

Mixing of Traditional and Modern Forms in Architecture of Sunan Ampel Mosque, East Java, Indonesia

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ABSTRACT

The architectural form of Sunan Ampel mosque was alleged that there was mixing of traditional and modern forms. Traditional forms were shown by local forms, while its modern forms were shown by non local forms. This study aimed to understand mixing of traditional and modern forms in architecture of Sunan Ampel mosque. The method used in this study was descriptive, analytical, and interpretive, based on empirical evidence. The steps of analysis and interpretation were as follows. The first step, was opening architectural forms consisting of under cover, side cover, and top cover. The second step, was comparing the architectural forms of Sunan Ampel mosque with the reference of architectural forms. The third step, was analyzing and interpreting that comparing. The results of this study concluded that mixing occurred in architectural form of Sunan Ampel mosque showed domination of traditional forms to modern forms. This study was expected to contribute knowledge about mixing of traditional and modern forms in architecture of mosques in Indonesia, and could position it in global context.

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Keywords: mixing, architectural forms, traditional, modern, domination

1. Introduction

Globalization issues began to bloom around the 1990s, because of the economic boom that swept the world. Globalization could not be stopped, but it had to be faced. Although departing from economic problems, but globalization was not only dominated by economic issues, but also dealt with other issues such as social, cultural, religious, political, educational, technology, art, and architecture [1][2][3].

Insistence of globalization era was a challenge that was both threats and opportunities. Western values that were riding the wave of globalization to the people of Indonesia were a threat to the preservation of cultural identity and local genius imaged original nationality and locality typical areas of the country. But on the other hand, globalization was an opportunity (chance) to globalize the local culture. It made knowledge of the local culture as an international contribution. [4][5][6]. The distinctive feature of globalization was the

spirit of openness and willingness to accept other cultural influences or non local culture.

Globalization had change the perspective in the architectural planning and designing of mosques in Indonesia. New forms of architectural designing of the mosque came with its diverse forms. Architectural development of mosques in Indonesia lead to forms of modern minimalist, which was dominated by forms of a box with a flat roof and some with a domed roof.

In this era, mosque of Sunan Ampel in Surabaya, East Java, is one of the mosques that still retains its traditional forms, dominated by *tajuk* roof. During its development (from the 15th century AD to the present), mosque of Sunan Ampel has been changes. There is mixing of architectural forms shown by the expression of traditional *tajuk* roof and modern domed roof. Form of the *tajuk* roof could be traced to its origin. In the tradition of ancient Javanese people found *cungkup* of the tomb of *wali* (respected figures) who had died, for examples, *Cungkup* of Sunan Giri in Gresik, *cungkup* of Sunan Bonang in Tuban, *cungkup*

of Sunan Drajat in Lamongan, and *Cungkup* of Sunan Kalijaga in Demak [7]. This building had a roof formd *tajuk*. Form of the domed roof was the adoption of the roof form of the mosque in the Middle East as a symbol of unity of Muslims in order to jointly confront colonialism [8]. Both forms, *tajuk* and dome, could be found at Sunan Ampel mosque. In globalization era, mixing of traditional and modern forms in architecture of Sunan Ampel mosque was an interesting issue.

2. Material and Methods

Sunan Ampel mosque located in Ampel Village, Simokerto District, Surabaya, East Java [Figure 1]. This location could be reached only by foot, passed the rows of food vendors and souvenir. Bus and car had to be parked a bit far from the location. The complex of Sunan Ampel mosque, based on their position, could be grouped into: the south building, central building and the west building. The south building was the old building, and the central and the west buildings were the new building [Figure 2].

Mosque of Sunan Ampel was built by Sunan Ampel with his students around the year 1450 AD, together with the establishment of boarding schools, in the township Ampel Denta, Surabaya, East Java. Previously, this place was a suburb of the river that became the artery of traffic to and from the center of the kingdom of Majapahit [9].

