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Phenomenological Study of Toba Batak House Tectonics

Phenomenological Study of the Tectonics of the Toba Batak House

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Abstract *: Indonesia is a super cultural power country, rich in customs and culture line from Sabang to Merauke, from Nias to Rote Island. Cultural wealth breeds architectural diversity. The potential of original Indonesian architecture has begun to be left behind and eroded by foreign cultures. The postmodern era has raised Nusantara Architecture to the world stage. Researches on the wealth of Nusantara architecture begin to bloom like mushrooms in the rainy season. The phenomenon of the skills or expertise of the masters has made traditional houses an endless research material. The purpose of this research is to explore the treasures of the Indonesian nation's wealth, especially the craftsmanship skills of Indonesian ancestors. The phenomenon of tying, knitting, and stringing materials into architectural masterpieces is a uniqueness and uniqueness that other nations do not have. The method used in this study uses the phenomenological method. Where in the vernacular architectural phenomenology is divided into two branches; first: related to space, place, and atmosphere, second: related to tectonic or the art of construction more on the elements of craftsmanship. The results of this study reveal that simple and straightforward technology becomes effective when it comes to craftsmen who have special skills. The conclusions of this study indicate that the skill of the masons is more dominant than the tools used, on the other hand, currently tools are more dominant than the skills of the masons*

phenomenology, tectonics, archipelago architecture, craftsmanship

Abstrak Indonesia merupakan negara super power budaya, kekayaan adat istiadat dan budaya terhampar mulai dari Sabang sampai Merauke, dari Nias hingga pulau Rote. Kekayaan budaya trsebut melahirkan keragaman arsitektur. Potensi kearsitekturan asli Indonesia mulai ditinggal zaman dan tergerus oleh budaya luar. Era postmodern telah membangkitkan Arsitektur Nusantara ke panggung dunia. Penelitian-penelitian tentang kekayaan Arsitektur Nusantara mulai marak. Fenomena ketrampilan atau keahlian para

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empu pembuat rumah adat menjadi bahan penelitian yang menarik untuk dikaji. Tujuan dari penelitian ini ingin menggali kekayaan arsitektural bangsa Indonesia, khususnya terkait ketrampilan craftsmanship warisan nenek moyang. Fenomena mengikat, merajut, dan merangkai material menjadi maha karya arsitektur yang menjadi keunikan dan kekhasan yang tidak dimiliki oleh bangsa-bangsa lain. Metode yang digunakan dalam penelitian ini memakai metode fenomenologi. Di mana di dalam fenomenologi arsitektur vernakular kajian terbagi menjadi dua cabang; pertama: berkaitan dengan space, place, and atmosphere, kedua: berkaitan dengan tectonic atau the art of construction lebih pada unsur craftsmanship. Hasil dari penelitian ini mengungkapkan bahwa teknologi yang sederhana dan apa adanya menjadi berdaya guna bila berada di tangan tukang yang memiliki keterampilan istimewa. Simpulan dari penelitian ini menunjukkan bahwa ketrampilan tukang lebih dominan dibandingkan dengan alat yang digunakan, berbanding terbalik dengan kondisi saat ini dimana alat menjadi lebih dominan dibandingkan ketrampilan tukang.

Kata Kunci: *fenomenologi, tektonika, arsitektur nusantara, craftsmanship*

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Introduction

Indonesia is a cultural super power country that has various tribes, customs, and cultures, from Sabang to Merauke, from Nias to the island of Rote. Indonesia has 17,000 islands inhabited by more than 400 ethnic groups and languages, a land of biodiversity and culture. The richness of a culture gives birth to the diversity of its architecture. Architecture is a combination of various knowledge, science, technology, and art that processes space and the built environment to become part of human culture and civilization (Salain, 2021) . The architectural potential of traditional houses in Indonesia is very abundant, even considered as a valuable treasure that is not owned by other nations. At present, the glory and greatness of traditional houses in Indonesia are starting to fade with the times and eroded by foreign culture which undermines the richness of architecture in Indonesia.

The architecture of traditional houses in Indonesia, hereinafter referred to as Nusantara Architecture, is a term based on the understanding of geoclimatics (islands and humid tropics) and non-written traditions (Prijotomo, 2018) . Archipelago architecture is closely related to its geographical location. Indonesia is an archipelagic country, therefore the shape, appearance, and even construction of the Archipelago Architecturally imitate the formations of boats. Archipelago architecture is also inseparable from local climatic conditions, tropical humidity brings consequences for Archipelago Architecture as shelter architecture. Customs, beliefs, and local culture are records of knowledge about architecture, the reality of traditions without writing. In the Archipelago Architecture, these elements are intertwined into one unified whole.

