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Comparison of prefab homes and a site-built home: Quantitative evaluation of four different types of prefab homes and a site-built home

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Abstract: There are currently many prefab homes in the world. Prefab homes are becoming more and more popular because of assumed advantages such as low price and a short construction period, as well as their efficiency advantages in terms of building science, such as energy efficiency, sustainable materials or methods, and so on. This thesis used a list of criteria: energy efficiency, construction costs, and construction timeline of prefab homes and a site-built home to help identify which home might be preferred by people based on the results of the criteria. This thesis provides a range of information on prefab homes that has been primarily gathered via the internet and by contacting the creators of the individual homes. In addition, it provides a comparison of the similarities and differences and case-study examples of the four types of prefab homes: manufactured, modular, panelized, and pre-cut homes. The major research point of this thesis is to evaluate and compare the energy usage of four types of prefab homes and a site-built home because a key selling point of prefab homes might be based on their energy efficiency. Furthermore, other useful studies are cited to provide the construction costs and timeline of prefab homes and a site-built home. Therefore, the energy performance of several prefab homes and a site-built home were simulated by using the software, HEED, and then their energy performance was shown and compared. Some prefab homes and site-built homes were also researched for their total construction costs and timeline by contacting their manufacturers and reviewing websites. Keywords. Prefab homes, Energy efficiency, Manufactured homes, Modular homes, Panelized homes, Pre-cut homes, Construction costs, Construction timelines, HEED. 

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