A Study of Traditional House of Northern Central Java
- A Case Study of Demak and Jepara -

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Abstract
This study is aimed at finding architectural characteristics of Demak and Jepara traditional houses in Northern Central Java, Indonesia. There are many traditional houses at the village in the area of Demak and Jepara. Based on classification of house type, plan, construction, ornament and aesthetic element, and building facing can be found out typology of Demak and Jepara traditional houses. Through a comparison with traditional houses in another area of Northern Central Java and Southern Central Java, we have found out architectural characteristics of Demak and Jepara traditional houses.

Keywords: Demak; Jepara; northern central Java; Indonesia; architectural characteristic

1. Introduction
Demak and Jepara are located in Pesisir Wetan area of Northern Central Java (Fig.1). Demak has been center of spreading Islam religion in Java in 15th and 16th centuries. Tome Pires, a Portuguese traveler who once visited Java, reported in his book "Suma Oriental" that there were about 8,000 to 10,000 houses in Demak and 2,000 houses in Jepara in 1513. Jepara has been the prime harbor city of Kalinyamat Kingdom after Demak Kingdom destroyed and the ruler of Java furthermore.

Traditional houses in this study are old houses having traditional architecture that have original building elements or getting very few changes. The aims at this study are to find out architectural characteristics of traditional houses in Demak and Jepara that generally represent traditional houses in Northern Central Java. Architectural characteristics will be very benefit for architectural development in the future.

This paper tries to point out the differences between traditional houses in Northern Central Java and Southern Central Java. There have been very few studies about traditional architecture conducted in Northern Central Java. Formerly, Soetomo has ever done early inventory of traditional architecture in Northern Central Java. Roesmanto found out that there was only one traditional house out of 24 old traditional houses in the areas of Kudus, Pati, and Grobogan, which applied the Javanese traditional rules of house location and its site.

In our opinion, it is the important study because there is not profound study yet of traditional houses in Northern Central Java. Besides, the traditional houses in Demak and Jepara have been decreasing in quantities. The owners old traditional houses want to live in modern architecture houses and the rich person from Jakarta or foreign country buy the old traditional houses.

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2. Methods

This study is based on primary and secondary data. The primary data are collected through several field surveys. The research locations are villages where still have many traditional houses. The villages chosen as the research location in Demak Regency are Cabean, Kedondong, Maten, Tambirejo, and Bumiharjo Villages, and in Jepara Regency are Robayan, Tubanan, Kancilan, Slagi, and Raguklampitan Village (Fig.1). From each village, 5 oldest traditional houses are taken out, thus the number of research objects is 50 traditional houses. The village communities are very understand with the old traditional houses.

The field surveys conducted includes activities of measuring and photographing the buildings taken out as research objects, and interviewing the house occupants, the heirs, and people who are elderly in each village. From the result of measuring on the fields and photography, it can be described architectural data of each traditional house over again. From the interview result with building heirs, building occupants can be estimated the age of building, the change of the room functions and the building shape, the addition and reduction of building element and space which have ever been experienced this house.

From the combination of the results of redrawing on the plan, elevation, section and interviewing the house heirs, the morphologies of the plan of the building can be found out. To find out the originality of the plan, an analysis based on the presence of the main elements of the building structure and component is carried out. From the house transformation, alternatives of the plan can be analyzed, and finally it will be known primary form, plan and its elevation.

From the 50 primary plans of Demak and Jepara traditional houses the genealogy of traditional house plans can be constructed based on the order of ages of the buildings and the typology of the plans.

The secondary data of traditional houses in Southern Central Java are used to analyze the differences between traditional houses in Northern Central Java (Demak and Jepara) and Southern Central Java. The secondary data are obtained from the result of study, which have ever done.

The field survey were conducted in the villages of Cabean 2000 and 2001; Kedondong 1996 and 2001; Maten 1994 and 2001; Bumiharjo 1994 and 2001; Tambirejo 1993 and 2001; Robayan 1996 and 2001; Tubanan 1994 and 2001; Kancilan 1995 and 2001; Slagi 1995 and 2001; Raguklampitan 1995 and 2001.

