Papers are invited on the general topic of computing for design and engineering of sustainable building and infrastructure systems. Specifically, the special collection is interested in disruptive technologies that form the foundation for the next generation design environment.

The US building construction industry contributes about 3.6% of the country’s gross domestic product. In the February of 2016 alone, $769 billion dollars, or 67% of the total value of construction in place, were spent on residential or non-residential buildings. Almost all of those construction projects used some kind of design environments such as computer-aided design (CAD) to deliver a design solution. Especially, visions such as Buildings of the Future or smart and connected communities require buildings in the future to address more complex challenges and integrated performance measures such as energy efficiency, carbon emissions, human wellbeing and productivity.

What can be learned from the evolution of building design environments or tools, from manual drafting, CAD, to now integrated design environments such as building information modeling (BIM)? If CAD is disruptive to manual drafting technologies because of its efficiency and accuracy just like interoperability and integration are the reasons for BIM to be disruptive to CAD, what are the features that the next generation of disruptive building design technologies should have?

This special collection aims to seek contributions in, but not limited to, the following application areas for design and engineering of sustainable urban systems:

- Emergence of data science and visual analytics
- Use of virtual and augmented reality in design and the creation of new forms of space
- Systems approach to design and engineering environments
- Human-centered approaches in design and engineering
- Applications of robotics and artificial intelligence
- Novel algorithms and quantitative methods/models

Timeline:
December 1, 2017 – Issue call for papers;
February 1, 2018 – Deadline for extended abstract (~1,000 words);
July 1, 2018 – Full papers due; submitted via ASCE JCCE Editorial Manager at: http://www.editorialmanager.com/jrncpeng/default.aspx

The Author Guide to assist authors in the preparation of their manuscripts is available at: