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## Energy demand and environmental impact of various construction scenarios of an office building in Morocco

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### Abstract

This paper assesses the thermal performance of an office building with an intermittent occupancy pattern, designed according to three construction scenarios. Annual simulations are carried out using TRNSYS software considering a Typical Meteorological Year (TMY) of six Moroccan cities referring to the representative zones of the recent Moroccan climatic zoning. The energetic and environmental performance of various passive energy efficiency measures are evaluated and discussed. The major finding of this work is that these energy measures can have a positive influence on reducing carbon footprint of the considered building. Annual loads can be reduced by about 20% in Agadir, 48% in Tangier, 53% in Fez 56% in Ifrane, 31% in Marrakech and 41% in Er-rachidia.

**Keywords:** Office building; energy efficiency; environment; intermittent; TRNSYS.

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