | | | |
|--------|---|--------|-------|---|--------|-------|---|---|---|-------|----------|---|-------------------------------|---|-------------------|--------|--|--|--|
| | 12-15 th Centuries | | | 14-15 th Centuries (1400-1427) | | | | 14-15 th Centuries (1427-1500) | | | | Hindu | Islam (1400-1427) | Reason | Islam (1427-1500) | Reason | | | |
| Size | Small | Medium | Large | Small | Medium | Large | | Small | Medium | Large | | | | | | | | | |
| Type 1 |  | | |  | | |  | Palm fiber roof, with Bamboo structure |  | | |  | Clay roof and wood structure |  | | | | | |
| Size | Small | Medium | Large | Small | Medium | Large | | Small | Medium | Large | | | | | | | | | |
| Type 2 |  | | |  | | |  | Clay roof and wood structure |  | | |  | Clay roof and wood structure |  | | | | | |
| Size | Small | Medium | Large | Small | Medium | Large | | Small | Medium | Large | | | | | | | | | |
| Type 3 |  | | |  | | |  | Clay roof and brick structure |  | | |  | Clay roof and brick structure |  | | | | | |

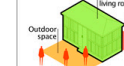








| Hindu | | Islam (1400-1427) | | Reason | | Islam (1427-1500) | | Reason | |
|--|--|---|---------------------------------|--|--|--|-----------------|---|--------------------------|
| The house built without space to receive the guest | | The house built with veranda to receive the guest | | Due to the absence of mosques in the kingdom, the addition of the veranda is used to meet the traditional demands of the people who enjoy visiting neighbors to gather and share stories as well as for the activities of the Islamic Study Group. | | An additional chamber is linked to the main structure's rear and incorporated into one roof. | | Added more private space to the house, particularly for women and children, and reserved the veranda for community interaction. | |
|  | Bedroom + living room + Outdoor kitchen |  | Bedroom + living room + veranda | Outdoor kitchen | |  | Receiving Guest | Living room + Bedroom + veranda | Indoor kitchen |
| The house built with gate and wall fences, with an outdoor living space | | The house built with average indoor kitchen attached to the main room | | the addition of a kitchen attached to the main room is intended to increase the need for privacy, especially for female occupants, while the veranda continues to exist as a social necessity | | This building has a newly constructed living area that is divided by the bedroom | | Living rooms it also uses for the extension of guest space in a particular event that requires gathering many people | |
|  | Bedroom + Outdoor kitchen |  | Bedroom + living room + veranda | Outdoor kitchen | |  | Receiving Guest | Living room | Bedroom + Indoor kitchen |
| The house built in a larger space with free-standing pavilion and outdoor living space | | The house built with similar separation with medium class and use brick as a material | | Due to the absence of social strata in the kingdom in 1427 led the kingdom's economic status to deteriorate. It affected building materials at the time. Hence, most Muslim community buildings during the period stood made of wood. | | The Muslim residents of Majapahit had a home with a temple-like roof constructed for them around 1427. This roof is currently known as the "Joglo" roof. (Herwinda, 2006, p. 67) | | | |
|  | Kitchen + Barn + Main bedroom + open Pavillion |  | Bedroom + living room + veranda | Ritual space | |  | Receiving guest | | |

Figure 25. The interpreted comparison between Muslim and Hindu communities in the buildings' typology. Source: Field survey author and [6] (p. 18), [24] (p. 325), [26] (p. 4), [28] (pp. 732–733), [29], [36] (p. 95), [47], [48] (p. 224).

3.2. Building Composition of Muslim People

According to ref. [55] (p. 40), the Majapahit people at that time had the tradition of visiting neighbours and gathering with them; their interactions typically served the purposes of simple story-telling, education, and mutual assistance, see Figure 26. The demand for space for da'wah operations increased when Islam emerged as a religious idea in the 14th Century. Additionally, no mosque in the city accommodated these activities, so individuals built verandas and guest rooms to meet their needs [48] (p. 221). The existing Muslim people at the time were tolerant, respectful, and friendly [56] (p. 4397), which was then manifested as a house style that was open in an amicable manner.