Mosque of Sunan Ampel, several times, has been going development. The first development, was done by Adipati Aryo Cokronegoro, ie by adding buildings to the north of the old building. The second development, was done by Adipati Aryo Niti Adiningrat in 1926, ie, by adding or extending to the north again. The third development, was organized by the Special Committee of the development of the Grand Mosque of Sunan Ampel years 1954 - 1958, ie by extending to the north again, and in the west. The fourth development, was done in 1974, ie by expanding further west [10].

In the years 1993 - 1998 was done construction and renovation of Sunan Ampel

mosque. One result was the latest building of Sunan Ampel mosque located in the west [11].

Now, area of Sunan Ampel mosque is 5641.63 m². In this study, the focus of the discussion was a new building located in the west [Figure 3].

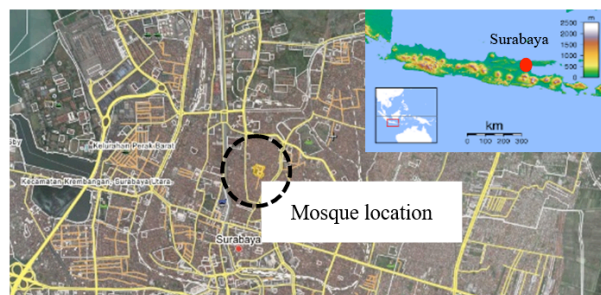


Figure 1: Map of Northern Town of Surabaya

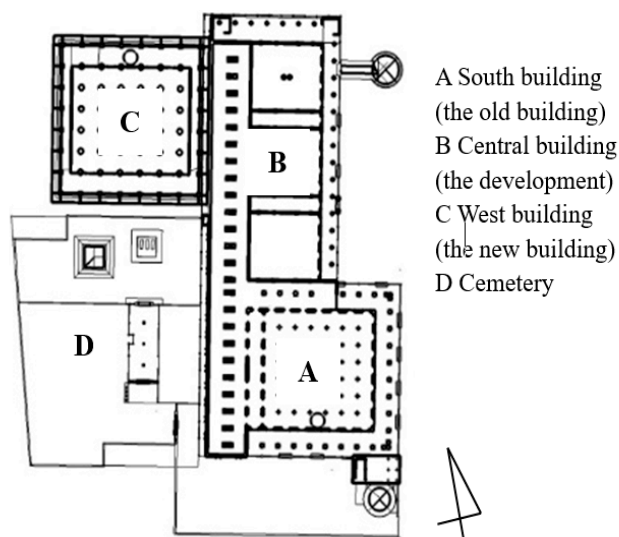


Figure 2: Plan of Sunan Ampel Mosque

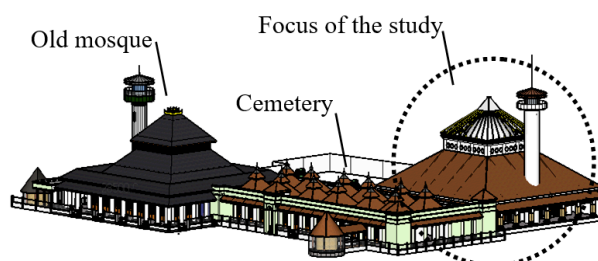


Figure3: Perspective of Sunan Ampel Mosque

Form of mosque roof was a combination of *tajuk* and dome. Hemispherical dome form was chosen because it was perceived by Javanese community as the roof of the mosque. Hemispherical dome form which was commonly used in the country of origin of the Islamic Middle East combined with the geometry of the *tajuk*. The main space theme which mean the center got special treatment with materials selection translucent dome so that sunlight would illuminate the interior space evenly. This material should emit light evenly without entering the solar heat radiation so it did not interfere with the thermal comfort of the space beneath. So, there was used material of polycarbonate. During the day the roof exterior form was a combination of *tajuk* with dome in it, while at night some local lighting under the dome would light up around the dome and made it self luminescence [12].

At the new building of Sunan Ampel mosque (completed in 1998) located in the west, there is mixing of traditional and modern forms. In this study, traditional forms refer to the forms of traditional Javanese architecture, and modern forms refer to the architectural forms that come from outside Indonesia. The first is local architectural forms, and the second is non local architectural forms.

