

# D

idwell

IN CONJUNCTION WITH  
14TH INTERNATIONAL  
CONFERENCE  
OF QIR

INTERNATIONAL CONFERENCE  
ON DWELLING FORM  
2015

## PROCEEDINGS

10 - 13 August 2015  
Lombok Raya Hotel  
Lombok, Indonesia

# CONTENTS

---

## KEYNOTE

- 11 SEVENTY ONE SHADES OF GREEN: WHICH GREEN IS A 'GREEN ARCHITECTURE' ?  
Veronica Soebarto

## PAPERS

- 29 DWELLING SPATIAL ARRANGEMENT, ACTIVE BODY MOVEMENT, AND HEALTH  
Paramita Atmodiwirjo, M. Mirza Y. Harahap, Yandi Andri Yatmo
- 45 SITE PLANNING OF POTTERY CRAFTMEN'S SETTLEMENT WITH COMMUNITY BASED DEVELOPMENT APPROACH  
Dyah Kusuma Wardhani
- 65 ADAPTATION PATTERN OF SOCIAL INTERACTION FROM HORIZONTAL TO VERTICAL HOUSING STUDY CASE IN INDUSTRI DALAM AND CIGUGUR TENGAH FLAT  
Feni Kurniati, Bunga Sakina, Adrian Immanuel, Theolifus
- 89 INTEGRATED SUBSIDIZED INFRASTRUCTURE IN INFORMAL HOUSING DEVELOPMENT FOR SUSTAINABLE CITY IN BANDUNG  
Sidi Boedi Darma
- 107 THE PATH LESS TRAVELLED: VERTICAL CIRCULATION SPACES IN APARTMENT BUILDINGS IN THE SUBTROPICS  
Rosemary Kennedy
- 125 THE ROUTE AND JOURNEY OF TREE HOUSES  
Evawani Ellisa, Gita Andriani1
- 143 REVITALIZING OLD CITY HERITAGE AREA: MENTAL-MAPPING URBAN IMAGE OF SEMARANG OLD CITY  
Bintang Noor Prabowo, Annis Rochma Harani, Resza Riskiyanto, Mirza Ramandhika

- 157 REDUCING CAUSES OF WOMEN'S FEAR OF CRIME IN UNDERGROUND STATION: THE IMPORTANCE OF GOOD SURVEILLANCE AND WAYFINDING  
Elita Nuraeny, Enira Arvanda
- 173 IN DWELLING: THE TRADITION OF EATING ACTIVITIES ON URBAN MINANGNESE  
Vania Dwi Amanda Surya, Rossa Turpuk G.
- 195 DEVELOPMENT OF SEA DWELLING: BAJAU TRIBE  
Ade Amelia, Albertus Bobby Widagdo
- 213 TRADITIONAL ARCHITECTURE LOCAL WISDOM, CASE STUDY: PENGLIPURAN VILLAGE, BALI  
Ima Rachima, Maulina Dian P.
- 231 PLACE-IDENTITY OF DENPASAR IN A RAPIDLY DEVELOPING URBAN ENVIRONMENT  
I Nyoman Gede Maha Putra
- 249 WHERE IS HOUSE? URBAN DWELLING, DWELLING IN URBAN?  
Sri Wulandari, Annisa Dienfitriah
- 267 ATTACHMENT TO PLACE AS THE MEANS OF DWELLING: A CASE STUDY OF VICTORIA PARK, HONG KONG  
Ivan Nasution
- 281 TEMPORARY INHABITATION AS A STRATEGY TO ALLEVIATE NEGATIVE PERCEPTION OF UNDERGROUND TRANSIT SPACES  
Enira Arvanda, Nevine Rafa Kusuma, Rini Suryantini
- 297 CITY PARK AS SUSTAINABLE URBAN OPEN SPACE BY CONSIDERING COMMUNITY BASED ANALYSIS  
Bambang Soemardiono, Achmad Maksumi, Defry Agatha Ardianta, Raden Winton Danardi, Setyo Nugroho, Diah Kusuma Ningrum
- 317 THE POTENTIAL OF TRADITIONAL MODULAR PREFABRICATED HOUSING FOR INDONESIAN DWELLING CULTURE  
Rossa Turpuk Gabe, Gregorius Gegana

