Proceedings of the International Conference on Industrial Engineering and Operations Management Bangkok, Thailand, March 5-7, 2019

WASTE PLASTIC MATERIAL AS AN ADDITIONAL MATERIAL FOR HOLLOW FOUNDATION TEST CONCRETE

Sri Wiwoho Mudjanarko^{1,*}, Eko Julianto², Dani Harmanto³, Prastyo Adi Putro¹, Firdaus Pratama Wiwoho⁵

¹Departement of Civil Engineering Universitas Narotama Surabaya,60117, Indonesia <u>sri.wiwoho@narotama.ac.id</u>

² Politeknik Perkapalan Negeri Surabaya Surabaya, Indonesia

³Departement of Mechanical Engineering Derby University Derby, UK

⁴Departement of Environmental Engineering Institut Teknologi Sepuluh Nopember Surabaya,60117, Indonesia

Abstract

In general, the foundations used for the simple development of Indonesian society are stone foundation times. The availability of stone times will be reduced if there is no innovation in the foundation. The requirements for this foundation will be experienced if the availability of workers is limited. This study aims to overcome the problem of skilled workers who are able to make a foundation. One way is to change the foundation of the time by making a precast hole foundation. The material used in this experiment is a comparison of ordinary concrete with plastic mixed concrete. The composition of the concrete mixture is 1: 2: 3 and concrete with material added to 1.97 kg of plastic waste (5% by weight of cement) and concrete additives (0.25% of the total volume of concrete). The results obtained from the comparison of the concrete composition are concrete concrete made from plastic and additive at the age of 14 and 28 days at 1.81 Kg / cm2 and 2.15 Kg / cm2, while the precast foundation test material for plastic waste added 5% + concrete additive 0.25% at the age of 14 and 28 days at 2.83 Kg / cm2 and 3.40 Kg / cm2. These results indicate that this foundation is capable of being used in small-scale house construction.

Keywords

plastic waste, hollow foundation, test concrete

Sri Wiwoho Mudjanarko, is a Lecturer, Departement of Civil Engineering, Narotama University, Surabaya Indonesia. Sri Wiwoho Mudjanarko holds a Bachelor of Civil Engineering degree in Civil Engineering from Narotama University, a Master of Civil Engineering degree in Institut Teknologi Sepuluh Nopember dan a Doctor of Civil Engineering degree in University of Brawijaya, Indonesia. He has been recognized as a professional engineer

Proceedings of the International Conference on Industrial Engineering and Operations Management Bangkok, Thailand, March 5-7, 2019

with more than 27 years of experience working with closely held businesses. He is a member of the Indonesian Railway Society (MASKA) Indonesia.

Eko Julianto, is director Politeknik Perkapalan Negeri Surabaya

Dani Harmanto is a senior lecturer at the University of Derby

Prastyo Adi Putro is civil engineering graduate alumni of Narotama University

Firdaus Pratama Wiwoho is an Bachelor Student of Environmental Engineering, Institut Teknologi Sepuluh Nopember. Surabaya, Indonesia