3. Traditional House of Southern Central Java

Traditional houses in Southern Central Java region usually have the shape of the building series, and they are located in the middle of site.

The noble houses usually consist of front, central, and rear building. The front building is used for main hall (‘pendhapa’ in Java), which has the form of ‘joglo’ or ‘limasan’. The central building is used for living room (‘dalem’ in Java) and bedrooms, which has the form of ‘joglo’. The rear building is used for the servicing space, which has the form of ‘limasan’ (Fig.2). There are often founded the side buildings which have the form of ‘limasan’ at the right-left side of the central building and they are used for the addition spaces.

The common people houses in Bligo Village, Magelang consist of front and rear building. The front building is used for living room. The rear building is used for service area.

The middle bedroom (‘senthong tengah’ in Java) has functions as main bedroom and sacred characteristic because it symbolizes the place of Rice Goddess (‘Dewi Sri’ in Java). The building and the main bedroom always look out on the South.

The highest parts of the building roof have a form of ‘joglo’ and ‘limasan’, which are supported by construction element which have a decorative shape called ‘gonjo’. ‘Gonjo’ is on the top of the main pillars; it is only used for living house of king and nobleman.

4. Traditional Houses of Demak and Jepara

4-1 House Type

| 1. Pencu   | 9. Kampung |
| 2. Pencu   | 10. Pencu Turun Kampung |
| 3. Joglo   | 11. Pencu Payonan |
| 4. Maligi  | 12. Panggang Pe |
| 5. Maligi (Gandhog) | 13. Maligi Endhas Telu |
| 6. Limasan | 14. Pencu Renteng |
| 7. Pencu Turun Maligi | 15. Bekuk Lulang |
| 8. Pencu Turun Maligi |

Fig.2. Typical Forms of Northern and Southern Central Java Traditional Houses
Considering the houses type, traditional house of Demak and Jepara has 3 types, i.e. 'pencu', 'maligi' and 'kampung'. Those traditional houses are a series of buildings called 'pencu turun maligi', 'pencu turun kampung', 'maligi turun maligi' and 'maligi turun kampung'. Specifically in fisherman village of Moro Demak, there is ‘maligi endhas telu’ building. In

Mulyorejo, Demak, there is ‘pencu renteng’ building, but the field survey 2001 showed that the shape was not complete anymore (Fig. 3).

We do not find the traditional house that has a shape of ‘kampung turun kampung’, ‘kampung turun maligi’, and ‘kampung turun pencu’. Therefore, it can be concluded that: 1) Primary house of ‘pencu turun maligi’ and ‘pencu turun kampung’ have the type of ‘pencu’. Primary house of ‘maligi turun maligi’ and ‘maligi turun kampung’ have the type of ‘maligi’. 2) There is no ‘kampung turun pencu’ and ‘kampung turun maligi’ building that shows ‘pencu’ and ‘maligi’ type buildings have higher level than kampung type. Kudus traditional house, in Northern Central Java, also have a shape of building series. The shape of building is called ‘pencu payonan’ and ‘maligi payonan’. The servicing building has a shape of ‘kampung’ and it is located on the left or right side from the main building.

Traditional houses of Bligo Village, Magelang and another area in Southern Central Java have the shape of ‘joglo’, ‘limasan’ and ‘kampung’ (Fig. 2). The type of ‘kampung’ in Northern Central Java is the same with the type of ‘kampung daragepak’ in Southern Central Java. ‘Maligi’ type in Northern Central Java is like ‘limasan maligi gajah’ in Southern Central Java. ‘Pencu’ type in Northern Central Java is similar to ‘joglo’ in Southern Central Java.