Phenomenological research on vernacular architecture is divided into two parts; the first: phenomenology related to the elements of space, place, and atmosphere, the second: phenomenology related to tectonics or the art of construction leading to " *craftsmanship* ". Phenomenological studies of vernacular

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architecture from the tectonic side consist of articulation and activity. What is meant by tectonic articulation is related to material elements, connection techniques between architectural elements, and composition of material arrangements. Meanwhile, tectonic activity is related to knowledge and materials.

The diversity of Archipelago Architecture in Indonesia, so in this study only take one of the existing traditional houses; namely: Toba Batak House. The uniqueness of this Toba Batak House is because the roof does not have a truss structure, the structure uses a tie, pen, and hole system, the foundation of the house is also not planted, and the walls of the building are "painted" with paintings and carvings. The Toba Batak house is phenomenologically closely related to the issue of " *women* " (the art of construction). The tectonics of the Toba Batak House is the work of an " *master* ". Therefore, the subject of this study lies in the study of the architectural phenomenology of the Toba Batak House from the tectonic side.

Previous research related to Toba Batak House; focuses on: Use and Image as a Form of Creativity in Archipelago Architecture, with a case study: Tongkonan Toraja, Mamasa and Toba Batak architecture (Roosandriantini, 2020) . In the study concluded that creativity can be created from simple equipment with natural materials as creative materials. Another study that examined the Toba Batak Traditional House and its Ornaments in Jangga Dolok Village, Toba-Samosir Regency was conducted by Siahaan (2019) . This research looks at the settlements of the Toba Batak Traditional House in relation to the type of ornament in the traditional house and its preservation . Their research focuses on the young generation's insight into the richness of Nusantara architecture, especially the physical form of the Toba Batak, Karo Batak, and Simalungun Batak architectures.

The research on the Toba Batak House from the *women 's* perspective (craftsmanship) has not been discussed much. This phenomenon is really interesting to observe and observe. Through the vernacular architectural phenomenology method, the researcher wants to reveal about materials, connection techniques between architectural elements, material composition, and knowledge of the Toba Batak House.

Method

This research is a correlational explanation research, by describing the tectonic phenomenology of the Toba Batak House. The data needs to take from the literature and journal articles. By using a qualitative descriptive analysis to link the phenomenology of tectonic vernacular architecture with the Toba Batak House.

Results and Discussion

Tectonics is one of the words that make up the term architecture. The word architecture consists of a combination of two words, taken from Greek; namely: the words arche and tektoon. *Arche* means: original, main, initial, while *tektoon* means: standing firm, not collapsing, stable, not shaky (Gazette, 2017) . Archetektoon means: main builder or master builder (Mangunwijaya, 2009) . Furthermore, the meaning of the word developing tectonic has the meaning: "the art of joining" (Frampton, 1995) . In tectonic architecture it can be formulated as follows: The science or art of construction that has artistic benefits, not only the activity of making construction, but more on construction as a form that has artistic value (Maulden, 1986) ,

The phenomenology of tectonics can be divided into two parts; first: tectonic articulation, second: construction activities. Tectonic articulation emphasizes materials, connection techniques between architectural

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elements, and composition of material composition. Meanwhile, the activity of making construction depends on the ability of the architect or builder in terms of knowledge and knowledge of materials (MacManus, 2014) .

In the study of phenomenology, it is always associated with the perception of the experience of the body that makes space and the body that makes space. The relationship between body, mind, and material is a unified whole, because architecture is formed from material, therefore without material there is no architecture. Each material has its own sensation that is capable of evoking or evoking human atmosphere and emotions (Griffero, 2016) .

The connection system or technique in the construction will affect the atmosphere of a space. The choice of material for a space is not only a matter of technicality, but also other elements that influence the selection of a material , one of which is the quality of appearance. Matter contains magical elements, matter can convey a message into our perception and significantly affect the atmospheric quality of an environment and add to the external appearance at the expense of the inside.

In the study of tectonic phenomenology, craftsmanship is a special skill or expertise in making something. In making these skills, it requires a stage of thinking, thus technical expertise is not only a matter of hereditary culture but more than that .