- 335 MODEL OF EMBODIED ENERGY CALCULATION FOR LOW COST HOUSING IN INDONESIA  
Yuni Sri Wahyuni, Dewi Larasati Z. R., Siswanti Zuraida
- 347 THE MATERIALITY OF THE RUNGUS LONGHOUSE IN HARMONY WITH NATURE  
Azizi Bahaudfin, Aldrin Abdullah
- 365 INDETERMINATE BOUNDARIES: DWELLING IN NEIGHBOURHOOD FACING RECURRING FLOODING  
Kristanti Dewi Paramita
- 381 MODEL OF SUSTAINABLE CITY BASED ON INTERRELATONSHIP OF MODALITY ASPECTS IN SURABAYA  
Bambang Soemardiono, Eko Budi Santoso, Defry Agatha Ardianta
- 399 I-DWELL: TRANSFORMING HERITAGE TO ECO-SUSTAINABILITY  
Diane Valerie Wildsmith
- 417 CORRELATION BETWEEN ARCHITECTURAL DESIGNS WITH THERMAL AMBIENT ON RESIDENTIAL UNITS I MASS PUBLIC HOUSING (MPH) SARIJADI IN BANDUNG, INDONESIA  
Yasmin Suriansyah
- 443 A SUSTAINABLE CONSTRUCTION PLANNING MODEL FOR HOUSING IN THE CITY OF MEDAN  
Irma Novrianty Nasution, Syahreza Alvan
- 463 SUITABILITY ANALYSIS OF SUSTAINABLE LAND USE ON THE ISLAND OF BUNAKEN MANADO  
Verry Lahamendu
- 477 TOWARDS IMPLEMENTATION OF GREEN CRITERIA IN INDONESIA; NEEDS AND REALITY  
Sahid, Dewi Larasati, Prinka Victoria

## INTRODUCTION

Dukuh Krajan, Desa Pagelaran, is one of the pottery producers in Malang. The existence of pottery industry in Dukuh Krajan, Desa Pagelaran is a potential domestic industries that can be developed in Malang. In this pottery craftsmen's settlement, the craftsman house is not only function as shelter but also as a place for domestic industry which is better known as Home Based Enterprises (HBEs). Silas (2000) stated that HBEs will increase family social economic condition and in the end also improving environmental quality itself. Unfortunately the existence of pottery craftsmen settlement in Dukuh Krajan is not planned and managed well, so there are several problem that exist due to the space needs for pottery production activity that have not been accommodated. Location of pottery craftsmen settlement that will be design in this discussion is in Dukuh Krajan, Desa Pagelaran with approximately area 24.583 m<sup>2</sup> that consist of 67 households. The boundary of area that will be design can be seen in Figure 1.



Figure 1. Location of pottery craftsmen settlement  
Source: google earth

In this pottery craftsmen settlement there are some major problems related to arrangement of mass and open space in existing that needs to be solved, namely :

1. The distance between craftsman house inside the settlement less than 1 meter which cause lack of natural ventilation and lighting inside the house.
2. Kiln for pottery located in the middle of settlement produce

smoke, pollutes the air, and also potential fire risk.

3. Some part of the settlement streets are being used by the craftsmens as raw material storage and pottery drying area, because there is no more space available inside the house.



Figure 2. The close distance between craftsman house  
Source: personal documentation



Figure 3. Part of the street settlement that being used as raw material storage and pottery drying area  
Source: personal documentation



Figure 4. Traditional kiln  
Source: personal documentation

## EXISTING CONDITION

### Existing Condition of Pottery Craftsmen House

The pottery making process from raw material processing, making and pottery drying done in each craftsman house, but the pottery burning process done communally in pottery kiln area. Johan Silas (2000) states based on the proportion or ratio of productive area and domestic area in productive house can be divided into 3 types:

#### a) Mixed Type

Workplace become one with residence, but residence still the main function inside the house. In existing there are 39 houses that categorized as mixed types with an average area about  $\pm 96$  m<sup>2</sup>. These type of productive house do not provide workplace inside the house, but use side part of the house or terrace as workplace.

