



Guest Editorial

Special Issue of ASME JSEE on Integrated/Sustainable Building Equipment and Systems Notes From Guest Editors

This special issue of JSEE is part of the efforts by the ASME Task Force on Integrated/Sustainable Building Equipment and Systems (ISBES) to identify and evaluate challenges and opportunities for integrating sustainable equipment and systems in individual buildings and within the built environment. Specifically, the ISBES Task Force is primarily interested in fostering new technologies and strategies to enhance building energy efficiency and reduce building energy use. This new approach is proceeding on three different but very important tracks:

- Integrating energy efficiency and renewable energy systems into buildings;
- Integrating power generation systems into building heating and cooling systems; and
- Integrating energy strategies at neighborhood and city-scales.

This first special issue is intended to motivate exchange of innovative ideas, leading-edge concepts, new technologies and devices, ongoing R&D efforts, prototype and demonstration projects, commercialization technologies and projects, and visions of the future related to various tracks of Integrated Sustainable Equipment and Systems for Buildings.

Most of the papers selected and further peer-reviewed for this special issue have been presented as part of technical sessions specifically organized during the 2012 ASME International

Mechanical Engineering Congress and Exhibition (IMECE-2012). The papers cover all three IBSES tracks including (i) integrating innovative energy efficiency humidification technology into buildings, evaluating the potential of designing high performance buildings in developing countries, and examining the LEED rating system using design and performance data obtained for several US buildings, (ii) assessing the integration of thermo-active foundations and energy storage systems into buildings, and (iii) city-scale analysis of predicting energy demands during extreme heat events as well the environmental impact of large scale integration of PV systems in a coastal community. The selected articles represent worldwide applications of these technologies and leading-edge approaches.

It is hoped that this special issue would provide a stepping stone to initiate long-term collaboration between academia, industry, and planners worldwide to solve the challenges inherent for developing integrated and sustainable equipment and systems for the built environment. We hope for the collaborations to be multi and to include expertise in various areas including but not limited to Solar Energy, Energy Efficiency, Hydrogen Energy Technology, Advanced Energy Technologies, Materials, Fluid Mechanics of Buildings, and Architectural designs.

Moncef Krarti
Jorge E. González