

International Sustainability Trends in Construction and Potential Applications in the American Market

Methodology

The project design consists of first conducting research on the international construction markets of Asia, Europe, and Australia. Then after organizing this data, distributing a survey to a number of US construction firms to gauge their performance and similarities in practice to those of international trends.



Hellinikon Development Park in Athens, Greece measures more than 6.2 square kilometers



1 Bligh Street in Sydney, Australia recycles more than 100,000 liters of blackwater daily

The United States is one of the world leaders in sustainable construction, however with limited research and restrained interest there is only so much progress that can be made when solely relying on domestic resources. By performing case studies on specific firms and projects in a variety of international markets, East Asia, Europe, and Australia, the goal is to highlight international sustainable building methods that have proven to be successful and analyze the feasibility of implementing these methods in the American market. These case studies, along with a qualitative survey involving several US construction firms' sustainability commitments, will identify how the American construction industry currently excels, and where improvements can be made to ensure future achievements.

Common means of sustainable construction by domestic firms include:

- carbon emission calculations performed throughout the project
- designer/owner selection factoring in sustainability
- emphasis on local participation to limit vehicle emissions
- BIM utilization to reduce paper/construction waste

Future sustainability goals stated by the firms include:

- advising clients on sustainable approaches
- low carbon concrete
- increased prefabrication
- earning LEED accreditation for 100% of staff

Impact

One goal of this project is to provide insight into the common practices and sustainable measures of international firms and markets, which are seldom studied, especially by firms completing work solely within the United States. By becoming aware of these emerging practices, one can hope that these US firms will put them into practice therefore improving domestic sustainable performance.

Results

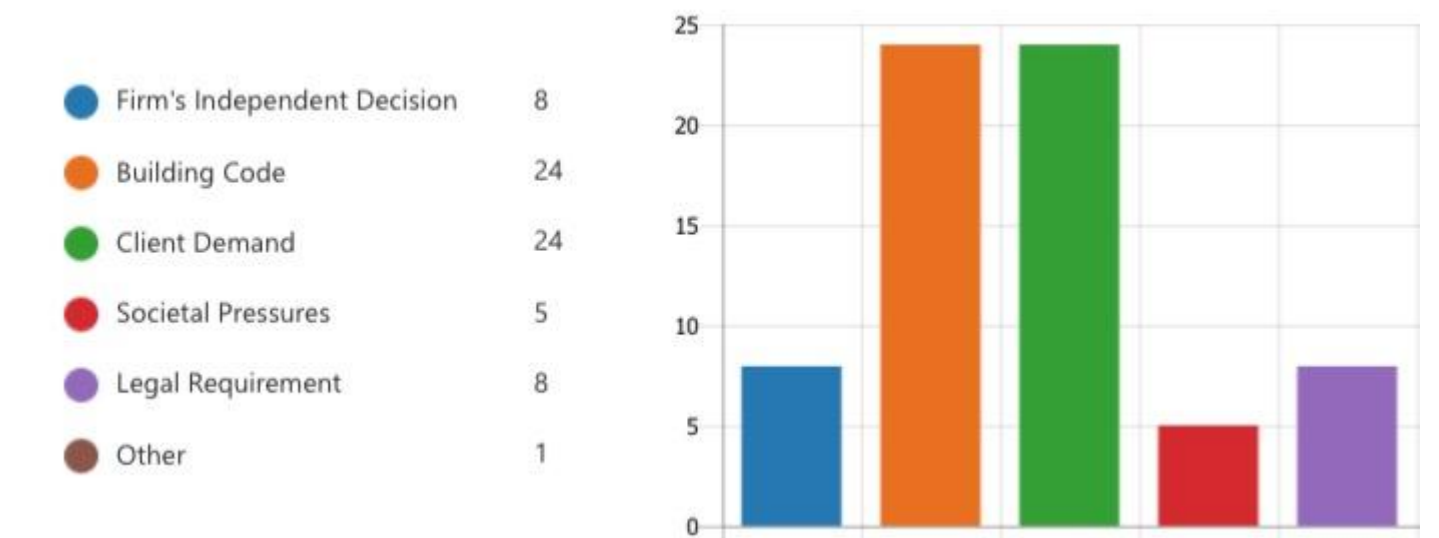


Figure 1. Firms' Motivations Behind Sustainable Measures



Figure 2. Firms' Experience in Constructing Green Roofs/Living Walls (Scale 1-5)



Figure 3. Firms' Experience in Constructing European Style Development Parks (Scale 1-5)



Figure 4. Firms' Experience with either: water efficiency, solar energy, tri-generation systems, passive design

Conclusions

American firms are already one of the main proponents helping pave the way in sustainable construction. Nonetheless, there is always opportunity to improve and American firms should continue to strive to embrace sustainable construction techniques used in foreign markets such as Asia, Europe, and Australia.



Singapore's Parkroyal Resort exterior façade and living walls