

IOP Conference Series: Materials Science and Engineering

PAPER · OPEN ACCESS

Deformation of high performance concrete plate under humid tropical weather

To cite this article: C Niken et al 2018 *IOP Conf. Ser.: Mater. Sci. Eng.* 316 012036

View the [article online](#) for updates and enhancements.

Related content

- Reduced Humidity Effects on Probe Nano-Oxidation Investigated Using Dynamic Force Microscope
Hiromi Kuramoto, Kazunori Ando, Takashi Tokizaki et al.
- Evaluation of temperature and relative humidity on two types of zero-energy cool chamber (ZECC) in South Sulawesi, Indonesia
Anil Dirpan, Muhammad Tahir Sapsal, Abdul Kadir Muhammad et al.
- The Influence of humidity on the kinetics of local anodic oxidation
M Bartolik, D Skoda, O Tomanec et al.

Sources Overview

11% OVERALL SIMILARITY

1	Universitas Diponegoro o...	4%
2	N. C. Shantz, W. R. Leaitc...	1%
3	Universitas Indonesia on ...	1%
4	University of Greenwic...	<1%
5	Frankfurt School of Fin...	<1%
6	CSU, San Jose State U...	<1%
7	Universitas Hasanuddi...	<1%
8	University of Greenwic...	<1%
9	Johanna Denkena, Fran...	<1%
10	Hayden C Metsky, Nico...	<1%

IOP Publishing
IOP Conf. Series: Materials Science and Engineering 316 (2018) 012036 doi:10.1088/1757-899X/316/1/012036

Deformation of high performance concrete plate under humid tropical weather

C Niken¹, T Elly², FX Supartono³, I Laksmi⁴

^{1,2}Senior Lecturer, Faculty of Engineering, University of Lampung, Indonesia
³Head of Structure and Material, Faculty of Engineering, Universitas Indonesia, Indonesia
⁴Senior Lecturer and Head of Partono Fondas Consultant, Indonesia
E-mail: chatarinaniken@yahoo.com

Abstract. This paper presents the relationship between surrounding relative humidity and temperature on deformation behavior of one sample concrete plate with compressive strength of 60MPa. This research was done in Indonesia that is in humid tropical weather. A specimens measuring 3000 mm×1600 mm × 150 mm were used. The behavior was obtained by using four embedded vibrating wire strain gauges (VWESG). As a result there is a very strong relationship between humidity and deformation at the age range of 7 until 21 days. The largest deformation occurs in the corner and the fluctuation of deformation in side position is larger than in the corner and in the middle. The peaks of surrounding relative humidity were fully followed by the deepest valley of deformation on time in the corner, while in another position the range delay time was 8 - 11 hours. There is a strong relationship between surrounding temperature and deformation at the range of 7 until 14 days. The influenced of surrounding relative humidity to concrete behavior is faster and longer than surrounding temperature. The influence of surrounding temperature in

Sources Overview

11% OVERALL SIMILARITY

6	University of Greenwic...	<1%
9	Johanna Denkena, Fran...	<1%
10	Hayden C Metsky, Nico...	<1%
11	Pohang University of S...	<1%
12	University of East Lond...	<1%
13	Fitsum Temesgen, Bikil...	<1%
14	Heriot-Watt University ...	<1%
15	University Tun Hussein ...	<1%
16	Aalto Yliopisto on 2019...	<1%
17	Nanyang Technological...	<1%