#### b) Balanced Type

Residence separated with the workplace but still inside the same building, access to workplace sometimes also separated. In existing there are 21 houses categorized as balanced type with an average area about  $\pm 104$  m<sup>2</sup>.

#### c) Separated Type

The workplace take dominant part in the house, taking most part of the house. Sometimes residence placed behind or in front of the workplace. In existing there are only 3 houses categorized as separate type with an average area  $\pm 126$  m<sup>2</sup>. Separate workplace usually in form of a simple building separate from the house. Work area separate from the residence, this workplace not only used as place for pottery making but also as pottery storage.

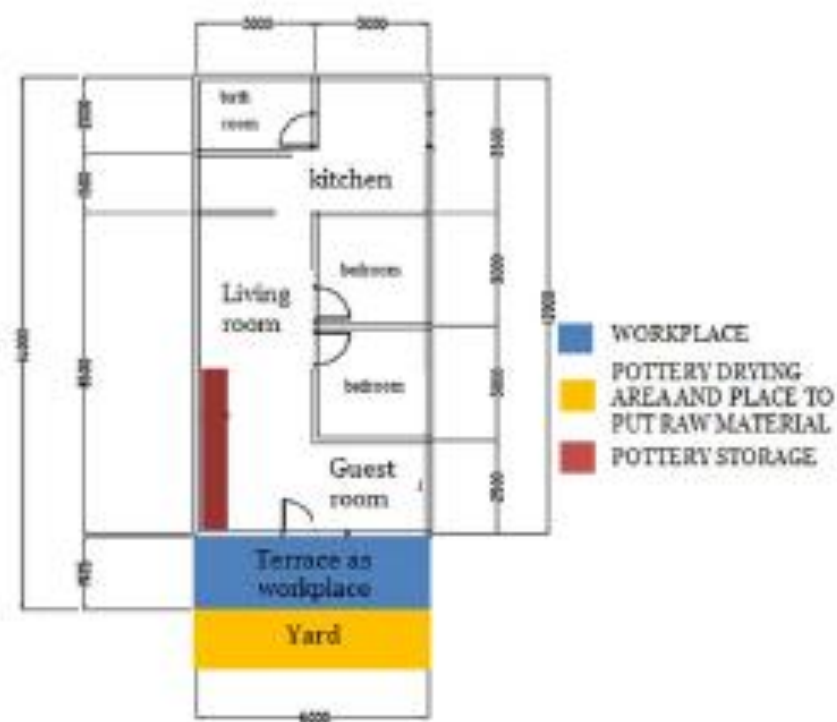


Figure 5. Layout of mixed type productive house  
Source: personal documentation

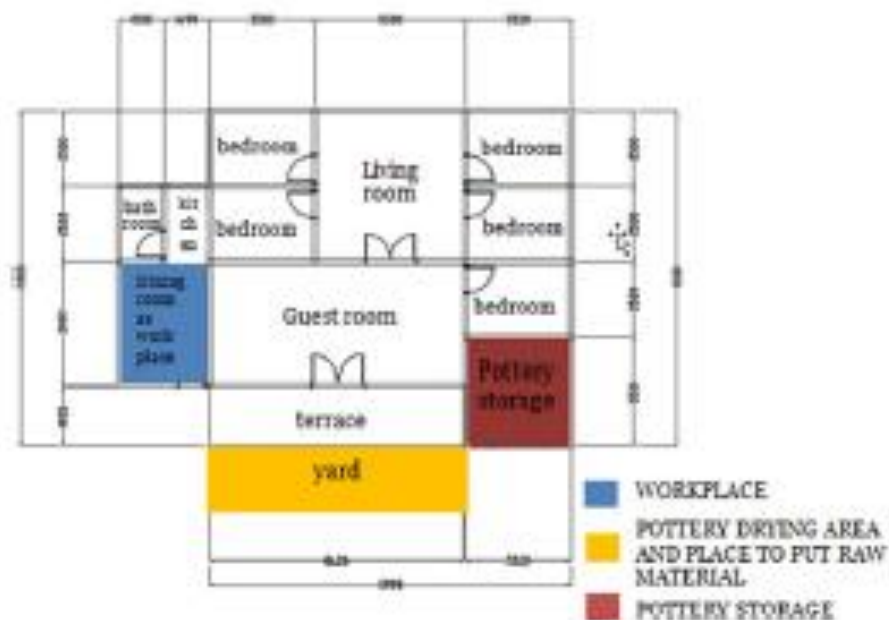


Figure 6. Balanced type productive house  
Source: personal documentation





Figure 7. layout of separate type productive house  
Source: personal documentation

