# An Analysis of Energy Efficient Building Principles

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Craig Anthony Blackstone 2005

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**Declaration**

I declare that this research report is my own, unaided work. It is being submitted for the Degree of Masters in Property Development and Management in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

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(Craig Anthony Blackstone)

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**Abstract**

This research was conducted in order to highlight the misconception that there may be a single answer to the challenges of energy efficient design; a “single elixir that will be the answer to all problems” (Holm, 1996).

Existing literature pertaining to energy efficient design principles was analysed and tested against a well known example of Southern African energy efficient building practice; the Botswana Technology Centre (BOTEC). BOTEC was selected as the case study for this investigation because it was designed to be a living exhibition of energy efficient design and as such a manual or ‘elixir’ for alternate design.

BOTEC was analysed on site, personal interviews were held with the architect and a questionnaire was circulated to the users of the building in order to observe whether the principles used at the BOTEC building are appropriate and represent the “single elixir, the answer to all problems,” with regard to energy efficient design (Holm, 1996).

Although BOTEC appears to perform well, interviews with the users of the BOTEC building suggest that the building does not perform well in winter at all. Interviews with the architectural consultant who worked on the BOTEC building expose a simple oversight in design which leads to ‘this building’s underperformance in winter’.

In concurrence with Holm therefore, this report ultimately shows that there are no perfect solutions to energy efficient design and by applying a once successful solution without taking cognisance of specific climatic and geological differences, the building will not function correctly.

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