It is related to a procedure. Through the contact between the hand and the object , humans can feel the movement and activity of the hand and are connected to the mind. Tectonic phenomenology is related to the balance between body and mind, and in its development this tectonic phenomenology has become tectonic thinking which is then interpreted as: an effort to pay attention to nature, have character, and apply building materials in shaping creativity in building construction which is characterized by the peculiarities of structure and design. architectural.

The Toba Batak house is an expression and embodiment of a belief, ideals, hopes and outlook on life. Toba Batak house describes about; first: a description of the cosmological order, second: as a place for a family to live, and third: a source of abundance of blessings (Simamora, 1997) . The cosmological order of Ruma Batak Toba consists of a macrocosm and a microcosm consisting of the "Tri Tunggal Banua" (figure 1), namely: *Banua Toru* (bottom), *Banua Tonga* (middle), and *Banua Ginjang* (top). *Banua Toru* is represented by under the symbol of death, while *Banua Tonga is* represented by floors and walls, where all human activities are in the house , and finally *Banua Ginjang* is represented in the form of the roof of the house where the Gods live (Napitupulu, 1997) .

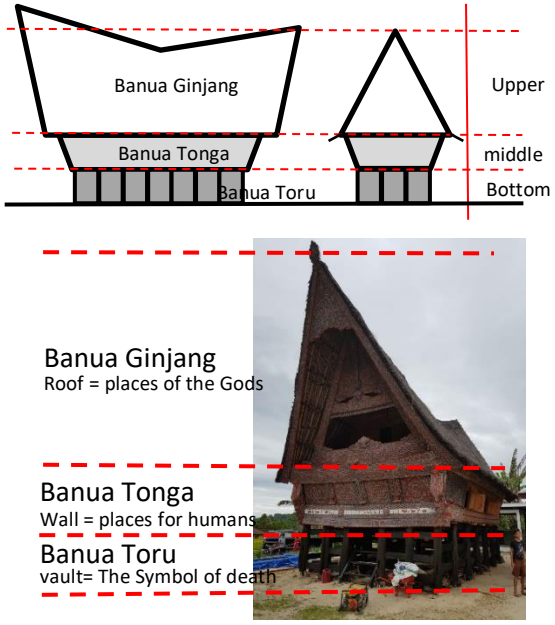

Figure 1. The division of *Tri Tunggal Banua* (Source: research documentation 2018)

The division of the tectonic phenomenology of the Toba Batak house is divided according to the cosmological order of the Toba Batak House; starting

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from: *Banua Toru* , *Banua Tonga* , up to *Banua Ginjang* . The main material of *Banua Toru* is wood which is selected based on traditional requirements and technical standards. When cutting wood, you can't just cut it, you have to use offerings, you can't cut the wood more than one fathom from the trunk. When the wood falls, it doesn't fall on the trees around it and doesn't make a " *crack* " *sound* . Wood with knots should not be used, if the wood is hit with a loud sound , then the wood is used for the pole on the right side of the back, if the sound is not loud it will be used for the pole on the back left. The type of wood that is widely used for *Banua Toru* is *Simartolu, Parapak* , *Antahasi* , *Meranti* , *Piangin* , *Sampinur* , *Anturmangan* , *Hau Dolok* , and *Antuang* . Thus, the wood for the house poles used in *Banua Toru* must have a standard of wood strength and contain magical values.

The construction system at *Banua Toru* uses a column of round-cylindrical logs arranged in a row around the house plan. The distance between these columns is + 0.8 to 1 meter in diameter from the logs + 25 – 30 cm. Column height + 160-170 cm. The rods of this column are assembled using wooden planks with a size of + 3.5 x 18.5 cm. The beam column connection system uses the pen hole technique. The pedestal of these columns is only a pedestal of stone. This series of column connections is like a fence that surrounds a house plan. Multifunctional construction . _ The construction of *Banua Toru* serves as a sturdy and stable building support pole as well as a safety fence for pets (figure 2) .

Figure 2. *Banua Toru* (Source: research documentation 2018)

The entrance to the Toba Batak House is through the bottom that protrudes inward, so that from the front of the building the entrance is not visible (picture 3) . In addition, the entrance to the Toba Batak house gives a sense of security because residents can see who enters the house and the transition from *Banua Toru to Banua Tonga* , from death to life.

Figure 3. The tectonic system on the entrance stairs (Source: research documentation 2018)

Banua Tonga or the middle world is a place where the inhabitants are active (figure 4) . The main material of *Banua Tonga* is wood, where the walls and floors are made of wooden planks. The type of wood used for the walls is *Bintatar* or *Meranti wood* .