Traditional architecture can be traced through the development of Indonesian culture. In the days of early history, development of Indonesian culture, shown by the presence of Hindu/Buddhist culture around the 9th century AD in Central Java, Java community has had a number of local architecture called traditional architecture [13]. Javanese traditional architecture, which has been already owned by the Java community since thousands of years ago, always refers to the architecture of their house. In principle, Javanese traditional architecture can be classified into five types of house, namely: *kampung*, *limasan*, *joglo*, and *tajuk* [14][15][16]. *Kampung* house type was the simplest type. Part of highest living room had a frame with four or six columns. If there was extra space on the right and left, then added columns smaller. At the top of the living room covered with saddle-shaped roof or commonly known form of the *kampung*, with a rather steep slope. While in space on the right and left were added roof covering installed with no steep slope. *Limasan* house type, the

principle was the same type of *kampung*, only the central part of the room was closed with the roof forms a shield or commonly known as a *limasan* shape. Type of *limasan* was home to a family richer or higher social strata than the family type of *kampung* residents. *Joglo* house type was considered the most good and perfect, inhabited by wealthy families or the highest social strata, such as the nobility and the royal family. At the center of the room covered with a roof *limasan* shape rather high and steep (higher and steeper than the *limasan* house type), built on four main columns (*soko guru*). On the right-left side and front-rear there were additional spaces covered with flat (no steep sloof) roofs were built on columns smaller (*soko pengarak*). At the center of the room, under the roof, were generally added to the composition of the beam, known as *tumpang sari* [17][18]. The building with *tajuk* roof form was considered as a holy or sacred buildings by most of the Java community, so it was more widely used in buildings *cungkup* of tomb respected figures. *Tajuk* Roof covered square plan space. The top of the roof was one point giving symbol of deity. As in *joglo* type of roof, *tajuk* roof type construction built on columns *soko guru*. *Cungkup* building of the saints (*wali*) tombs in Java had a *tajuk* roof shape, including the *cungkup* of Sunan Bonang tomb in Tuban, East Java, which was built around the 16th century AD. [19][20].

Modern architecture can be traced through the process of the birth of modernism. The spirit of modernization and globalization (especially in the 18th century until the 20th century), which originated in the Western World, spread throughout the world, including Indonesia. Modernism introduces modern mosque architecture, which comes with the architectural design concept that releases tradition. The concept of modern mosque architecture shows the expression of a box form (with flat or sloping roof), simple, striped horizontally and vertically, and clean with no decorative embellishments. In the early period of modern architecture in Indonesia, years 1960s to early 1970s, Istiqlal mosque was built in Jakarta, meanwhile Salman mosque in Bandung [21]. Istiqlal mosque has dome roof, and Salman mosque has flat roof. [Figure 4].



Tajuk building of Sunan Bonang tomb as traditional form of Reference



Dome roof of Istiqlal mosque as modern form of reference



The wall of Salman mosque (exterior) as modern form of reference



The wall and floor of Salman mosque (exterior) as modern form of reference

Figure 4: Architectural forms of references

The analytical framework used to understand mixing of Sunan Ampel mosque architecture is based on the following concepts: the architectural form, the reference architectural form, adoption, adaptation, synergy, and domination. Concept of the architectural form elaborates from the concept of architectural archetypes [22][23].

Concept of the reference architectural refers to the similarity. Concepts of adoption, adaptation, synergy, and the domination elaborate from the concept of acculturation [24][25][26]. The concept of mixing architectural forms associated with elements of physical culture could not be traced only with the approach of architecture, but had to borrow other sciences, namely anthropology. Acculturation occurred when groups of individuals who had different cultures interacted directly with intensive, and for a long time, with the onset and then transforming the large alteration in the cultural patterns of either or both of these cultures. In acculturation, local attitudes towards foreign civilization (outside) occurred in three circumstances. First, if the self civilization (local) weakness, then there was the adoption, that position had always been dictated by a

stronger civilization (foreign). Second, if the local civilization faced stronger to non local civilization (foreign), then there was adaptation (adaptation). And third, if equally strong between local and foreign civilizations, then there was a synergy, meaning that each entry provides equivalent.

