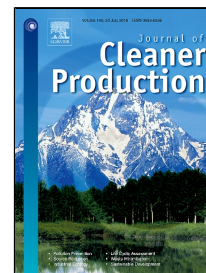


Accepted Manuscript

Potential use of brick waste as alternate concrete-making materials: A review

Chee Lum Wong, Kim Hung Mo, Soon Poh Yap, U. Johnson Alengaram, Tung-Chai Ling



PII: S0959-6526(18)31539-7
DOI: 10.1016/j.jclepro.2018.05.193
Reference: JCLP 13050
To appear in: *Journal of Cleaner Production*
Received Date: 15 November 2017
Accepted Date: 23 May 2018

Please cite this article as: Chee Lum Wong, Kim Hung Mo, Soon Poh Yap, U. Johnson Alengaram, Tung-Chai Ling, Potential use of brick waste as alternate concrete-making materials: A review, *Journal of Cleaner Production* (2018), doi: 10.1016/j.jclepro.2018.05.193

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Potential use of brick waste as alternate concrete-making materials: A review

Chee Lum Wong¹, Kim Hung Mo^{1,*}, Soon Poh Yap¹, U. Johnson Alengaram¹, Tung-Chai Ling²

¹Department of Civil Engineering, Faculty of Engineering, University of Malaya, 50603 Kuala Lumpur, Malaysia

²Key Laboratory for Green & Advanced Civil Engineering Materials and Application Technology of Hunan Province, College of Civil Engineering, Hunan University, Changsha 410082, Hunan, China

Abstract

Solid waste produced from construction and demolition activities amount to several million tons globally, and one of the prominent wastes is brick waste. In recent years, there have been increasing number of researches carried out on recycling brick wastes to produce a more eco-friendly concrete. This review summarizes the usage of brick waste as potential partial cement and aggregate replacement materials whereby the performance in terms of the mechanical strengths and some durability-related properties of the concrete were discussed. It was found that the most feasible usage of recycled brick is in the form of brick dust, whereby up to 20% cement replacement could enhance the strength and some durability properties of the concrete due to the potential pozzolanic reactivity of the brick dust particles. On the other hand, the inclusion of recycled brick as aggregate does not give profound improvement of the properties of concrete as it is governed by the inherent porous nature of the aggregate. Hence, the use of recycled brick as partial aggregate substitute should be confined to low volume replacement levels and when environmental consideration necessitates its usage.

Download English Version:

<https://daneshyari.com/en/article/8093965>

Download Persian Version:

<https://daneshyari.com/article/8093965>

[Daneshyari.com](https://daneshyari.com)