Aside from these three types of productive house there is also another type founded in this pottery craftsmen settlement. This type is pottery collector house.

#### d) Pottery Collector House Type

The function of this house type is to collect pottery products from another pottery craftsmen. In existing there are 4 house that categorized as pottery collector house with average area about  $\pm 120$  m<sup>2</sup>. This house types have no workplace but a large space for pottery products storage and trucks garage that used for delivering a large quantities of pottery products. Terrace and yard used as pottery drying area and also as display for pottery products, so the buyer can choose the products easily.

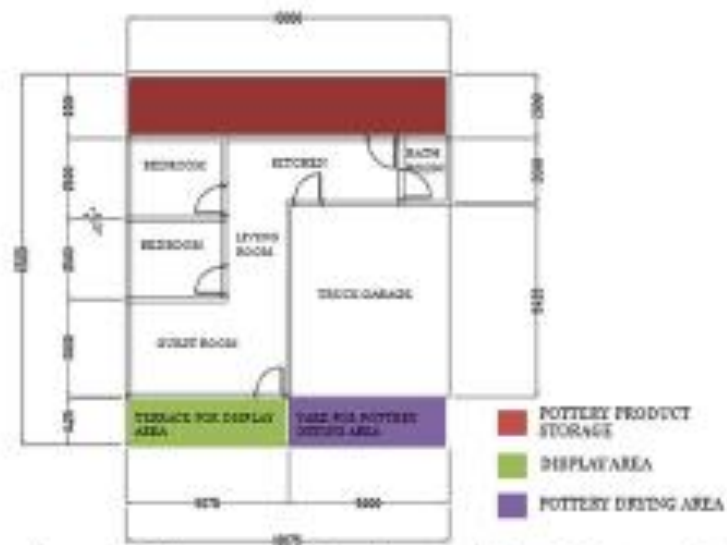


Figure 8. Layout of pottery collector house type  
Source: personal documentation

### Existing Conditions of Open Space Inside The Settlement

According Widayati (2002), each of house is part of a settlement. Clustered house create settlement with certain pattern. Settlement grouping is based on some basic similarities, one of them is profession similarity. Profession similarity in Dukuh Krajan create an open space that being used together, open space in form of pottery kiln and hay storage. Inside Dukuh Karajan, there are 7 pottery kiln where each used interchangeably by the craftsmen.



Figure 9. Pottery kiln and hay storage inside the settlement  
Source: personal documentation

## THEORETICAL REVIEW

Since 1960s in the United States and Europe have been growing movement that against planning and design approach with technical-rational dominant way. At this era also strike for the establishment of social justice and the practice of citizen empowerment. This movement then produces some participatory planning and design paradigms such as Community architecture (Christopher and Rossi, 2003). Community architecture in planning and developing an area becomes the basis for mobilizing and optimizing public participation. Thus the community based development program is an important part of architect/ urban designer task, so that in every design has a sociological dimension that is able to critically analyze behavior patterns of society and translate the pattern into an architecture product.

### Community Based Development

Community based development suggests the importance of community needs for design development. Arstein (1969) states that the depth level of community participation will lead to community empowerment. The level of community participation is divided into three, namely:

- a. Non participation/passive participatory  
At this level, the community is not involve in the process of development program.
- b. Tokenism participation  
In this level, community directed to make it look as an active participant, however when examined more deeply the community do not participate in development process.
- c. Citizen power/Active participatory  
At the level of active participatory, community started to become a subject in the development process. Community already know and understand about their community needs.