The floor and wall connection system of the *Toba Batak House* is similar to the construction of a ship's wall, where the walls are not perpendicular but tilted, so that the occupants can lean on the inner wall. There are two window holes on the

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left and right from the side of the building (picture 5) . The *Toba Batak house entrance* is similar to the life cycle when leaving the house is like coming out of the womb, and vice versa when entering the house it is like returning to shelter in the mother's womb to rest with family.

Figure 4. *Banua Tonga* (Source: research documentation 2018)

Figure 5. The walls in the *Toba Batak house* (Source: research documentation 2018)

Toba Batak house does not have a ceiling, so when you enter the atmosphere the room feels spacious, because the height of the roof from inside the room can reach 5 - 6 meters. The front above the entrance there is a room for music as well as a place to store traditional Batak musical instruments. Musical instruments are used at certain times, especially when there is a ceremony in the *alaman* (yard). The position of playing music which is above the attic of the house makes the sound can be heard well.

The wall connection system uses a hole connection which is then pinned (figure 6) . Connections between boards do not use nails, because the use of nails is a taboo for *Toba Batak house*.

Figure 6. Tectonics of a peg hole in the wall (Source: research documentation 2018)

Finishing the outer walls of the *Toba Batak House* is like a tattoo, the building is “diajahed” *picture 7) . The process of carving and painting is carried out by a person who has artistic expertise as well as contains elements of ritual (figure 9) . Where the artist makes tattoos of buildings while humming chants of incantations.

Therefore , the tattooes contains the meaning of prayer for the safety of the occupants as well as a blessing for the house to be inhabited.

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Figure 7. The wall of a house with a pattern (Source: research documentation 2018)

Banua Ginjang is the topmost part of *Toba Batak* house and as a symbol of the place of the gods. The roof covering material uses fibers from palm fiber, thus the heat from the roof does not propagate into the room (figure 8).

The connection system on the roof uses a tie and weave system. *Toba Batak house* do not use trestle like in general today's houses . Wood is selected from solid wood along 9 meters, strung from one end to the other.

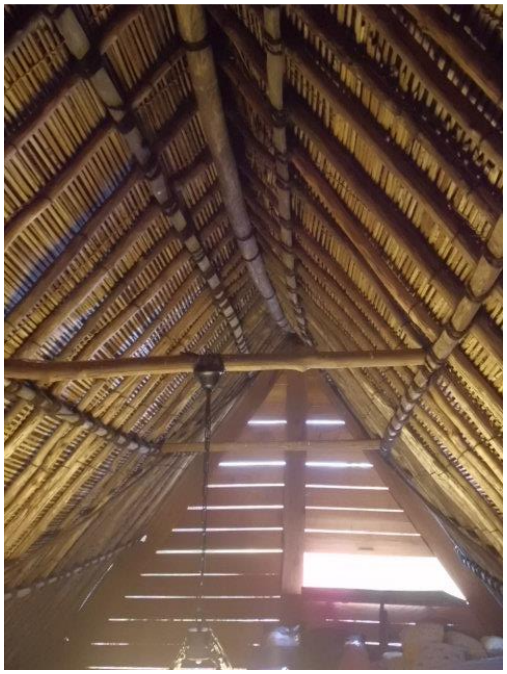

Figure 8. *Banua Ginjang* (Source: research documentation 2018)

Figure 9. The ornaments of *Toba Batak house* (Source: *Jangga Dolok* 2018 team documentation)

Conclusion

Batak Toba house tectonics is the work of an "master" who is skilled at using materials, knowledge, skills, and carpentry tools. In the case of traditional architectural works, the craftsman's skills are more dominant than the tools used, in contrast to the current condition where tools are more dominant than the craftsman's skills.

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Author Contribution

Y.A Widriyakara Setiadi contributed to conceptualization, data collection and analysis, project administration as well as drafting articles , editing and visualizing data .
LMF. Purwanto contributed to formal analysis, investigating as well as drafting articles , editing and visualizing data .
Antonius Ardiyanto contributed to methodology, drafting articles , and visualizing data .
Rudiyanto Susilo contributed to resources, investigation , and visualizing data .
Krisprantono contributed to supervision, validation , and writing-review and editing
B. Tyas Susanti contributed to supervision, validation , and writing-review and editing

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