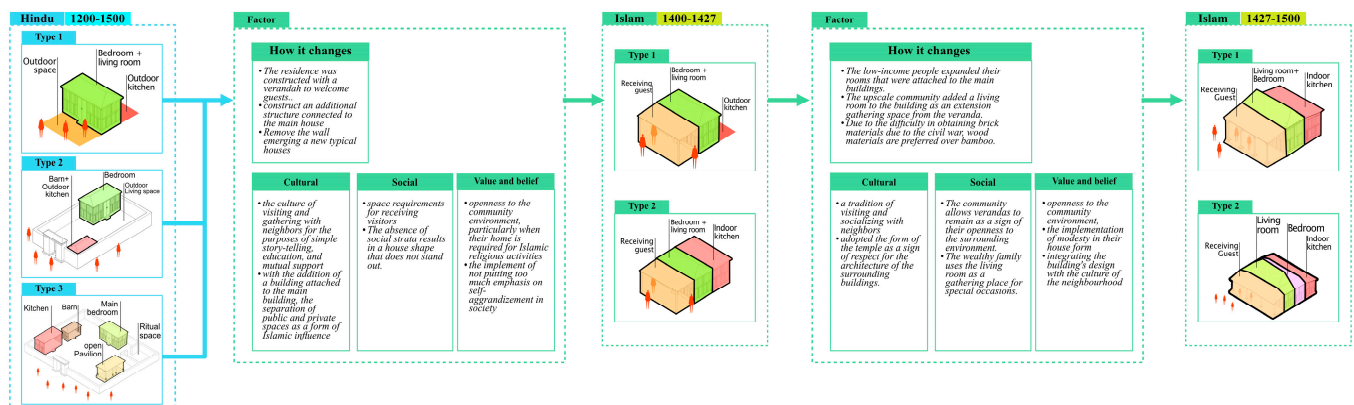


Figure 26. The factor of changes in buildings from Hindu to Islamic influences concerning typology. Source: Author.

The guest room and veranda's presence can be linked to an Islamic law that protects the privacy of the home's owner, creating a distinction between a private space and a room for hosting visitors or a semi-public area [7] (p. 104). Similarly, in Muslim Middle- and high-class structures, extra buildings are added to the primary establishment to maximise the amount of user privacy. The interpretation of a house for a Muslim community is shown in Figure 25, where they typically divide the space used to receive guests from the space used by the family to rest.

Unlike the Majapahit community, the Muslim community does not have a hierarchy [57] (p. 14) resulting in differences in the house's shape from each hierarchy. As a result, during the Majapahit Empire, the differences in the homes of Muslim residents in the middle and upper classes were not as noticeable. This was also influenced by the size of the Muslim population, which was still a minority with limited property ownership at the time [58] (p. 60).

3.3. The Influence of Islam on Spatial Distribution

Islamic teachings influenced space distribution in a plot of residential buildings in the Majapahit community, particularly among Muslims. This can be seen in the arrangement of house plots in the Muslim society at the time, based on several studies conducted to produce an interpretation related to the layout of the house's interior at the time. In this case, this article aims to compile and categorise the spatial distributions to highlight Islamic teachings on space distribution in a single dwelling, as shown in Figure 27.

