

Progress in Industrial and Civil Engineering III

Part 3

Edited by
Jianguo Liang, Xun Wu,
Weijun Yang and Weizhen Chen



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Progress in Industrial and Civil Engineering III

PART 3

Selected, peer reviewed papers from the
2014 3rd International Conference on
Civil, Architectural and Hydraulic Engineering
(ICCAHE 2014),
July 30-31, 2014, Hangzhou, China

Edited by

**Jianguo Liang, Xun Wu,
Weijun Yang and Weizhen Chen**



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Preface

This proceeding contains the accepted papers from The 2014 3rd International Conference on Civil, Architectural and Hydraulic Engineering (ICCAHE2014). The first of this conference was held in Zhangjiajie, China on 10-12 August 2012 and the second conference was held in Zhuhai, China on 27-28 July, 2013. Following the success of the previous conferences, The third of this conference series (ICCAHE 2014) was held in Hangzhou, China, on July 30-31 2014. This conference series is a forum for enhancing mutual understanding between scientists, engineers, policymakers and experts in the civil, architectural and hydraulic engineering field. This proceeding is enriched by contributions from many experts representing many industry and academic establishments worldwide. Authors from more than 20 different countries have pooled their rich multidisciplinary up-to-date knowledge, in order to share their invaluable experience with the community.

All papers published in this volume have been peer reviewed through processes administered by the proceedings editors. Reviews were conducted by expert referees to the professional and scientific standards. This book covers the subject areas of Structural Engineering, Geotechnical and Geological Engineering, Tunnel, Subway and Underground Facilities, Seismic Engineering, Coastal Engineering, Oil, Gas and Mineral Resources Exploitation, Heating, Gas Supply, Ventilation and Air Conditioning Works, Disaster Prevention and Mitigation, Surveying Engineering, Cartography and Geographic Information Systems, Computational Mechanics and Applied Mechanics, Construction Technology, Architectural Design and Its Theory, Building Technology Science, Renewable Energy, Energy Saving Building, Low-Carbon Building, Ecological Building, Urban, Rural Planning and Design, Landscape Planning and Design, Traditional Construction Materials, Advanced Construction Materials, Project Management, Engineering Management, Civil and Construction Industry Management, Infrastructure Demand and Supply, Engineering Education.

We would like to express our deep gratitude to all the keynote speakers, authors, referees, exhibitors, technical co-sponsoring organizations, committee members, and many others on whom the success of this prestigious event depends.

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