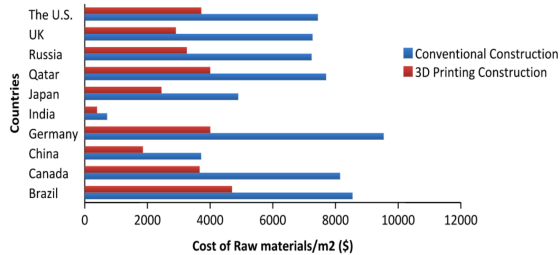
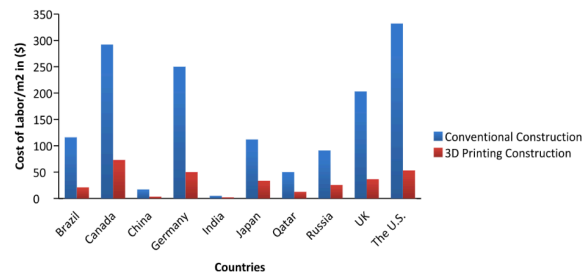


Best Practices and Applications of 3D Printing in the Construction Industry

Advantages of 3DP:

- Cost savings
- Time savings
- Reduces demand for labor
- Reduces construction waste



Limitations of 3DP:

- Printer size
- Materials
- Industry reluctance
- Long turn over time



The construction industry is constantly looking for new ways to improve project efficiency and profitability. Many new technologies such as Business Information Modeling (BIM) programs, and project management software have been introduced to aid in preconstruction and on site coordination, yet traditional building methods have remained relatively unchanged for decades. 3D printing (3DP) is a promising new technology that has the potential to not only be an effective means of increasing project efficiency and profitability, but also have positive environmental impacts. However, as it exists today, this technology is highly limited by size, material, skilled labor, and industry reluctance. This paper analyzes progressive 3DP companies that have been able to effectively employ this technology on a large scale. The purpose of this paper is to examine the current uses 3DP in construction and create an outline for the best practices and applications given the technology's existing limitations.

Key Words: 3D Printing, Best Practices, Limitations

Case Study:

- Scope: Batch of 103DP houses
- Duration: 1 day
- Cost: \$4,800
- Size: 215 sq. ft.

- Scope: 3DP office building
- Duration: 17 days
- Cost: \$140,000
- Size: 2,700 sq. ft.



Best Practice / Applications:

- Prefabricated wall systems
- Prefabricated storm drains
- Exotic architectural design
- Building models / mockups



