Comparison of Solar Collection Systems for Thermal Comfort in Rural Homes in the High Andean Regions of Peru

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Abstract:

The high Andean regions face extreme climatic conditions that make thermal comfort difficult in homes, negatively impacting their inhabitants' quality of life. Traditional solutions, such as the use of fossil fuels, are inefficient and harmful to the environment. This research explores sustainable alternatives, such as passive solar energy, adequate thermal insulation, and the use of local construction materials. Success stories will be analyzed to assess the economic, social, and environmental viability of these solutions. The objective is to develop a framework for sustainable housing that improves the quality of life in the high Andean regions and serves as a model for other areas facing similar climate challenges.

Keywords:

Bioclimatic design, High Andean housing, Renewable energy, Sustainable solutions, Thermal comfort.