4-2 House Plan

Traditional house typology in Demak and Jepara based on the composition of primary and service building location bears: 1) The Type of service building is behind the primary building; 2) The L Type, service building is on the right backward of primary building; 3) The J Type, service building is on the left of primary building; 4) The Type of service building is on the right of the primary building; 5) The Type of service building is on the left of the primary building; 6) The Type of service building is inside the left of the primary building (Fig. 4).

Traditional house typology in Demak and Jepara based on the room composition of primary building bears: 1) The Type of front terrace--living room--bedrooms; 2) The Type of front terrace--multipurpose living room; 3) The Type of front terrace--guest room--bedrooms and living room; 4) The Type of front terrace--guest room--bedrooms and living room-kitchen and storage (Fig. 5).
Traditional house of Bligo Village has room composition of front terrace—multipurpose living room—gangway for storage—kitchen. Traditional house in another area of Southern Central Java has room composition of main hall—gangway—‘pringgitan’—living room—bedrooms—gangway—kitchen. The bedrooms composition from left to right is as follows: left bedrooms—main bedroom—right bedroom. All bedrooms face South or front.

From 50 traditional houses in Demak and Jepara, the genealogy of the room composition can be analyzed. We found out that in traditional house of Demak and Jepara: 1) Not all houses have bedroom; 2) The position of main bedroom is functioned as dining room; pray room, and transition room which is headed for backyard.

Bedroom on traditional house of Demak and Jepara according to our opinion is new room. The bedroom walls are built by taking advantage of the existence of backyard main pillars. This differs with the existence of bedrooms in traditional house of Southern Central Java whose wall location is behind the position of its pillars. The existence of the bedrooms in traditional house of Northern Central Java is probably influenced by bedrooms plan of traditional house of Southern Central Java.

### 4-3 Building Construction

The traditional house typologies in Demak and Jepara based on amount of main pillars can be resulted 1) ‘Sokoguru’ type; 2) ‘Sokowolu’ type. The ‘sokoguru’ construction can be applied to the ‘pencu’ building, and the ‘sokowolu’ construction to the ‘maligi’ building. The buildings of traditional houses in Kudus and the other areas in Northern Central Java also used the construction system equally.

The traditional house buildings of the ‘pencu’ type have 4 ‘sokoguru-s’ as the main pillars which support top part of the roof. The lower part of the roof (‘empyak’ in Java) is supported by ‘sokoguru’, the pillars at the front and back walls (‘soko renteng’ in Northern Central Java), and the pillars at the side walls (‘soko rawa’ in Java). The ‘maligi’ types have 8 pillars at the front and back walls.
The ‘sokoguru’ construction system of the buildings having a ‘pencu’ and ‘joglo’ type an equal. The 4 main pillars are attached to the upper section with the main beam (‘blandar’ in Java). Main beam are wood with rectangular shape and function as the stabilizer of the main pillar.

In Southern Central Java another the heap beam is put above the main beam with the position extending out and in from the main pillar position. The pilling up of beam, which extends out is called ‘elar’, and those that extends in is called ‘tumpangsari’. Rafter from the roof on above main pillars is supported by a heap of ‘elar’. Such an ‘elar’ that the highest part of roof at he building of ‘joglo’ type become bigger and wider.

The construction above main pillar in the buildings of ‘pencu’ type used 1) ‘tumpangsanga’; 2) ‘elar’; 3) ‘Tumpangsanga’ and ‘elar’; 4) Without ‘tumpangsanga’ and ‘elar’ (Fig. 5).

The heaps of ‘tumpangsanga’ are not function constructively, because the main beam supports rafters from the roof above main pillars. The heaps of ‘tumpangsanga’ have a function as decorative.

The ‘tumpangsari’ and ‘elar’ construction in Southern Central Java are supported by ‘gonjo’. The ‘gonjo’ is put above the main pillar (Fig. 7).

‘Gonjo’ is applied to ‘joglo’ houses belong to the royal family, and to other buildings in the palace of Surakarta and Yogyakarta.

But in Demak and Jepara, also in other areas of Northern Central Java, ‘gonjo’ is applied to all ‘pencu’ type buildings. The main pillar in the areas of Northern Central Java is supported by a pedestal (‘umpak’ in Java), which is made of wood, while in the areas of Southern Central Java it is made of stone. The base of main pillar in Demak and Jepara is in form of cube, trapezoidal pyramid, or erected beam, while in the areas of Southern Central Java it is on form of trapezoid.

The roof of front terrace on traditional houses in Demak and Jepara is supported by decorative pillars (‘soko pracik’ in Java). Decorative pillar is equipped with decorative console (‘kathung’ in Northern Central Java) that functions as the holding hand of the beam above decorative pillar (Fig. 8).

4-4 Ornament and Aesthetic Element

Local community divided the buildings of traditional houses in Demak and Jepara into: 1) The building which have ‘tumpangsanga’ and ‘gebyok’; 2) The building without ‘gebyok’; 3) The building without ‘tumpangsari’; 4) The building without ‘tumpangsari’ and ‘gebyok’.
Fig. 8. Aesthetic Elements of Demak and Jepara Traditional House

‘Gebyok’ is an aesthetic divider of living room. We can also see the same aesthetic element on the main bedroom (‘senthong tengah’ in Southern Central Java) of noblehouse in Southern Central Java.

The front wall of the traditional houses in Demak and Jepara is a series of board with ornamental texture. The ornamental wall is completed with ‘kupu tarung’ and folding door. ‘Kupu tarung’ is more aesthetic and decorative compared to the folding door, which is behind it. The main entrance with ‘kupu tarung’ is not found in the traditional houses in Southern Central Java.

Ridge of the roof on the traditional house type of ‘pencu’ and ‘maligi’ of Jepara traditional houses are different from those found in the areas of Demak, and Kudus. The big difference in aslant sideways between the upper roof and the lower part of the roofs is adjusted with a curved surface at the connection.

People living in Northern Central Java area can show the year of the last houses in Southern Central Java. Ridge of the roof on Bligo traditional house in Southern Central Java are covered with zinc.

4-5 Building Facing

The traditional houses in Bligo, Magelang, are facing south. So do other traditional houses in Southern Central Java.

From the 50 traditional houses in Demak and Jepara, 26 houses are facing northeast, 4 houses are facing southeast, 17 houses are facing southwest, and 3 houses are facing northwest.

5. Architectural Characteristics of Demak and Jepara Traditional House

5-1 House Type

The difference between ‘pencu’ type of Northern Central Java and ‘joglo’ type of Southern Central Java are: 1) ‘pencu’ type building has no side roof of the lower part; 2) ‘joglo’ type building has no decorative front terrace pillars.

‘Joglo’, according to Kawruh Kalang means ‘tajug loro’ or two ‘tajug’ buildings combined into one. ‘Pencu’ is not mentioned in Kawruh Kalang, so perhaps ‘pencu’ type is a variant of ‘joglo’ type. There is a type that is similar to ‘pencu’ in the replica of clay, which is a building from the Majapahit era in the 14th century.

We argue that ‘pencu’ is probably a more ancient type than ‘joglo’. This argument is based on the fact that ‘joglo’ and ‘pencu’ type are no illustrated on the relief of Borobudur Temple and Loro Jonggrang Temple in the 8th-9th century, and Panataran Temple in the 14th century. ‘Pencu’ type building was probably used in Majapahit after the middle of 14th century. Traditionally, ‘pencu’ type was used in houses in the era of Demak Kingdom in the beginning until the middle of 16th century. ‘Joglo’ type developed when Sultan Agung ruled the Mataram Kingdom in the beginning until the middle of 17th century. Because Majapahit Kingdom could unite the whole territory of Indonesia, there is a possibility that ‘pencu’ or ‘joglo’ type was influenced by the type of traditional house of Sumba, or just the opposite.

‘Pencu’ derives from the word ‘pancud’ that means being made a bit sharp. The characteristic of ‘pencu’ type building is the top roof soars high and the point is cut like inlaid work. This shape symbolizes the dweller attitude that praises God. The top part of the roof that is sharp can be found on ‘tajug’ type building. ‘Tajug’ type building in Northern Central Java and Southern Central Java is used for mosque and c over over grave.

The ‘pencu’ and ‘maligi’ type of Jepara traditional houses are different from those found in the areas of Demak, and Kudus. The big difference in aslant sideways between the upper roof and the lower part of the roofs is adjusted with a curved surface at the connection.

People living in Northern Central Java area can
choose using ‘pencu’ type or ‘maligi’ type for the building of their house. There are connected with the influence of the winds that flow from the northwest, the building having a shape of ‘pencu’ will be more influenced than the lower of ‘maligi’ shape. There is only a corridor separating closely between houses that have a shape of ‘pencu’ and the other, usually it, then there is wider corridor shaped. This close gap symbolized close connection among human according to something that has to do in Islam religion, closely with neighbors. ‘Maligi’ derives from word ‘maliki’ or ‘maalik’ that means The Al-Mighty or God. It symbolizes that the dweller will always remember God.

5-2 House Plan
Some traditional houses of Northern Central Java have transition room, which commonly has function as the main bedroom, which connects to the backyard. In fisherman house in Tuban, and Moro Demak, the house owner can see straight to the sea rom the transition room. The missing of main bedroom that symbolizes the place of Rice Goddess shows strong influence of Islam religion in Northern Central Java.

Bedroom on traditional house of Demak and Jepara according to our opinion is new room. The bedroom walls are built by taking advantage of the existence of backward main pillars. This differs with the existence of bedrooms in traditional house of Southern Central Java whose wall location is behind the position of its pillars. The existence of the bedrooms in traditional house of Northern Central Java is probably influenced by bedroom plan of traditional house of Southern Central Java.

5-3 Building Construction
The construction of ‘tumpangsanga’ as the decorative element symbolized the appreciation from the owner to Walisanga who have meritorius for spreading Islam religion in Java.

The wood pedestal used in Demak and Jepara traditional houses might be connected with the condition of land structure in Demak and Jepara which have bad conditions and making easier. The other consideration is rarely the natural stone.

5-4 Ornament and Aesthetic Element
Decorative console of front terrace pillar shape is like arm and it symbolize hand that is likely having a pray according to Islam religion. Decorative console in Demak and Jepara ordinarily have the shape of wing, curve, the simplification of animal head that has a comb, 3 arms pointed to the side and the front, carved trunk with the edge resembles pineapple.

‘Kupu tarung’ door leaf has under sill called ‘sampar banyu’. Person from the home inside has a dark atmosphere because there is nothing window. Because of ‘kupu tarung’, person from home inside does not feel dazzle watching the outside yard which is hot.

‘Gumungan’ tile is placed in the middle of ridge. Raden Patah, the first king in Demak Kingdom, created ‘Gumungan’ in Puppet Show. Walisanga used the Puppet Show as the media to spread out of the religion of Islam.

5-5 Building Facing
From the 50 traditional houses in Demak and Jepara, 19 houses were built in the 19th century, 11 houses are facing northeast, 6 houses are facing southwest, and 2 houses are facing southeast. From the 31 houses which were built in the 20th century, 15 houses are facing northeast, 11 houses are facing southwest, 2 houses are facing southeast, and 3 houses are facing northwest.

The traditional houses are mostly facing northeast. We argue that north direction more important than south direction. North direction symbolizes the location of Java Sea, which is a media of trade activity in the 15th-16th century.

6. Conclusion
6-1 Architectural Characteristics of Northern and Southern Central Java Traditional House
Southern Central Java Traditional House:
1) Using main hall in front of main building;
2) Using a place to perform a puppet show;
3) Using main bedroom, it is symbolize the place of Rice Goddess;
4) The use of pedestal from stone;
5) No decorative console;
6) No decorative roof tile;
7) No inscription roof tile;
8) No trellis door;
9) The building always facing south.
10) ‘Gonjo’ is only use for living house of king and nobleman.