The level of active participation consists of :

- Partnership  
Community serves as decision makers in exploring idea based on community exact condition.
- Delegated Power  
At this level, community as decision maker because the community already able to independently carry out the development process.
- Citizen Control  
Society as subject to decide on what kind of development they need, also control the construction process.

## Behavioral Approach on Architectural Design

Community based development plays important role in architect / urban designer so in every design has a sociological dimension that is able to critically analyze the behavior patterns of society (Widianingsih, 2007). Hence in this community based development, community behavior pattern must be considered so the design results can meet the needs and values of the prevailing society. In behavioral architecture, "space" is not only understood in physical form, but also as behavior setting that assembled with user setting, activity and time. Heimsath (1977) states that human activity is complex and can not be separated from role, pattern, background and goals. All three are attached to each participant involved in a setting. These three things can be explained as follows :

1. Role  
Role performed by someone or participants involved in a setting behavior
2. Pattern  
Pattern is actions or movements by individuals, pattern different with activity, because activity is the movement by group of people.
3. Background and Goals  
Background and objectives concerning matters that affect someone behavior in a setting. Goals affected by the background. Background regarding age, gender, marital status and so on

## METHODOLOGY

According Spradley (in Sugiyono, 2007) samples taken in qualitative research in form of social situation which is composed of three elements, namely:

1. Place
2. Actors
3. Activity

That interact synergistically.

Samples of activity in form of behavior can be divided into two, namely:

1. Covert behavior  
An individual's response to the stimulus in the form of disguised or covered (covert). Response or reaction to a stimulus is still limited to attention, perception, knowledge/awareness, and attitudes that occur in people who receive the stimulus and can not be clearly observed by others (Skinner in Notoatmojo, 2003).

## 2. Overt behavior

An individual's response to the stimulus in the form of action or open. The response to the stimulus is already evident in form of action or practice (practice), which can easily be observed or seen by others (Skinner in Notoatmojo, 2003).

In this site planning of pottery craftsmen's settlement pottery these three samples can be explained as follows:

- a. Place : settlements area that is used to perform the activity of pottery production
- b. Actors : inhabitants of settlements living as artisans and pottery collectors
- c. Activity : These activities include the behavior as described previously. Ie the overt behavior in form of movement or activity, and covert behavior in the form of what is thought and felt by the participants.

Information gathering techniques for covert behavior conducted through unstructured interviews and enclosed questionnaires. Unstructured interviews conducted to collect behavioral information which is then analyzed to obtain behavioral issues that are important and affect design results. While the information gathering techniques for overt behavior conducted by observation.

Community participation used in this research in partnership level, so the community act as decision makers in the ideas exploration for site planning design. For further idea exploration using community opinion regarding the desired settlement conditions. And to retrieve data regarding community opinion about the desired conditions of their settlement using an open questionnaire. After data collecting through observation, interview and questionnaires, the results of data collection are selected and then analysed that led to the design criteria. For the next stages, Idea exploration based on the design criteria generating alternative design modeling for pottery craftsmen settlement. Results of the design in the form of settlement site planning then evaluated whether it be the ideal form of problem solving and contextual.

## RESULTS AND DISCUSSION

### Behavior and Activity Pattern Analysis

Miles and Huberman (1984), suggests that activity in qualitative data

analysis is done interactively and continues over time until data saturated. Heimsath (1977) in his book Behavioral Architecture states behavioral issues that acquired eventually developed into design concept, therefore observation and interview results is analyzed using a series of tables. To determine activity pattern and the use of space, interviews and observations of the pottery craftsmen are conducted, especially related to the use of open space in the settlements. From observations and interviews results, the data analyzed using area-role-activity table. This table is used to find out about the implications of the role, furniture or equipment, and the period of time when the events took place. In this table, the analysis has begun to lead things that affect the design results especially for open space in the settlements.

