Sustainable Construction: The Advantages and Disadvantages of Modern Construction Technologies

Mattijs Holler, Program of the Environment University of Washington
Site Supervisor: Christian Holler, Herbert Bau GmbH
Faculty Advisor: Alexa Schreier, Program of the Environment

Background
- The built environment emits about 2/3 of the world’s CO2
- A large increase in world population increases the demand for more buildings
- Tight time schedules force construction companies to work fast and make them cut corners
- Bad water and waste management pollutes the surrounding environment
- Cheap materials get produced and delivered by other countries

Thesis Questions
- How does the industry build now? How should they build?
- What are advantages or disadvantages of sustainable construction?
- What needs to be done to promote changes?

Internship and Methods
- I interned with Herbert Bau GmbH in Vienna.
- I worked within a team of students and conducted research on sustainable construction.
- Our job was to find different methods of construction and maintenance, and to figure out what prevents companies of changing.
- We did weekly observations on Construction Sites

Results
The results of my research came from different research papers, site observations and interviews with different professionals.

Two common construction methods:
- Pre-fabricated method
- On-Site method

Building Styles:
- Energy efficient Building
- Environmentally friendly Building
- Sustainable Building

Advantages of Sustainable Construction
- Decrease construction time, which decreases emission of GHG
- Increases health of the surrounding Environment
- Saves energy during construction

Disadvantages of Sustainable Construction
- High financial expenses
- Specialist workers
- Complex design procedures

Changes that should be made:
- Governments need to make sustainable construction more attractive for companies
- Support local material producers to prevent price dumping by big international companies
- This will reduce transport time of material

Significance
The importance of this project is to show that small changes in the way we build and maintain buildings can have big positive impacts on the environment.

Acknowledgements
I would like to thank Christian Holler, Alexa Schreier, Matt Bannerman and my Coaches, Sean McDonald, Ana Wieman, and all my Classmates which have supported me through my Capstone and College.