Architectural form is defined as space cover, which consists of bottom cover (floor), side cover (walls), and top cover (roof). Reference architectural form is the architecture of religious buildings ever present and become part of the history of architectural development in Indonesia, especially in Java, which is thought to be a reference in mixing of traditional and modern form in architecture of Sunan Ampel mosque. Traditional architectural form refers to traditional Javanese house, ie *tajuk*. Modern architectural form refers to modern mosque architecture, ie Istiqlal mosque and Salman mosque.

Adoption in mixing of architectural form occurs when modern architectural form is more dominant than traditional architectural form. Adaptation occurs when traditional architectural form is more dominant than modern architectural form. Synergy occurs when there is no domination between traditional architectural form and modern architectural form. Domination in mixing of architectural form is determined based on a height dimension factor, because Sunan Ampel mosque is a sacred building. Sacred buildings generally associated with something high.

Based on the above, the steps of analysis were as follows. The first step, opened architectural form cover of Sunan Ampel mosque, which would show the expression of bottom covering (floor), side covering (wall), and top covering (roof). The second step, compared the form of Sunan Ampel mosque with reference of traditional architectural forms (*kampung* building form, *tajuk* building form, *limasan* building form, and *joglo* building form) and modern architectural forms (Istiqlal mosque and Salman mosque). The third step, analyzed and interpreted the comparative forms of Sunan Ampel mosque architecture with the architectural form of reference, within the framework of the adoption, adaptation, and synergy. [Figure 5].

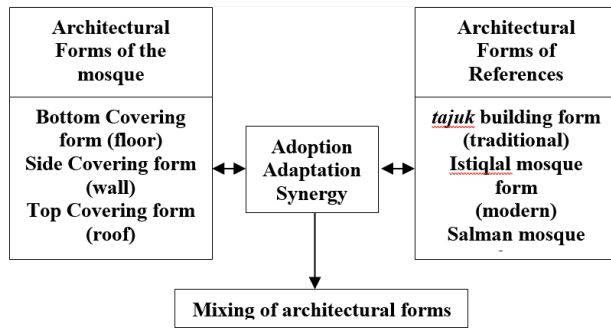


Figure 5: Schematic diagram of analysis framework

3. Results and Discussion

The focus of this study was the main hall of western building of Sunan Ampel mosque (completed 1998). After opening cover of architectural form, there was visible expression of the floor as bottom covering form, the wall as side covering form, and the roof as top covering form.

The main hall of the west building, the floor of the mosque was relatively flat covered by ceramic material, and position 0.6 m higher than the court. The main hall had a round stone columns, each 0.8 m in diameter. Form the bottom column or column base was *umpan*, about 0.5 m high, and the middle part of column was coated colored teak wood. In the middle of the main hall, there were 12 columns, with a height of 12 meters, as the main columns (*soko guru*). The twelve columns propping up the construction of a dome roof, and for support *tajug* roof construction on top. On the outer sides of the *soko guru*, there were columns with a height of 8.5 meters, as a cantilever of *tajuk* roof construction in the middle. Four columns on the right side and four columns on the left side of the *soko guru* position were in the room, while columns on the front side and the rear became one with the wall.

At the part of the bottom of *tajug* roof was supported by columns of the veranda. The ceiling of the main hall, under the *tajuk* roof was colored wood lambrisering. Roof of the west building, at the bottom was *tajuk* roof, and at the upper was domed roof which had diameter of 9 meter. On the outer side

mounted metal pipe totaling 64 stems, which were arranged oblique shaped *tajug*.

On the exterior of the building, the roof of the dome was not so visible because it was blocked by the arrangement of the pipe-shaped *tajuk*. Domed roof was surrounded by rectangular stone walls as high as 1 meter. At the peak of the roof there was *memolo*, mounted on a pipe-shaped *tajuk*. *Tajug* roof shaped pipe arrangement was an expression of second layer of the *tajuk* standing on the first layer of the *tajug* roof underneath.

Peil of the floor was about 0.6 m higher than the open court. The floor area of the main hall of the western building of Sunan Ampel mosque was about 625 m². The walls of the mosque was not thick, with some standard dimation of construction glass doors and windows. Height of the walls was about 8.5 m. The roof of the mosque was mixing of *tajuk* roof and domed roof. Height of the roof was about 17.25 m.