OPEN SPACE IN THE SETTLEMENT					
AREA	ROLES	ROLE IMPLICATION	ACTIVITY	TOOLS	TIME FRAME
POTTERY KILN	Pottery craftsmen	<ol style="list-style-type: none"> <li>1. Require special consideration to overcome smoke produced during burning process</li> <li>2. Considering distance between the pottery kiln with craftsman house to reduce fire risk</li> <li>3. During the pottery burning process, craftsmen tend to waiting near kiln while socializing with other craftsman, so this area also have socialization function.</li> </ol>	Used interchange-ably by craftsmen	<ol style="list-style-type: none"> <li>1. Kiln</li> <li>2. Wheelbarrow to transport pottery</li> </ol>	Once in a week

HAY STORAGE	Pottery craftsmen	<ol style="list-style-type: none"> <li>1. Requires close access to pottery kiln</li> <li>2. Requires close access to street, because the hay suppliers use trucks for distribution.</li> <li>3. Requires a large space for storage due to irregular hay distribution and as a communal</li> </ol>	Hay storage for pottery burning process	Craftsmen move the hay manually	Once in a month. Irregular hay distribution by supplier.
-------------	-------------------	---	---	---------------------------------	--

Table 1. Area, Role, Activity Chart of Open Space in the settlement  
Source : Heimsath (1977)

### Analysis of Community Participation

According Arstein (1969) there are several levels of community participation, one of the level is partnership. Partnership is a level of participation in which community as the decision-makers to explore the idea based on local community conditions. In this site planning design of pottery craftsmen settlement community participation at partnership level. To get enough information about local conditions, data collected through questionnaire.

Questionnaires were distributed to pottery craftsmen to know:

- a. The ideal condition of settlements desired by residents
- b. Assuming the amount of space required by craftsmen

Samples taken to fill questionnaire about 10% of the settlement population. The results of questionnaire can be tabulated as follows:

1	Areas that can be used together in settlements	Conclusion
	<p>40% of the samples answer only kiln that need to be used together</p> <p>60% of the samples answer they need both kiln and hay storage</p>	Open space in the settlements that can be combined and used together by craftsmen is kiln and hay storage

2	The smoke as a result of pottery burning process	The need to overcome smoke because interfere with population comfort.
	75% of the total sample answer bothered by the smoke.	75% of the total sample answer bothered by the smoke.
3	The need of public space that can be used together as place for community gathering and kids playground	Community need of public space that can be used together as place for community gathering and kids playground
	100 % of samples answer they need public space that can be used together as place for community gathering and kids playground	
4	The need of pottery products center or gallery as exhibition center and product sales.	Community need pottery hand-craft center or gallery as exhibition center and product sales.
	100 % of samples answer they need pottery products center or gallery as exhibition center and product sales.	
5	Community need pottery hand-craft center or gallery as exhibition center and product sales.	Clear boundaries between houses is something that necessary, yet still allow private land to be used together because high familial bond of the community.
	100 % of the total samples answer they still don't have land certificate, Community still propose for land certificate to village government. In determining boundaries of land ownership must be known and witnessed by village officials. 65 % of the samples answer the need of clear boundaries between houses, yet still allow private land to be used together.	

Table 2. Tabulation of Desired Condition Settlement Region

### Concept of mass order and open space inside the settlement

Design criteria of mass order and open space inside the settlement was obtained after analyzing craftsmens behavior, activity patterns and also from the analysis of community participation collected through questionnaires.



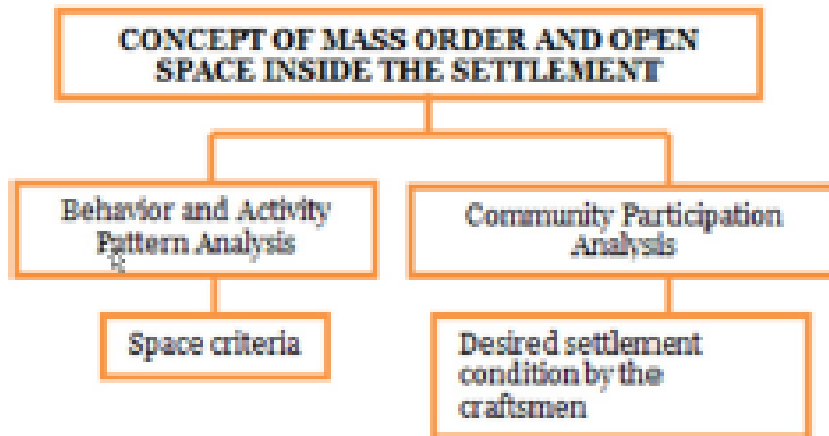


Figure 10. Concept of mass order and open space inside the settlement

Based on this criteria, concept for mass order and open space in this settlement can be described as follows:

