

# **SUSTAINABLE WANAKA: APPLIED BUILDING RESEARCH**

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Sustainable Wanaka is a charitable trust involved in all aspects of sustainability in the Wanaka region. Over the last 11 months Sustainable Wanaka has been conducting several practical research projects on sustainable housing options as part of a Ministry for the Environment funded project.

The first of these projects, Alpine Village, is a development of managed apartments intended for both short and long term rental in Wanaka. In collaboration with the developer, sustainable Wanaka sought to upgrade one apartment building to be more energy efficient and will include additional sustainable design features over the standard specification. The performance of the apartment, in terms of comfort and energy consumption, will be monitored and compared to the performance of a standard apartment. The primary funding for these additional features was provided by the suppliers of the materials for the development, while the cost of additional labour was covered by the apartment's future owner. EECA have agreed to provide the bulk of the funding to monitor the apartments. Construction was completed in May 2007 and monitoring is due to commence in October 2007 and will run for 12 months.

Sustainable Wanaka's second research project in 2006/2007 involved the analysis and retrofit of three 1960's houses in Wanaka.

The houses were in a poor state of repair and had little or no insulation, resulting in a damp and cold internal environment. The tenants of the two worst houses experienced persistent, reoccurring health problems over the winter of 2006.

Sustainable Wanaka was contracted by the properties' managers to make recommendations for retrofitting the houses. The contract included an analysis which involved a Post Occupancy Evaluation (POE) of the houses, and an energy analysis in ALF3. Temperature-sensing data loggers were installed in houses to measure pre-retrofit conditions which, over July and August 2006, recorded the temperature and relative humidity of the living rooms and bedrooms were recorded. The retrofit was completed in January 2007 and the houses will once again be monitored over the winter of 2007 to gauge the impact of the measures on the internal temperature and relative humidity. A second POE will be conducted to assess whether there has been a change in the comfort and health of the tenants.

The proposed paper will present the results of Sustainable Wanaka's research and evaluate the effectiveness of the chosen energy efficiency and sustainability measures and their appropriateness for the Southern Lakes climate.