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Generating Building's Operating Energy Automatically by Energy Plus and C#

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***Abstract*—The use phase of buildings always contributes to the largest share of life cycle energy consumption and life cycle environmental impacts. This paper selects different wall materials, provides a possible method to calculate operating energy consumption of alternative wall assemblies automatically, and suggests the influences that different layers have on operating energy. The results show that the operating energy consumption varies according to the insulating layer while the thickness of air gap has a negligible impact on the operating energy. And it can be seen that the material and thickness of insulation has a great influence in the building's operating energy and there should be more research focusing on the method to generate life cycle energy in order to optimize the buildings performance in the architectural design.**

***Key words*: Operating energy, wall assembly, auto-generation.**