1. Pottery kiln as open space inside the settlement as community center and to keep craftsmen cultural identity.
2. Adding new function for commercial areas in form of gallery to sell pottery products that placed along the main road.
3. Provide cover for pottery kiln to prevent smoke spreading in settlement cover made of zincalume steel placed on top of the kiln to create air funnel system that prevent smoke from spreading
4. Provide open space used as children's playground and place for community to socialize.

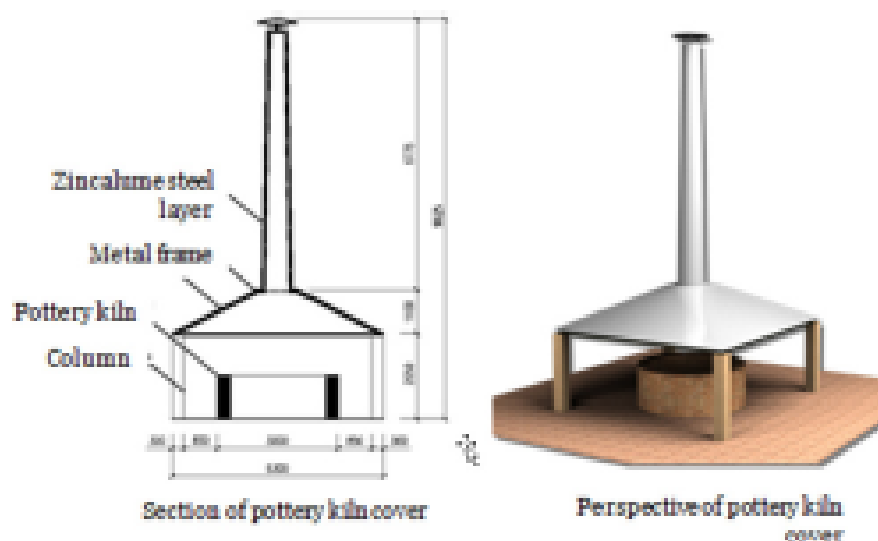


Figure 11. Detail of pottery kiln cover

From the design concept mentioned above then explored further into several alternative models of mass order and open space in settlements. In this design exploration order of mass and open space using Rapoport (1977) theory about orientation in space organization inside the settlements. There are 3 types of settlement orientation:

1. along the road / along the streets orientation
2. towards the inside (inside-out city) orientation
3. central space orientation

The concept of mass order and open space in the settlements for each orientation can be described as follows:

1. Along the road / along the streets orientation  
For this orientation, design exploration is bounded with street and productive land position in settlement that assume in fix condition and cannot be removed from the existing.
2. Inside-out city orientation  
For this orientation, design exploration is bounded with street position in settlement that assume in fix condition and cannot be removed from the existing.



Figure 12. Concept of settlement using along the streets orientation



Figure 13. Concept of settlement using inside-out city orientation

### 3. Central space orientation

For this orientation, design exploration for this site planning have more free flow because not bounded with any constraint in existing.



Figure 14. Concept of settlement using central space orientation

## CONCLUSION

From analysis of three type settlement orientation concept can be concluded as follows:

1. Along the streets concept has biggest percentage of productive site which is 30%. The greater percentage of productive site also means greater opportunity for site that can be used to support community economy



Figure 15. Land percentage of along the street concept

2. Inside-out city concept has advantage over the other two concepts, Open space position for pottery kiln and hay storage on this concept have easier access to craftsmen for the pottery burning process, since each cluster of craftsman house has their own open space for pottery burning (divided into 5 clusters). Shared space for pottery process can strengthen the bond of relationship between groups of craftsmen. While open space that is used as childrens playground and a place for community to socialize placed separately so the security and comfort in doing their activity is not disturbed by pottery making process



Figure 16. Open space position in inside-out city concept

3. Inside out city concept has advantages over two other concepts, as pottery production space both in craftsmen house and in settlement (in form open space for pottery kiln) located behind house cluster. This positioning at the back part of the settlement cause production activities centered on "the inside" and become more private.