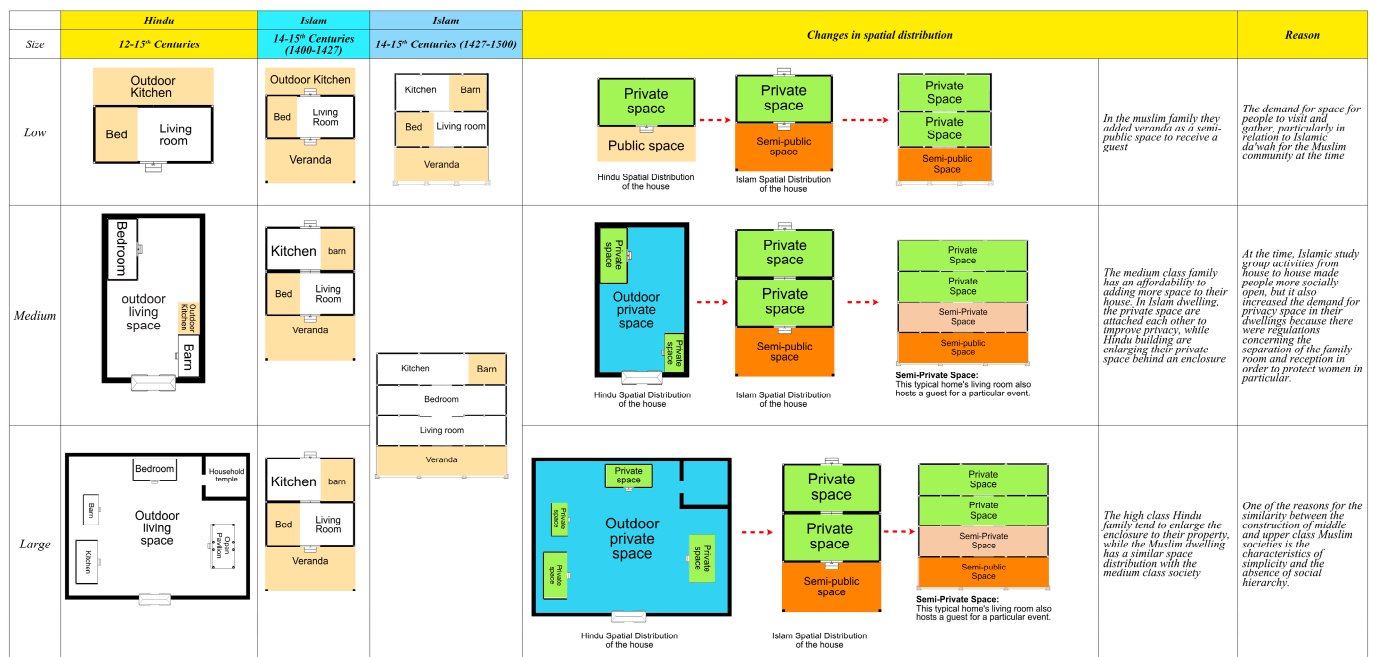


Figure 27. The interpreted comparison between Muslim and Hindu communities in spatial distributions. Source: Field survey author and [6] (p. 18), [24] (p. 325), [26] (p. 4), [28] (pp. 732–733), [29], [36] (p. 95), [47], [48] (p. 224).

The classification in Figure 27 above results in interpreting space distribution in residential houses during the Majapahit Era. The existence of the veranda as a semi-public space arose from people's traditional need to visit one another, which is influenced by Islamic principles that prioritise privacy in their homes, see Figure 28 [59] (p. 15). One of the Islamic house principles outlined by [7] (pp. 118, 124) is the separation of the room for receiving guests from the room for the family, which includes women. Furthermore, the outline is strengthened according to [60].

O believers! Do not enter the homes of the Prophet without permission, 「and if invited」 for a meal, do not 「come too early and」 linger until the meal is ready. However, if you are invited, then enter 「on time」. Once you have eaten, then go on your way, and do not stay for casual talk. Such behaviour annoys the Prophet, yet he is too shy to ask you to leave. However, Allah is never shy from the truth.

Moreover, when you 「believers」 ask his wives for something, ask them from behind a barrier. This is purer for your hearts and theirs. Furthermore, it is not suitable for you to annoy the Messenger of Allah or marry his wives after him. This would undoubtedly be a significant offence in the sight of Allah.

According to the verse, Muslims should maintain privacy in their homes; as such, they separate the reception room from private rooms. Similarities exist in medium and large dwellings. This was due to the lack of social stratification among Muslims then. Furthermore, this is related to one of the Islamic principles that promotes simplicity in social life, as stated in [7] (pp. 42, 118). This principle then evolved into a culture for the people of the time so as not to emphasise self-aggrandisement in society [55] (pp. 81, 82).

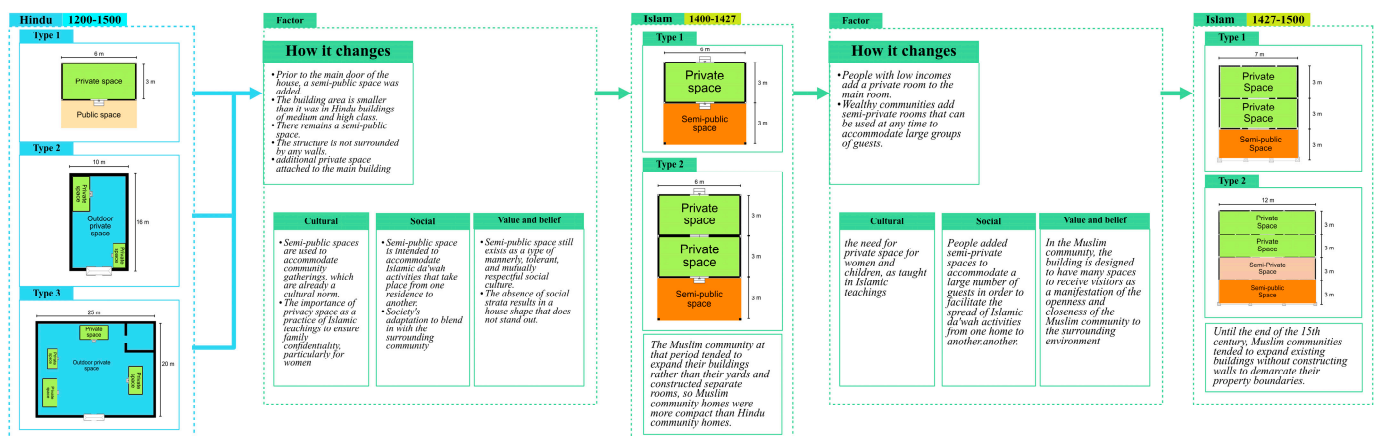


Figure 28. The factor of changes in buildings from Hindu to Islamic influences concerning spatial distribution. source: Author.

