

Thesis Title	Greenhouse Gas Emissions from Low Income House Construction in Thailand
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Abstract

This study aimed to evaluate greenhouse gas (GHG) emissions from low income house construction under the Baan Eua-Arthorn Project in Thailand and propose alternative construction materials, which can reduce GHG emissions. The scope of this study included GHG emissions from construction materials and construction processes of different house styles , i.e. detached house (61.97 m²), twin house (109.67 m²), townhouse (552.20 m²), and condominium (2,121.15 m²). GHG emissions in the unit of kilogram of carbon dioxide per square meter were calculated by following Thai national guideline for carbon footprint of product. Results showed that the highest GHG emissions belonged to condominium (190.37 kgCO₂ e/m²), followed by townhouse (124.12 kgCO₂e/m²), twin house (112.97 kgCO₂e/m²), and detached house (98.42 kgCO₂e/m²), respectively. Concrete, cement and steel were found to be significant emission hot spots. Replacing brick and concrete block wall by lightweight concrete wall could reduce GHG emissions to 28%, 10.4%, 6.4% and 4.2% for condominium, townhouse, twin house, and detached house respectively.

Keywords: Baan Eua Arthorn/Construction materials/Construction process/Greenhouse gas emission/Low income houses