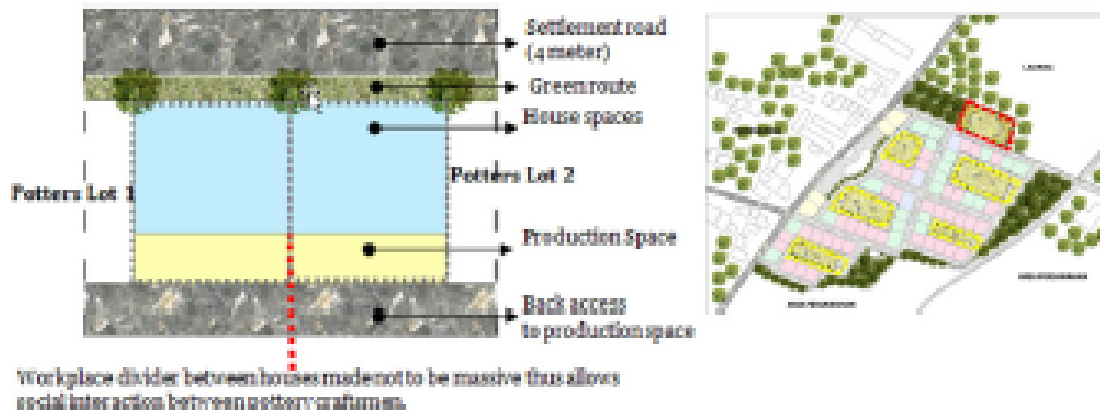


Figure 17. Ease of production access in inside-out city concept

Based on this conclusion, the settlement orientation concept that selected for further development is inside out-city. Inside out city concept chosen because it has more advantages in terms of open space and pottery kiln positioning, and also ease access of production process compared to the two other concepts.

Changing in settlement site planning with inside out city orientation provides the following benefits :

1. Make clear and easy access for the vehicle to distribute raw material of clay in every craftsmen house and hay in communal storage.
2. Provide spaces for production activities in each craftsmen house so there is no more part of the settlement that used for drying areas or as place to put raw material.
3. Divide the settlement into two areas, residential areas on the front and on the back part as production area. By this division there are two separate area inside the settlement for different function as residential and as pottery production area.
4. Divide the spread of pottery kiln by locating open space for pottery kiln into several clusters behind the craftsmen houses to give ease access for craftsmen to pottery kiln.

## REFERENCES

- Arnstein, S 1969, *A Ladder of Citizen Participation*, Vol. 35, No. 4, pp. 216-224
- Heimsath, Clovis AIA (1977), *Behavioral Architecture*. New York, Mc. Graw-Hill Book Company.
- Miles, Mathew B. Michael Huberman. 1984. *Qualitative Data Analysis: A Sourcebook of New Methods*. London: Sage Publication, Inc.
- Rapoport, A. 1993. *Development, Culture, Change and Supportive Design*. USA: University of Wisconsin-Milwaukee
- Silas, Johan (1993), *Housing Beyond Home, Case Study of Surabaya*, ITS-Surabaya.
- Silas, Johan, 2000, *Rumah Produktif, Laboratorium Perumahan dan Permukiman*, ITS, Surabaya
- Spradley, James P., (1997), *Metode Etnografi*, terjemahan oleh: Misbah Zulfa Elizabeth, PT Tiara Wacana, Yogyakarta.
- Widayati, N. (2002). *Permukiman Pengusaha Batik Di Laweyan Surakarta*. Jakarta: Program Pascasarjana Fakultas Sastra Universitas Indonesia.
- Widianingsih, dkk. 2007. *Community Architecture dalam Pengelolaan Ruang Publik di Permukiman Kampung-Kota (studi kasus ruang publik di daerah bantaran Sungai Cihalarang Kelurahan Sukapada kec. Cibeunying Kidul Kota Bandung)*. Bandung : Universitas Pendidikan Indonesia.