3.4. The Influence of Islam on the Architectural Elements

The role of Islam in the Majapahit Kingdom's lifestyle influenced the architectural elements in residential houses. Mainly, an Islamic influence on architectural elements appears in ornamentation. This research study was able to inventory several ornaments using field surveys successfully. Every ornamentation in the inventory of architectural elements is unique. These ornaments are divided into two types: those that only feature environmental components, such as trees, and those that also include details of animate things, such as animals and people, as shown in Figure 29.

According to [7] (p. 117), the use of ornaments in Islamic buildings is optional in every Islamic building. Furthermore, at the time, ornaments were a relatively expensive architectural aspect that only a few people could afford to use. On the other hand, architectural ornaments were an art that became a part of people's lives in the Majapahit tradition to describe their philosophy of life [61] (p. 40). As a result, when Islam was present at the time, there was an assimilation of Islamic teachings and local community culture, as evidenced by a change in the ornamentation of architectural elements in their homes, see Figure 30.

| Architectural elements | | | | | Changes in Architectural Ornamentation | Reason | |
|-------------------------|-------------------------------|---|---|--|--|--|---|
| Religion | Hindu | Islam | | | | | |
| Period | 12-15 th Centuries | 14-15 th Centuries (1400-1427) | 14-15 th Centuries (1427-1500) | | | | |
| Type | Animal and human | | | | | | |
| Column based foundation | | | | | | Islam community tend to used trees and environment as a implementation of the special rules to draw and sculpt the living creatures. Moreover they use the sculpting of plants, environment, and abstract as their architectural ornamentation | |
| Column body | | | | | | | |
| Door | | | | | | | Given the small size of the houses, the inhabitants of the Majapahit kingdom utilized house doors either as a ventilation aperture or a way of entrance and exit. Hence, there were no windows in the Majapahit's homes during the period. In Muslim community structures, they installed architectural ornamentation on the door, which serves as ventilation and promotes the residents' privacy. |
| Roof ornamentation | | | | | | | |

Figure 29. The interpretation of architectural elements in the Majapahit Era. Source: Field survey, Author and [6] (p. 18), [48] (p. 224).

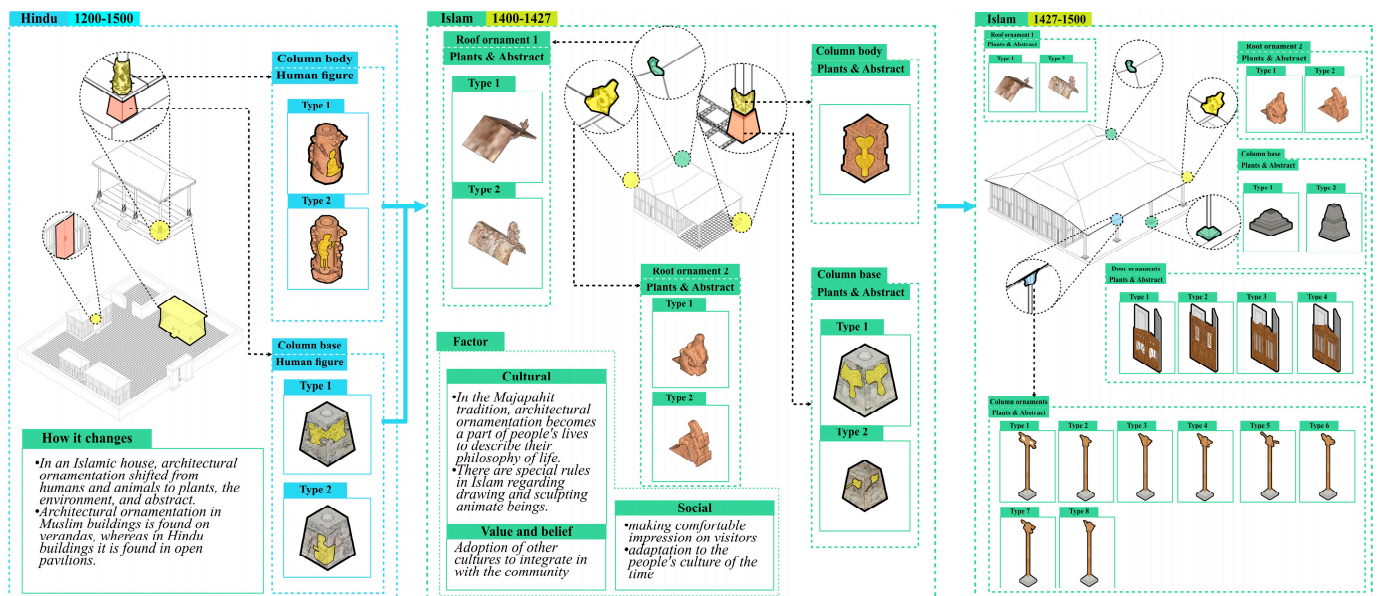


Figure 30. The factor of changes in architectural elements from Hindu to Islamic influences. Source: Author.

