

# Preface

Paul Ritter first postulated that human activity is an integral part of the biosphere of this planet and our actions can enhance or detract from our ability to live in harmony with other creatures and the physical environment that surrounds and supports us (Ritter 1817). In our modern approach to sustainability the United Nations established that:

Ecologically sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (UN 1987, p. 54)

With a good deal of intention and naivety, my partner and I built a load bearing mud brick house in the early 1990s in an attempt to limit our impact on the biosphere by minimizing the use of resources to construct, operate, and maintain a home, but this path is followed by few.

How do we improve the method of house-making in an ever more complicated existence? My research derives from two distinct passions.

The first research focus follows the references above and is concerned with the environmental and resource aspects of house-making. The resources we use to build, maintain, and operate our new and existing homes, including matters pertaining but not limited to: resource depletion, energy resources, and greenhouse gas emissions.

The second focus is more social in nature, as it is concerned with our society's capacity to provide a minimum standard of habitable housing for all. In many societies, it is those with the least wealth who are confronted with houses that require the most resources to operate and make habitable through summer and winter. In the Tasmanian context, many existing houses have internal temperatures as low as 0 °C in winter.

As a society, we need to understand how new and existing buildings work thermally and to put in place legislation and suitable, non-product-based guides to inform owners and tenants of methods to improve the liveability of their homes.

And one day we will all have a Net Zero and/or Zero Carbon Home.

The Empirical Validation of House Energy Rating (HER)  
Software for Lightweight Housing in Cool Temperate  
Climates

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