

Conference on:  
**Technology & Sustainability  
in the Built Environment**

**College of Arch. & Planning, King Saud University  
Arriyadh, Kingdome of Saudi Arabia**

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**In the Name of Allah**



Under the gracious Patronage of His Royal Highness (HRH)

**Prince Naef Ben Abdulaziz**

The Second Deputy Premier and Minister of Interior



*In the name of Allah the Merciful the Compassionate, and blessings and peace be upon His Prophets and Messengers.*

The College of Architecture and Planning embraces the first international conference on Technology and Sustainability in the Built Environment here at King Saud University in Riyadh, under the gracious patronage of His Royal Highness (HRH) Prince Naef Ben Abdulaziz, the Second Deputy Premier and Minister of Interior – God keep him. Our College is proud to host a number of prominent experts and scholars and world-class researchers in the fields of Technology and Sustainability in the Built Environment. This conference is in line with the role of the university in community service to raise the level of the built environment. In fact the global achievements by King Saud University in science and technology during the past years and the theme of this vital conference contributed to attracting a great number of researchers and specialists from various universities and institutions worldwide. A total of nearly 400 research proposals have been received from 60 academic and professional institutions in 42 countries. Due to keenness of the organizing committee on quality of research and direct relevance to the conference themes, 245 proposals have been approved. The committee subsequently received 152 full papers which were carefully refereed, and 93 have been accepted for publication in the conference proceedings and discussion in the sessions.

In fact, despite the prominent role of modern technology in sustainability to preserve natural assets and improve the environment in the interest of society, we find many of the contemporary urban practices, both locally and globally, working unfortunately to the contrary, through the excessive use of natural resources, and many still indulge in the wasteful practice of repeated cycles of demolition and reconstruction of buildings and further demolition and reconstruction, without any regard to the needs of future generations. Sustainability in Urbanism aims to design high-efficiency, energy-saving buildings and environments so as to rationalize the use of natural resources, and adopt strategies of effective use of materials in order to minimize the negative environmental impacts and greenhouse



gas emissions. Green Architecture aims to achieve harmony of urbanism with the surrounding environment and climate, as well as the prevailing economic and cultural values, so as to achieve better quality of life for the society and future generations while conserving the natural resources and ecosystem at the local level and globally.

This humanitarian and scientific conference has several objectives: reviving the role of architecture and urbanism in achieving environmental, cultural and economic sustainability of the built environment; practical contribution in raising the level of the built environment through the application of the enormous potential of modern technology; and support to constructive cooperation and sharing of knowledge between the specialists and developers in the fields technology and sustainability.

The various relevant research issues have been summarized in five main theme areas as follows: 1) Urbanism and Sustainability, 2) Building Technology and Sustainability, 3) Advanced Policies and Strategies in Urban Development, 4) Technology and Sustainability in Architecture and Planning Education, and 5) Technology and Sustainability in Affordable Housing.

We sincerely hope the conference will achieve success through the creative ideas presented in the sessions and discussion which benefit all participants and attendees, and contribute to identifying the shortcomings that result in the inability of many of the built-sector managers to get rid of practices which deplete resources and harm the environment. We also hope the conference will contribute to the spread the culture of "*actual implementation*" of Sustainable Urbanism, which rationalize the use of materials and conserve natural resources for use in the future without contributing to environmental degradation and pollution, especially at this time we witness a proliferation of mega cities and mega-projects.

Finally, on my own behalf and on behalf of the organizers of this conference as well as all those who contributed to its success, I offer our sincere thanks and gratitude to the Custodian of the Two Holy Mosques and HRH the Crown Prince and HRH the Second Deputy Premier – God keep





them all - for their generous continuous support for what is in the service of science and the homeland and citizens, and in favor of the environment in general. We extend our thanks and gratitude to His Excellency the Minister of Higher Education and His Excellency the Rector of the university who strive hard to achieve the vision of the leadership of this country. Our thanks also go to members of all committees who contributed to the success of this conference, particularly the Technical Committee, for their diligent work. We are also grateful to all those who contribute through research papers, discussion or attendance, and pray to Almighty Allah to help us all to what he loves and which pleases Him the Most Generous.

3/1/2010.

**President of the Conference and Dean of Faculty**

**Professor Dr. Abdulaziz bin Saad Al-Moqren**





## **Introduction**

In Realizing its role for supporting the development of the built environment, the College of Architecture and Planning has organized the "Technology and Sustainability in the Built Environment Conference" to shed light upon an important issue that occupy the minds of specialists. This Conference is an important scientific event that realize the spirit of cooperation between specialists to participate actively in building knowledge and develop wide areas of research. The Conference has gathered a group of scientists and researchers from different parts of the world specialized in different fields of engineering, architecture and urban planning.

The Conference documents consist of two volumes that contain all accepted papers, one of these volumes allocated for Arabic papers, while the other one for English papers. Each paper has been thoroughly evaluated by two peer reviewers, and a third one may be assigned to weigh unsettled cases.

The conference is characterized by a wide range of response from 30 countries. Around 400 abstracts have been received, and 92 full papers have been accepted for presentation and publication which cover the different themes of the Conference. The Scientific Committee hope that views and exchange of knowledge by the participants have enriched the Conference deliberation and gave the opportunity to realize the new development and advances in the various fields of the built environment.

The Scientific Committee express its sincere thanks for all of the participants, referees, and other committee members whom participated fully or partially in the Conference activities which make it successful event.

**Chairman of the Scientific Committee**

**Prof. Dr. Mohammed A. Al-Hussayen**





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