Architectural elements with ornamentation in the form of living creatures can be interpreted as having a Hindu influence using the classification of the data that has been acquired [59] (p. 11). At that time, buildings with ornamentation fashioned after plants and the natural world, including stones, could be classified as Islamic-style structures. This alludes to the following [62] (pp. 398, 7559):

Narrated Abu Hurairah, God is pleased with him. I heard the Prophet Peace be upon him, saying, "Allah said, 'Who are most unjust than those who try to create something like My creation? I challenge them to create even the smallest thing; a wheat or a barley grain'."

Based on the source above, it is evident that there are special rules in Islam concerning creating statues of living things. Thus, verses influenced the development of Muslim society throughout that time. Muslim culture did not significantly change the ornamentation of the Majapahit period to correspond to Middle Eastern ornaments. They adopted various ornamental styles representing plants, flowers, and abstracts in that era.

3.5. Matrix of Categorization

The analytical results have been compiled into a matrix, which can be viewed in Figure 31, to show, in broad terms, the changes that occurred in residential houses during the Majapahit Kingdom's period as a Hindu kingdom in the 12th to 15th centuries, and when Islam influenced the kingdom in the 14th to 15th centuries.

| Period | Hindu | | | Islam | | | Islam | | |
|-----------------------|---|--|---|---|---|---|---|--|--|
| | 12-15 th Centuries | | | 14-15 th Centuries (1400-1427) | | | 14-15 th Centuries (1427-1498) | | |
| Size | Small | Medium | Large | Small | Medium | Large | Small | Medium | Large |
| Builder number | Outdoor space Bedroom + living room Outdoor kitchen | Barren Outdoor kitchen Bedroom Outdoor living space | Kitchen Barren Main bedroom open Pavilion Ritual space | Outdoor space Bedroom + living room Outdoor kitchen | Receiving guest Bedroom + living room Outdoor kitchen | Receiving guest Bedroom + living room Indoor kitchen | Receiving guest Living room + Bedroom Indoor kitchen | Receiving guest Living room + Bedroom Indoor kitchen | Receiving guest Living room + Bedroom Indoor kitchen |
| Spatial distribution | Private space Public space | Private space Outdoor private space | Private space Outdoor private space | Private space Semi-public space | Private space Private space Semi-public space | Private space Private space Semi-public space | Private space Private space Semi-public space | Private space Private space Semi-public space | Private space Private space Semi-public space |
| Architectural Element | Animal and Human | Animal and Human | Animal and Human | Tree and Environment | Tree and Environment | Tree and Environment | Tree and Environment | Tree and Environment | Tree and Environment |
| Building Material | Palm fiber roof with bamboo structure | Clay roof and wood structure | Clay roof and brick structure | Palm fiber roof with bamboo structure | Clay roof and wood structure | Clay roof and brick structure | Clay roof and wood structure | Clay roof and wood structure | Clay roof and wood structure |
| Size | Main building: 3 x 6m | Main building: 3 x 6m Barren: 4 x 3m | Main building: 5 x 6m Communal building: 3 x 6m Kitchen: 3 x 6m Barren: 4 x 3m | Main building: 3 x 6m Kitchen: 3 x 6m | Main building: 5 x 6m Kitchen: 3 x 6m Terrace: 3 x 6m | Main building: 3 x 6m Kitchen: 3 x 6m Terrace: 3 x 6m | Main building: 3 x 7m Kitchen: 3 x 5m Terrace: 3 x 7m | Main building: 2 x 12m Kitchen: 3 x 12m Terrace: 3 x 12m Living room: 7 x 12m | Main building: 2 x 12m Kitchen: 3 x 12m Terrace: 3 x 12m Living room: 7 x 12m |
| Area | 18 m ² | 105 m ² | 599 m ² | 59 m ² | 54 m ² | 54 m ² | 67 m ² | 144 m ² | 144 m ² |
| Number of room | 1 | 2 | 4 | 2 | 3 | 3 | 3 | 4 | 4 |
| People live in | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 7 | 7 |
| Outdoor/Indoor | Indoor: 18 m ² | Outdoor: 129 m ² Indoor: 26 m ² | Outdoor: 438 m ² Indoor: 62 m ² | Outdoor: 18 m ² Indoor: 18 m ² | Outdoor: 18 m ² Indoor: 36 m ² | Outdoor: 18 m ² Indoor: 36 m ² | Outdoor: 21 m ² Indoor: 42 m ² | Outdoor: 24 m ² Indoor: 108 m ² | Outdoor: 24 m ² Indoor: 108 m ² |

Figure 31. Matrix table of the documentation of houses in the Majapahit Era. Source: Author.

