

Contents

Editorial Board

Welcome from the Chief Editor

- Utilization of Eucalyptus Oil Refineries Waste for Cement Particle Board 1
Rudi Setiadji and Andriati Amir Husin
- Fuzzy MCDM Model for Risk Factor Selection in Construction Projects 11
Pejman Reza khani
- Potential Use of Malaysian Thermal Power Plants Coal Bottom Ash in Construction 25
Abdulhameed Umar Abubakar, Khairul Salleh Baharudin
- Hybrid Photocatalyst for Corrosion Reducing and Sustainable Concrete Construction 38
Ranjit K. Nath, M. F.M .Zain, Md. Rabiul Alam, Abdul Amir H. Kadhum and A.B.M.A. Kaish
- Compressive Strength and Static Modulus of Elasticity of Periwinkle Shell Ash Blended Cement Concrete 45
Akaninyene A. Umoh, K. O. Olusola
- Properties of Concrete using Tanjung Bin Power Plant Coal Bottom Ash and Fly Ash 56
Abdulhameed Umar Abubakar, Khairul Salleh Baharudin
- Potential of Using Rosa Centifolia to Remove Iron and Manganese in Groundwater Treatment 70
Aeslina Binti Abdul Kadir, Norzila Binti Othman, Nurul Azimah Binti M.Azmi
- Evaluation of The Contribution of Construction Professionals in Budgeting for Infrastructure Development in Nigeria 83
Opawole, A., Jagboro, G.O. Babalola O. and Babatunde S.O
- Energy Efficient Green Building Based on Geo Cooling System in Sustainable Construction of Malaysia 96
M.R. Alam, M.F.M.Zain and A.B.M.A. Kaish

CHIEF EDITOR

Assoc. Prof. Dr. Ismail Abdul Rahman, Universiti Tun Hussein Onn Malaysia, Malaysia

EXECUTIVE EDITOR

Aftab Hameed Memon, Universiti Tun Hussein Onn Malaysia, Malaysia

ADVISORY BOARD

Prof. Dr. Abdul Hameed Memon, Quaid-e-Awam University of Engineering, Science and Technology, Pakistan

Prof. Dr. Azmi Ibrahim, Universiti Teknologi MARA, Malaysia

Prof. Dr. George Ofori, National University of Singapore, Singapore

Prof. Dr. Ian Burgess, University of Sheffield, United Kingdom

Prof. Dr. Chow Wan-ki, Hong Kong Polytechnic University, Hong Kong

Prof. Dr. Heng Li, Hong Kong Polytechnic University, Hong Kong

Prof. Dr. Norazman Mohamad Nor, National Defence Universiti, Malaysia

Assoc. Prof. Dr. Hamidah Mohd Saman, Universiti Teknologi MARA, Malaysia

Assoc. Prof. Dr. Lee Yee Loon, Universiti Tun Hussein Onn Malaysia, Malaysia

Assoc. Prof. Dr. Nasir Shafiq, Universiti Teknologi PETRONAS, Malaysia

Assoc. Prof. Dr. Syahrul Nizam Kamaruzzaman, Universiti of Malaya, Malaysia

Dr. Ade Asmi Abdul Azis, Univesitas Barkrie, Indonesia

Dr. Mohd Pauze Mohamad Taha, Ministry of Housing and Local Government, Malaysia

Dr. Zuhairi Abd Hamid, Construction Research Institute of Malaysia (CREAM), Malaysia

EDITORIAL TEAM

Prof. Dr. Abdullah Saand, Quaid-e-Awam University of Engineering, Science and Technology, Pakistan

Prof. Dr. Ahmad Mujahid Ahmad Zaidi, National Defence Universiti, Malaysia

Prof. Dr. Deji Rufus Ogunsemi, Federal University of Technology, Nigeria

Prof. Dr. Devapriya Chitral Wijeyesekera, Universiti Tun Hussein Onn Malaysia, Malaysia

Prof. Dr. Mustafa Mat Deris, Universiti Tun Hussein Onn Malaysia, Malaysia

Prof. Dr. Stephen O Ogunlana, Asian Institute of Technology, Thailand

Prof. Dr. Toru Otsuru, Oita University, Japan

Assoc. Prof. Dr. Ahmad Ruslan Mohd Ridzuan, Universiti Teknologi MARA, Malaysia

Assoc. Prof. Dr. Ahmad Tamizi Abd. Karim, Universiti Tun Hussein Onn Malaysia, Malaysia