The floor of Sunan Ampel mosque as the bottom covering form, after comparing with the architectural form reference, had one architectural form reference, ie the floor form of modern Salman mosque and Istiqlal mosque, that the floor was equally of ceramic material as a product of modern technology. The walls that were not thick, with glass doors and windows of standard size, as the side covering form, had also one architectural form reference, ie the wall form of modern Salman mosque. The roof which was mixing of *tajuk* roof form and domed roof form, as the top covering form, had two architectural form references. The first, was *tajuk* roof of Javanese traditional building could be found in the tombs building of *Walisanga* (the nine saints), called *cungkup*. The second, was domed roof of modern Istiqlal mosque.

The ceiling of the main hall of Sunan Ampel mosque made of high, followed the interior form of the roof, and at the top center made translucent sunlight. The roof of mosque was the result of mixing of two unique architectural details. The roof of mosque consisted of two forms, ie *tajuk* roof and domed roof. Its uniqueness lied in the expression of the domed roof were not clear as dome-formd roof, because the expression of

the exterior form was only vaguely visible. The domed roof was clearly visible when viewed from the interior form of expression. On the outside of the domed roof added roof construction, which was made of metal pipe rods arranged such that its form was the *tajuk*.

From the above, the Sunan Ampel mosque architecture, there were four architectural forms involved in mixing of architectural forms. The bottom covering of the main hall refers to the floor of modern Salman and Istiqlal mosque, as modern architectural form. The side covering refers to the wall of modern Salman mosque, as modern architectural form. The modern architectural form was a product of modernism that resulted the new technology of building construction and materials.

Application of building materials in period of modern architecture was determined by the rapid development of building construction and materials technology. Modern architecture had made it easier in construction techniques and building material selection. Building materials that often the choice was for building skeletal structures used reinforced concrete products (cement as its main component), for floor coverings used ceramic materials, granite or marble, for wall used materials of brick or hebel, for doors and windows used aluminum and glass, for ceiling used gypsum, for roofing used concrete or metal (metal roof or roof tile).

The top covering refers to the roof of the *tajuk* traditional house, as traditional architectural form, and to the domed roof of modern Istiqlal mosque, as modern architectural form. The main material of domed roof was polycarbonate. Polycarbonate was one type of thermoplastic polymers. It was easily worked, molded, and thermoformed. This material was widely used in the chemical industry modern. Polycarbonate had properties equivalent to the transparent glass, but it had a better strength. In addition to a strong, polycarbonate was also heat resistant. Based on the criteria of height, the roof as the top covering which had height about 17.25 m was more dominant than the wall as the side covering (8.5 m high) and the floor as the bottom covering (0.6 m high). There was the domination of the traditional architectural form against the modern architectural form. So it could be said that mixing that occurred was the adaptation. [Figure 6].

4. Conclusion

This study provided an understanding of mixing of traditional and modern forms in Sunan Ampel mosque architecture, through a framework of analysis. Mixing of Sunan Ampel mosque architectural form occurred with adaptation. There was the dominant form of the traditional architecture form against the modern architectural form. The domination was shown by *tajuk* roof. Although at the top of the roof there was a dome, but the overall there was the form of the *tajuk* roof.

This study had been able to formulate new methods and its operations in an effort to find mixing of traditional and modern forms in Sunan Ampel mosque architecture. The new method used to read, analyze, and interpret mixing of architectural forms based on the concept of adoption, adaptation, synergy, and domination. Analytical framework involved architectural form of Sunan Ampel mosque and architecture form of reference.

The architectural form of the mosque had three coverings, namely bottom covering, side covering, and top covering. The architectural form of reference consisted of building forms of *tajuk* as a traditional form, and the form of Salman mosque as a modern form. The result of the analysis was the roof form of Sunan Ampel mosque referred to the form of the building roof of *tajuk* and dome, forms of the floor and wall referred to the form of Salman mosque.