4. Conclusions

4.1. Influence of Islam on Majapahit Dwellings

Based on the interpretation of various structures from the Majapahit Era, it is evident that Islam influenced them. Influences emerged concerning the buildings' typology, spatial distribution, and architectural elements. Private space and a space for hosting guests are clearly distinguished in how space was used. The typical houses of Muslim communities in the Majapahit Kingdom are outlined in Figure 32.

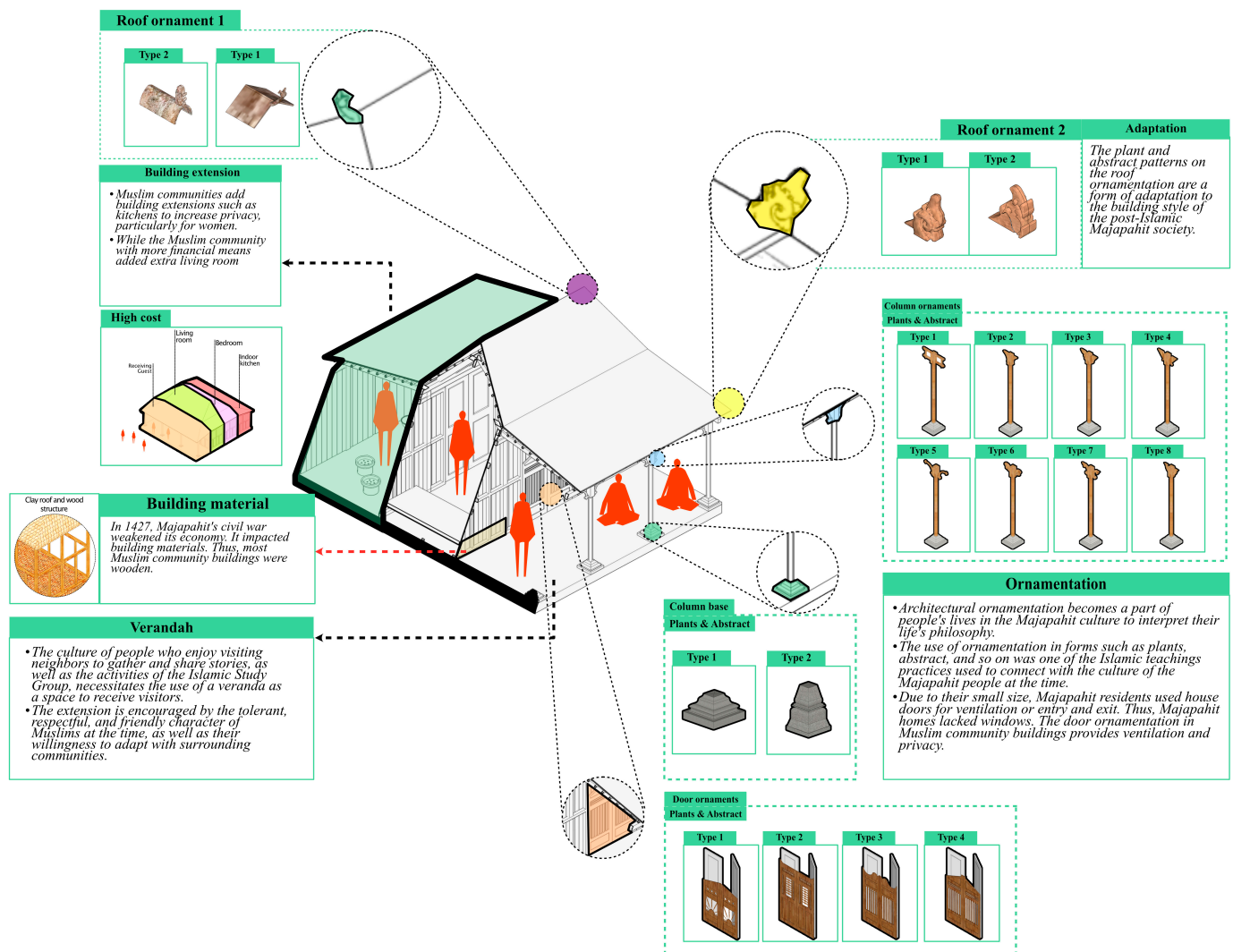


Figure 32. The typical Muslim house in the Majapahit Kingdom era. Source: Author.