Assoc. Prof. Alireza Fallahi, Shahid Beheshti University, Iran

Assoc. Prof. Dr. Ayman Othman, The British University in Egypt, Egypt

Assoc. Prof. Dr. Begum Sertyesilisik, Istanbul Technical University, Turkey

Assoc. Prof. Dr. Kemas Ahmad Zamhari, Universiti Tun Hussein Onn Malaysia, Malaysia

Assoc. Prof. Dr. Mohammad A. Hassanain, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia

Assoc. Prof. Dr. Rahul V Ralegaonkar, Visvesvaraya National Institute of Technology, India

Assoc. Prof. Dr. Rosli Mohamad Zin, Universiti Teknologi Malaysia, Malaysia

Asstt. Prof. Dr. Bon-Gang (BG) Hwang, National University of Singapore, Singapore

Asstt. Prof. Dr. Qadir Bux alias Imran Latif, COMSATS, CIIT, Pakistan

Asstt. Prof. Ravindar Kumar Khiani, NED University of Engineering & Technology, Pakistan

Dr. Anna Antonyova, University of Presov, Slovakia

Dr. Zulhabri Ismail, Universiti Teknologi MARA, Malaysia

Farrukh Arif, Florida International University, United States

Mohsin Ali Soomro, The Hong Kong University of Science & Technology, Hong Kong

Sasitharan Nagapan, Universiti Tun Hussein Onn Malaysia, Malaysia

REVIEWERS

Assoc. Prof. Dr. Kartini Kamaruddin, Universiti Teknologi MARA, Malaysia

Asstt. Prof. Rehan Masood, University of Lahore (UOL), Pakistan

Dr. Aeslina Abdul Kadir, Universiti Tun Hussein Onn Malaysia, Malaysia

Dr. Ali Mohd. Alashwal, Universiti of Malaya, Malaysia

Dr. Azhar Abdul Halim, Universiti Kebangsaan Malaysia, Malaysia

Dr. Lokman Hakim Ismail, Universiti Tun Hussein Onn Malaysia, Malaysia

Dr. Byung Hong Kim, Korea Institute of Science and Technology, Korea

Dr. Mohd. Fadzil Arshad, Universiti Teknologi MARA, Malaysia

Dr. Irnis Azura Zakarya, Universiti Malaysia Perlis, Malaysia

Dr. Mohd Haziman Wan Ibrahim, Universiti Tun Hussein Onn Malaysia, Malaysia

Dr. Noor Yasmin Zainun, Universiti Tun Hussein Onn Malaysia, Malaysia

Dr. Sing Sing Wong, Kolej Laila Taib, Sarawak, Malaysia

Fetra Venny Reza, Universiti Tun Hussein Onn Malaysia, Malaysia

Joseph Buertey, Pentecost University College, Ghana

Mohd Khairolden Ghani, Construction Research Institute of Malaysia, Malaysia

Muhammad Kamran Ansari, Al-Amaar Karachi, Pakistan

Muhammad Mustapha Gambo, Universiti Tun Hussein Onn Malaysia, Malaysia

Nur Alkaf, Universiti Tun Hussein Onn Malaysia, Malaysia

Wan Mohd Firdaus Wan Omar, Wisma HSS Integrated, Malaysia

DISCLAIMER

The publication of papers in *International Journal of Sustainable Construction Engineering & Technology* does not imply that the editorial board, reviewers or publisher accept, approve or endorse the data and conclusions of authors.

International Journal of Sustainable Construction Engineering & Technology
ISSN 2180-3242

Message from the Chief Editor

International Journal of Sustainable Construction Engineering & Technology (IJS CET) is a peer reviewed journal that provides a platform to share information/findings amongst researchers and practitioners. This journal is a collaborative effort between **Concrete Society of Malaysia (CSM)** and **Universiti Tun Hussein Onn Malaysia (UTHM)**. IJS CET is a biannual journal started in 2010. The journal focuses on issues underpinning in sustainable construction area. Currently, IJS CET is abstracted and indexed in:

- DOAJ (<http://www.doaj.org/doaj?func=openurl&genre=journal&issn=21803242>)
- WorldCat
- OAIster
- Google Scholar

The editors wish to thank all the authors for contributing their research/technical articles. Special thanks to all the scientific committees for their invaluable comments and suggestions in ensuring the high quality of the articles published.

Chief Editor

International Journal of Sustainable Construction Engineering & Technology

December 2012