

A *utonomous &*
S *ustainable*
H *ousing Inc.*




Fig. 1: View from S.W. Fig. 2: Masonary Heater in living room Fig. 3: Solar Oven on front porch

ABSTRACT

This 3 bedroom, 1820 ft² demonstration home/office is a sustainable, autonomous and energy-credit prototype for cold climates (10,000 °F Degree Days) and the 21st century. This project, the first in Canada, exemplifies the company's mandate, mission and goals: **environmental stewardship, occupant health, resource conservation, appropriate technology, alternative energies and self-sufficiency.**

This house demonstrates the best of yesterday, the reality of today and the trends of tomorrow. It is an inventory of ideas, concepts, features and products for individuals, professionals and Government. The project was funded by a conventional mortgage (at a preferential rate) and built without Government assistance.

Located in suburban Calgary, the house will undergo three distinct phases: the **sustainable** stage, the **autonomous** stage and the **energy-credit** stage without a conventional forced air furnace or boiler. The house is not connected to natural gas. The total purchased energy requirements per year averages 6% of an ordinary house (0.75 wh/DD/m³). This demonstrates the practicality, feasibility, desirability, and marketability of alternative housing in cold climates.

This project is the initiative of a small dedicated group of individuals. They are not connected with Government or

lobby groups of any kind. Rather, the house is a collaborative effort of concerned citizens, industry and more than 220 leading-edge companies from around the world.

Some of the project's technologies and features include: an R-17 window; a masonry heater (for space and water heating, baking, and future electrical generation); non-additive concrete; shallow footings (rubble trench); "Eco studs"; non-toxic drywall mud; waterless (composting) and ultra low flush toilets; a translucent solar hot water collector; salt-free water softener; two types of greywater heat exchangers and three forms of greywater treatment; radiation shielded full spectrum, LED and electroluminescent lighting; and a variety of solar ovens (for cooking food). Research on solar stirling co-generators, high performance ground/water-coupled heat pumps, a Tesla bladeless steam turbine, free energy devices, photovoltaics, in-house sewage treatment and other technologies for a conserver lifestyle and energy independence are in progress, as time and money allow. Many of these features are appropriate for large scale housing developments, college campuses and office towers, either new or retrofit.

To this point, 60 articles about the project have been published. More than 30,000 people from North America, Africa, Europe and Asia have toured the project, including two delegations from Japan. The house has been the recipient of the "Emerald Award for Environmental Excellence," the

 **ASH-Autonomous & Sustainable Housing** 

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