In general, the Influence of Islam on the Majapahit community's homes can be seen from the shape of the Muslim community's homes which tend to be more compact than those of the Hindu community. This is because the space requirements of the Hindu and Muslim communities are different. The space requirement of the Hindu community is a ritual place for their worship. In contrast, the Muslim community can use the remaining space in their homes as a place of worship. Moreover, the use of details in architectural elements in Muslim buildings tends to be more towards plant, flower, and abstract patterns, compared to the Hindu buildings' more diverse architectural elements, including elements of animal and human patterns. This is due to unique rules in Islam regarding images and sculptures of human and animal elements.

4.2. Islamic Influences on Buildings' Typology

The topological difference between Hindu and Islamic buildings in that era lies in the spatial arrangement that separates private and semi-private spaces. Islamic structures are designed with the users' demand for privacy in mind. So, it is preferred in its construction to include a veranda and an indoor kitchen adjacent to the structure Figure 33. The presence of a veranda in Muslim buildings arose from the community's need to carry out activities, particularly in Islamic da'wah and social friendliness. Meanwhile, adjacent building extensions and materials used then were associated with people's affordability.

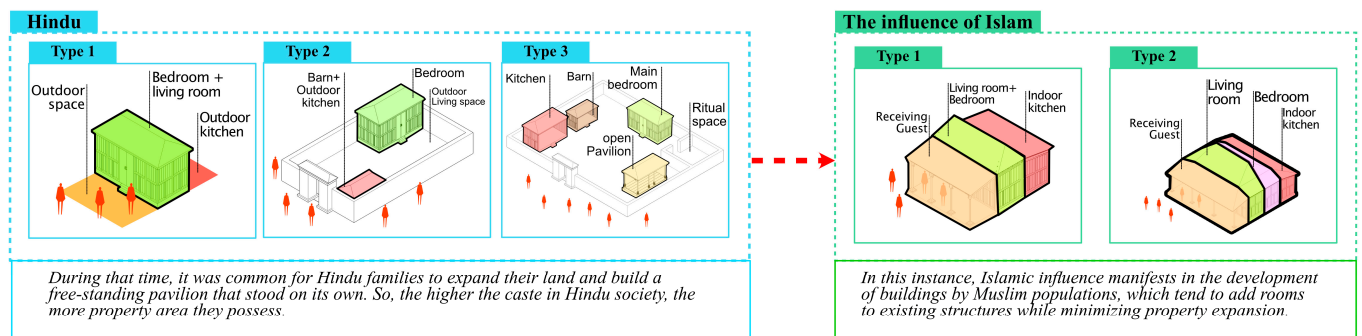


Figure 33. The Islamic Influence on the Typology of houses. Source: Author.

4.3. Islamic Influences on Spatial Distribution

Regarding spatial distribution, Hindu buildings tend to place private buildings separately from other private ones and to make the open space between these private spaces an outdoor living space; this can be seen in structures with medium and high social strata. On the other hand, in Islamic buildings, the living room is in a private building attached to another private building. This similarity happens especially in medium- and high-class dwellings in Muslim society, see Figure 34. It is affected due to the absence of a social hierarchy in the community. Characteristics of Muslim communities at the time, such as tolerance, respect, and friendliness, are one of the reasons why they added semi-public areas to provide openness to the community.

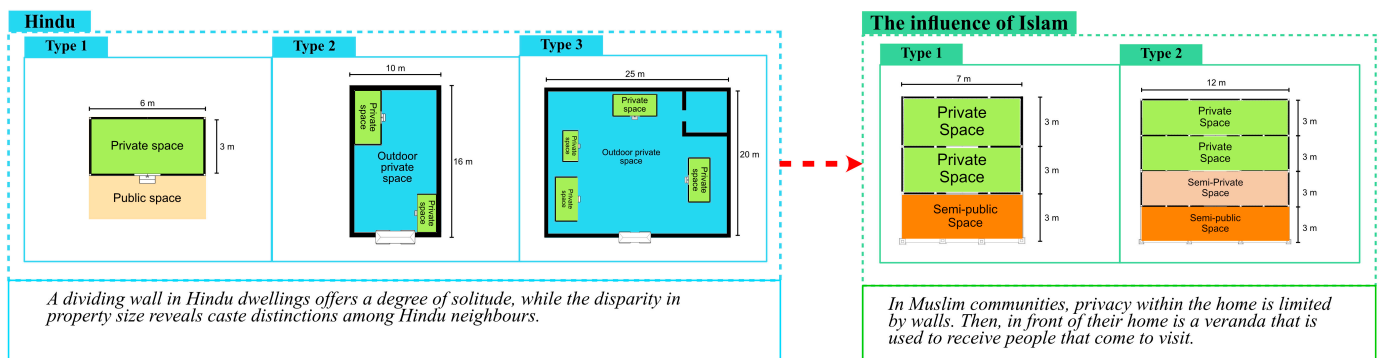


Figure 34. The Islamic Influence on spatial distribution inside the house. Source: Author.