A new perspective in an effort to understand mixing of traditional and modern forms was very important, especially for the planning and designing of mosques in Indonesia. This new perspective was also very important for the development of architectural knowledge in general, and repositioning mixing of traditional and modern forms in Sunan Ampel mosque architecture in a global context.

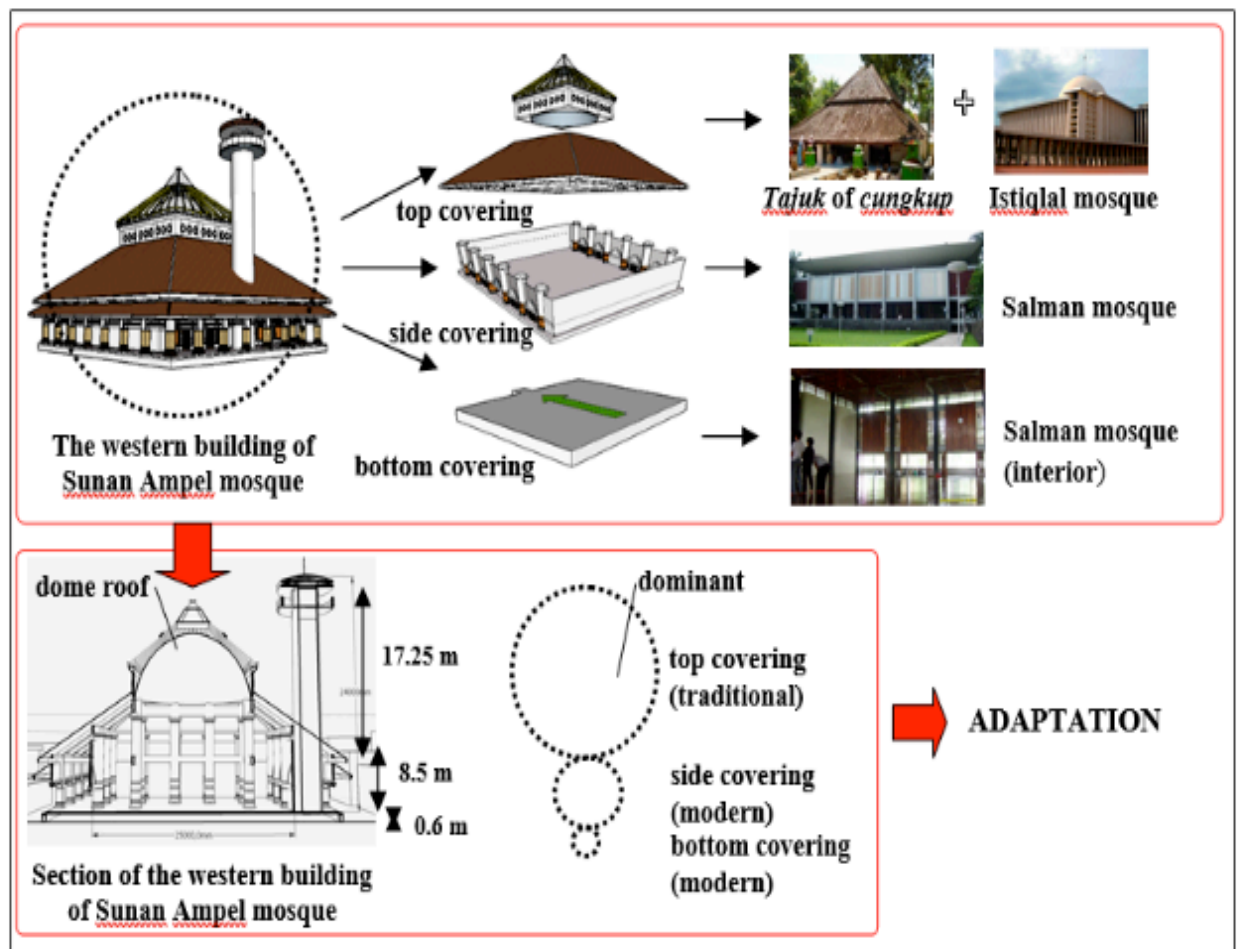


Figure 6: Diagram of analysis process

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