

2021 International Conference on Architectural Research and Design and 21st Sustainable Environment and Architecture

IOP Conference Series: Earth and Environmental Science
Volume 1007

Online
2-3 November 2021

Editors:

**Arina Hayati
Sri Nastiti
Nugrahani Ekasiwi
Kirami Bararatin**

ISBN: 978-1-7138-5449-4
ISSN: 1755-1307

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence.
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2023)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

KEYNOTE PAPERS

3D scanning as an architectural tool.....	1
<i>R Potangaroa</i>	
Sawdust and soil block as wall in simple buildings to gain the optimum heat and embodied energy in humid tropical area.....	14
<i>V T Noerwasito</i>	
Traditional town houses in Kyoto, Japan: present and future.....	19
<i>S Hokoi, C Iba</i>	
Sustainability for whom? Cities and buildings through the lens of older people	33
<i>V Soebarto</i>	

THEME I: SUSTAINABLE BUILDINGS AND TECHNOLOGY

Passive cooling performance on Indonesia contemporary tropical facade in producing the present comfortable space.....	48
<i>A M Nugroho</i>	
Influence of landscape material properties on microclimate change in a tropical area with case in Manado City	57
<i>S Sangkertadi, R Syafriny, C E V Wuisang, Z Zahra</i>	
Measurement and calculation of indoor climate of swallow's nests house in Minahasa.....	64
<i>L J Lambey, Sangkertadi, M Regar, R Syafriny, S J K Umboh</i>	
Development of a wind catcher for high-rise apartments in the hot-humid climate of Indonesia	70
<i>T Kubota, T Takahashi, A R Trihamdani, H Mori, T Asawa</i>	
Experimental study on CO ₂ concentration and indoor thermal comfort pf different classrooms during new normal in the University of Kitakyushu	78
<i>D Sekartaji, N Sakai, D Novianto, Y Ryu</i>	
Analysis on the effect of home appliances use to electricity consumption during WFH	87
<i>S F Hutama, M Y A Ghifari, I T Ula, S D Yong, B Soemardiono, D Septanti, D Sekartaji, D Novianto</i>	
Analysis study of light shelves, light pipes, mirror ducts utilization and implementation in Indonesia	96
<i>E S Rumondang, Y V Regina, Y R Angela, D Larasati</i>	
Arranging here and there: A microlens observation on domestic waste separation.....	108
<i>A Karimah, R Suryantini, M M Y Harahap</i>	
Influence of a facade design on thermal and visual comfort in an elementary school classroom	117
<i>P P Suradhuhita, E Setyowati, E Prianto</i>	

THEME II: THEORY AND HISTORIOGRAPHY OF ARCHITECTURE AND SUSTAINABILITY

- The sustainability of the Pegat Lake as the centre for the orientation of the Giri kingdom, socio-cultural studies..... 127
M Koderi, B Soemardiono, M Faqih
- Sustainability principle in Nusantara architecture: case study of the Tongkonan House, the Betawi Stage House, the Gadang House, and Lamin House 142
M B Nabilunnuha, S Hervanda, G E Xian, A Tjong, F R Indarti, N E Nuffida, A Ardhyanto, D Novianto

THEME III: SUSTAINABLE HOUSING AND SETTLEMENT

- Rehabilitation of substandard housing program's benefits: lesson learned from Plandi Village, Jombang Regency..... 150
N Pusporini, W R Palupi, H R Santosa, D Septanti, S Cahyadi
- Housing challenges in sinking coastal city: rethinking urban housing in subsidence area for a more resilient community 162
R S Hamdani, S P Hadi, I Rudiarto
- Development of post-disaster shelters (case study: Gampong Pande post-rehabilitation and reconstruction of the earthquake and tsunami disaster)..... 173
W Setyawan, P Setijanti, A Hayati
- Discovering pattern of space layouts from low-income housing: A discussion of the New Normal preparedness after the Covid-19 pandemic..... 180
A S Yahya, M H Ahmad, A A G Hassan

THEME IV: SUSTAINABILITY IN CITY AND URBAN ENVIRONMENT

- Imputation of missing values for generating typical meteorological year (TMY) with data decomposition and recurrent neural networks 189
K Chreng, H S Lee, R P Pradana, T Q Trong, I D G Arya Putra, H Nimiya

THEME V: SUSTAINABLE ARCHITECTURAL DESIGN AND PRACTICE

- Impregnation analysis of phenol-formaldehyde resin on sengon wood to explore the potential of sengon wood as construction material 197
A A Birnaqiy, Basyaruddin, J Malik
- A strategy of a masterplan of Landak general hospital: a study of architectural programming..... 205
M R Alhamdani, D P Sari
- The concept of dynamicity of martial arts office building design with environmentally friendly..... 218
N Kharismawardani, A Hayati
- Light as medium for time manipulation of Start-Up-Online-Shop office building 232
Z R Firliani, S N N Ekasiwi
- Shape exploration through airflow simulation for reducing dust in apartment design 243
R T Maharani, S N N Ekasiwi, Fx T B Samodra