# Using Water to Heat a Solar Hogan

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The purpose of this scientific research was to build a solar panel and discover which section of the roof of a Hogan and which solar panel design absorbed the most energy to create the greatest temperature inside the Hogan using water and antifreeze mediums. The hypothesis was if different designs of solar panel are placed on different sections of the roof of a Hogan model using separated mediums, water and antifreeze then the solar panel with the snake design, in the Southwest Section will generate the greatest temperature inside the Hogan. This research started by first constructing a model Hogan. A solar-heater was built to place on the Hogan roof. After building the heat exchanger, poly-tubing was strung through the Hogan, solar panel, and heat exchanger to transfer heat through the mediums (mixture of), water and antifreeze. Temperature was measured inside and outside the Hogan, so that the temperature difference could be calculated. The Southwest Section of the solar panel proved the most effective in producing heat. The data showed that the snake design had superior heat generation versus the coil design. In this investigation, the aim was to assess the interior vs exterior temperature difference on the Hogan when the panel is repositioned. The most significant findings to emerge from this study are the realization of various concepts already applied to current inventions. The results support the hypothesis.