

# ICSDC 2011

Integrating Sustainability Practices  
in the Construction Industry



Proceedings of the **2011 International Conference on  
Sustainable Design and Construction**

Edited by **Wai Kiong Oswald Chong** and **Christopher Hermreck**



**CONSTRUCTION  
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# ICSDC 2011

## *INTEGRATING SUSTAINABILITY PRACTICES IN THE CONSTRUCTION INDUSTRY*

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PROCEEDINGS OF THE 2011 INTERNATIONAL CONFERENCE  
ON SUSTAINABLE DESIGN AND CONSTRUCTION

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EDITED BY  
Wai Kiong Oswald Chong  
Christopher Hermreck



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# Foreword

The first annual International Conference Sustainable Design & Construction (ICSDC 2011) was held in Kansas City, Missouri on March 23-25, 2011. This conference was very successful and attracted 249 participants from 25 countries. The conference committee received over 180 papers and over eighty were accepted and presented at the conference. The conference included four keynote addresses by prominent sustainability researchers and designers from the U.S. National Aeronautic and Space Administration (NASA), U.S. General Services Administration (GSA), and BNIM and Pickard Chilton who are both internationally known architectural design firms that are leaders in sustainable design.

ICSDC 2011 achieved a balance between the areas of research, education, and practice of sustainable design and construction and this balance is reflected in these proceedings. Unlike other conferences that focus on a single area or topic, the organizers of this conference sought to bring together owners and developers, engineers and architects, construction professionals, educators and researchers, along with other stakeholders to look at the present state of the art and practice in sustainable design and construction around the world. The objective of this conference was to promote an open exchange of ideas on a variety of current sustainability topics and issues, introduce new design and construction techniques and technologies, and peer into the future of sustainable design and construction. By its very nature, this conference promoted the concept of integrated project design (IPD) that brings key members of the design and construction team together with the owner and others from the start of the project to deliver a project that is not only functional and economical but also environmentally friendly and energy efficient.

The ICSDC 2011 Proceedings contain many of the papers presented at the conference that range in subject matter from the use of design tools like building information modeling (BIM) to construction material use and recycling to the evaluation of green building rating systems. For those that attended the conference, the proceedings will allow you to spend more time reflecting on and studying the presentations that you attended as well as allow you to learn about the presentations that you were not able to attend. For those of you who were not able to attend the conference, the proceedings will provide a summary of the information presented and discussed over the three day period and should be of value to you as either a practitioner, researcher, or educator. We hope to see all of you at our second Conference. Your participation will not only make the 2012 conference a success like this year's but will also help to move us toward a more sustainable future for our children and grandchildren.

Thomas E. Glavinich, D.E., P.E.  
Co-Chair Academic Conference  
Civil, Environmental, & Architectural Engineering Department  
The University of Kansas  
August 28, 2011

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