Northern Central Java Traditional House:
1) No main hall (‘pendhapa’ in Java);
2) No place to perform a puppet show (‘pringgitan’ in Java);
3) Main bedroom does not always exist, probably influenced by Southern Central Java main bedroom (‘senthong tengah’ in Southern Central Java);
4) The use of pedestal (‘umpak’ in Java) from wood;
5) The use of decorative console (‘kathung’ in Northern Central Java);
6) The use of decorative roof tile
7) The use of inscription roof tile (‘genteng wayangan’ in Northern Central Java);
8) The use of trellis door (‘kupu tarung’ in Northern Central Java);
9) The building is not always facing south. It is facing southeast, southwest, northeast, or northwest.
10) ‘Gonjo’ is applied to all pencu type buildings.

6-2 Architectural Characteristics of Demak and Jepara Traditional House
Kudus Traditional House:
1) Using ‘pintu sorong’.
2) The kitchen is located in the side of main building.
3) The difference of the roof declivity angle between bottom and top part is very big and shapes a roof plane, which is bent.
4) The console sticking out forward from the wall and supporting beam which is laid athwart on the top of its tip.
5) There is nothing of decorative divider.
6) Decorative wall bordering guestroom
7) A decorative pillar supports a decorative console in the guestroom.
8) The bathroom and well building are in the front and look out main building.

Demak Traditional House:
1) Using ‘kupu tarung’
2) The kitchen is located at the rear of main building.
3) The difference of the roof declivity angle between bottom and top part is very big and shapes a plane.
4) The console help front terrace pillar supporting beam on the top of it, console positions are left and right side of pillar.
5) There is nothing of decorative wall.
6) Using decorative front terrace pillar.
7) There is nothing of bathroom and well building in the front of main building.

Jepara Traditional House:
1) Using ‘kupu tarung’ or using ‘pintu sorong’.
2) The kitchen is located in the behind or side of main building.
3) The difference of the roof declivity angle between bottom and top part is very big, both of these roof planes as if a plane warped.
4) There use console of Demak type or Kudus type.
5) There is nothing of decorative wall.
6) Decorative terrace wall.
7) There is nothing of bathroom and well building in the front of main building.

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Notes
1. References 2, p.25-27 mentioned that the Javanese culture developing in Central Java can be divided into spreading areas, they are Pesisir Kilien, Pesisir Wetan, Ba-nyumas, Bagelen and Nagargiung; p.26. Pigeaud said that Islam religion have strong influence for the people of co-ast-al area. Koentjaraningrat said that Javanese determined the differences between Pesisir Kilien having center in Cirebon and Pesisir Wetan having center in Demak.
2. Reference 1.
3. Reference 6, This study was based on the concepts of regionalitation of coastal culture by Pigeaud and of traditional architecture forms as the realization of its sociocultural-values.
4. Reference 5.
5. People of villagers usually know about living house building which have old age at their village that is based on information from elderly or neighbor. The numbers of villagers who have known this information are more and more after rich person from Jakarta or out of countries wants the old traditional houses.
6. ‘turun’ in Javanese means having child or offspring. So, ‘pencu turun kampung’ means building of ‘pencu’ type has child where is put in the behind of its and the form is ‘kampung’ type, etc.
7. That means building of ‘maligi’ type having three heads, they are buildings shaped from 3 building series of ‘maligi’ type toward behind.
8. That means ‘pencu’ building having series sideward.
9. Look at explanation number 6.
10. According to R.Ng. Mintotoedojo, it is one of ‘kam-pung’ type variants.
11. According to R.Ng. Mintotoedojo, it is one of ‘lima-san’ type variants.
12. Pringgitan is a place holding on puppet show event at the noble house in Southern Central Java.

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