IDENTIFICATION OF NATURAL LIGHTING QUALITY ON SEVERAL DEVELOPING TYPES OF SUBSIDY HOUSE

engineering proceedings

1 INTRODUCTION

House is a human need that needs to be met after the need for food and clothing. Referring to the General Guidelines for Healthy Simple Houses in 2002, there are 3 indicators of lighting, air conditioning, temperature and humidity. One indicator of comfort in a dwelling is the presence of natural lighting According to SNI 03-2396-2001 [4], natural lighting in a building can be said to be good if the building is illuminated from 08.00 to 16.00 without excessive glare. Light can enter the building through the envelope, both walls and roofs .

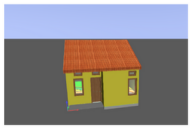
2 PROBLEM

Housing problems in big cities such as low housing supply and low quality housing [6]. A subsidized house is a house intended for low-income people with affordable prices and certain specifications. Dissatisfaction with subsidized housing that has not been able to accommodate user activities raises new problems. In its development, residents of subsidized houses independently carry out a gradual and planned transformation of their homes .However, the transformation of these dwellings adds to the population, structural and utility loads, as well as issues of natural lighting and ventilation

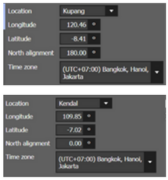
3 CASE STUDY

There two case studies based on previous research on the typology of subsidized housing development in Kupang and Kendal cities. In Kupang, a common development that occurred in the initial plan of the house was to use the vacant land at the back to become a kitchen. n Kendal shown that the development of the basic plan for subsidized houses in Kendal City was caused by dissatisfaction with the original plan. The addition of space functions that occur is the addition of business space in the front due to economic factors. Space transformation also occurs in the living room which increases the area of space to the front porch of the house which results in the comfort of privacy is not fulfilled.

4 METHOD



Drawing and simulation using Dialux



Adjust data and location

5 RESULT AND DISCUSSION

KUPANG CITY

TYPE 1

TYPE 2

No Development

TYPE 3

KENDAL REGENCY

TYPE 1

TYPE 2

KUPANG CITY

Name room	Initial Plan			Developing Plan		
	Type 1	Type 2	Type 3	Type 1	Type 2	Type 3
Room 1 (SNI: 250 lx)	275 lx	283 lx	132 lx	284 lx	No Development	123 lx
Room 2 (SNI: 250 lx)	172 lx	672 lx	196 lx	1 lx		2.43 lx
Main room (SNI: 150 lx)	213 lx	273 lx	81.6 lx	412 lx		196 lx
Kitchen (SNI: 250 lx)	-	-	391 lx	16.6 lx		196 lx
Toilet (SNI: 250 lx)	19.4 lx	46.3 lx	1.57 lx	0.6 lx		0.5 lx

KENDAL REGENCY

Name room	Initial Plan		Developing Plan	
	Type 1	Type 2	Type 1	Type 2
Room 1 (SNI: 250 lx)	159 lx		0.27 lx	0.19 lx
Room 2 (SNI: 250 lx)	0.12 lx		20.6 lx	22.4 lx
Main room (SNI: 150 lx)	252 lx		22.4 lx	104 lx
Kitchen (SNI: 250 lx)	0.85 lx		0 lx	0.13 lx
Toilet (SNI: 250 lx)	0.8 lx		0 lx	0 lx

CONCLUSION | This study concludes that the quality of natural lighting in subsidized houses in several types of basic and developed subsidize house is not good. This is assessed from the simulation results regarding the lightscene in the building using the Dialux application. The results showed that some spaces in the basic typology of subsidized housing had not yet reached the target of natural lighting set by SNI 03-6197-2000 concerning energy conservation in lighting systems. Furthermore, after the basic house plans were developed, the quality of natural lighting continued to decline.