On the other hand, the norms of Islam that govern its adherents' interactions with others influenced Muslim communities in residential structures throughout the Majapahit Era, such as the distinction between personal and public territory in the Hadith and the Quran.

4.4. Islamic Influences on Architectural Elements

Using ornaments in architectural elements is another area in which Islam has had Influence. During that period, the ornamentation of Islamic-style architectural elements frequently took the appearance of plants, stones, and other elements in the surrounding environment, See Figure 35. In addition, there were special rules on the creation of statues and pictures of animate beings, including humans and animals, which affected the choice of ornaments for the Muslim society at the time.

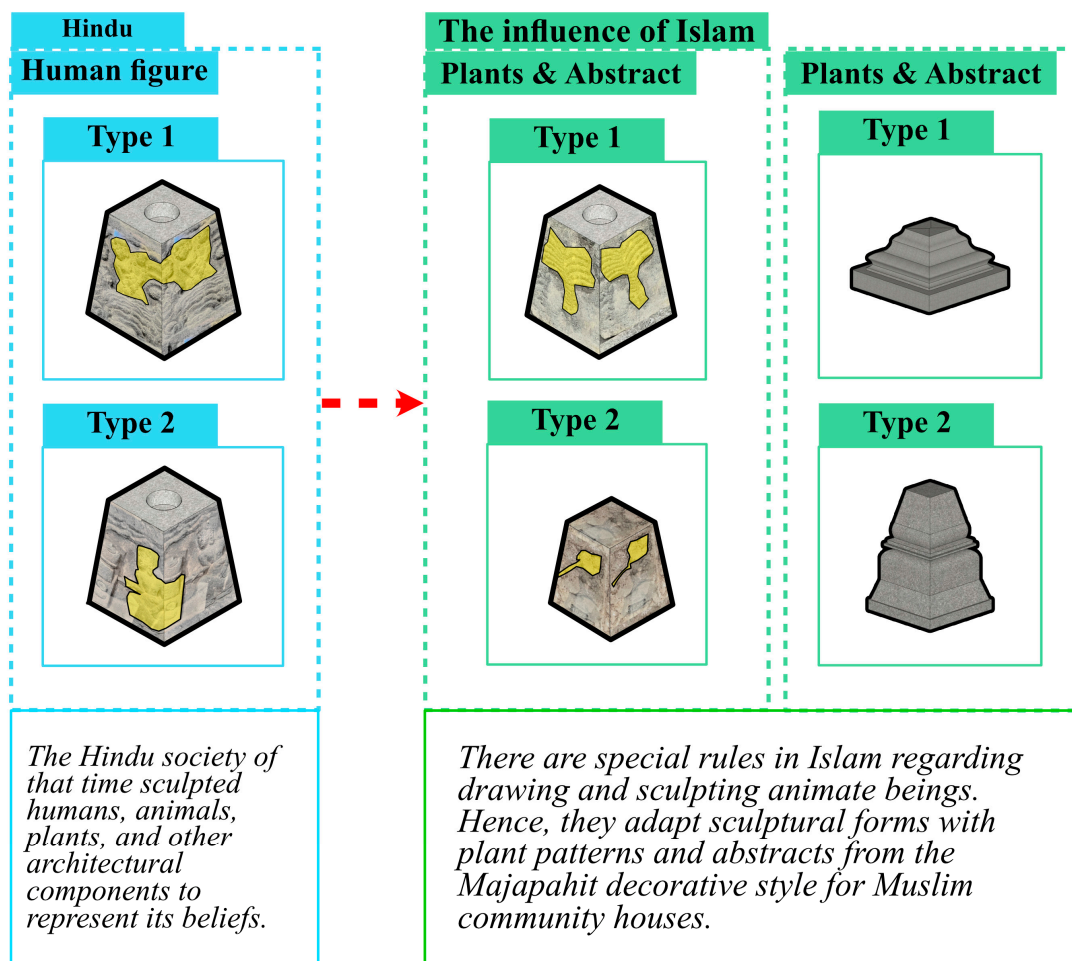


Figure 35. The Islamic Influence on architectural elements. Source: Author.

4.5. Suggestions for Further Research

Even now, studies into the Majapahit Empire's civilisation are being conducted. Archaeological excavations are ongoing to find scientific data to advance our understanding of residential structures used in the Majapahit Era, particularly in Muslim communities. It is necessary to conduct further archaeological excavations. This also holds for research on the impact of Islam on the use of houses in the Majapahit settlement environment.

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