

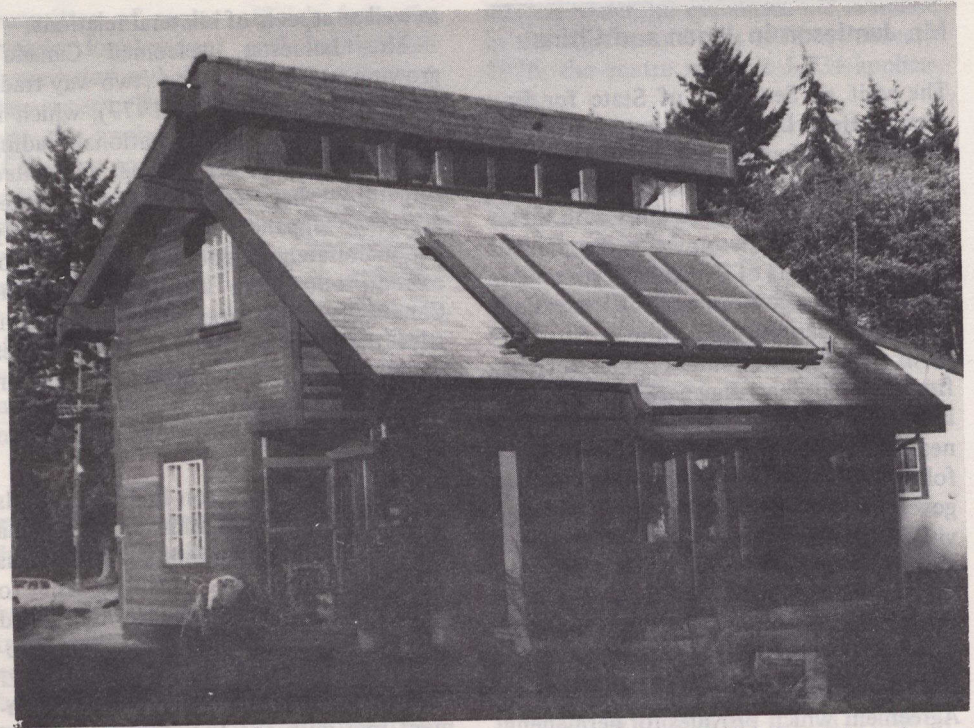
Self help housing an alternative to spiralling building costs

Working on weekends over a period of four months, 20 novice builders — 14 men and six women — have constructed a two-storey home heated by solar energy for a cost of \$15,000.

Acadia House, erected on the campus of the University of British Columbia (UBC), Vancouver, was designed by architect Charles Haynes, director of the Canadian Self Help Housing Association, for "simplicity and energy conservation with an emphasis on self help construction as an approach to obtaining affordable and owner-responsive housing". It is a project of the Association, in conjunction with the UBC Housing Department, the Acadia Camp Tenants Association, UBC, and the Centre for Continuing Education, UBC.

The house contains the first surface-coated concrete block wall in Canada; the first preserved-wood foundation in Vancouver; a prototype hardwood floor; solar water heaters on the roof; a wall that absorbs and radiates solar heat; homemade double glazed windows; a variety of recycled materials, including lumber, doors, windows, banisters, plumbing fixtures; and a wall made from wine bottles.

A cathedral ceiling is a feature of the kitchen on the ground level, where there is also a dining room and a combination



Acadia House (above) now forms part of the university housing for married students at Acadia Camp on the University of British Columbia campus.

living and play area for children. Upstairs are two bedrooms and a bathroom with clerestory windows and storage areas. Generous use of fir and cedar throughout gives the house a warm and comfortable atmosphere.

Fuel-savers

Energy conservation begins with the preserved-wood foundation enclosing an insulated crawl space used as a hot air plenum. The preserved-wood foundation was chosen because it provides both a durable wall that can be easily insulated and sealed and because it gave the builders the opportunity to learn stud wall construction on a small scale before beginning the main house walls.

To ensure a high retention of heat inside, thick walls were used to give greater depth for the insulation. The hot air pumped by gas furnace into the insulated crawl space is supplemented by heat radiated from the solar Trombè wall on the south side; by reversing the vents, this wall can be used to cool the building in summer. Above the cathedral ceiling, solar panels provide hot water for heating and for preheating domestic hot water before it goes to the hot water tank. At the apex of the roof a small fan pumps the hot air which rises to that place down through a tube to the lower level.

The key to the solar Trombè wall is

mass — the wall itself acts as a storage place for the heat generated by the sun in a narrow space between the wall and the double glazing. To facilitate this, concrete blocks filled with sand were used.

These concrete blocks were dry-laid to form the wall and then coated with a stucco-like material made of glass fibres, cement and lime. This is the first concrete block wall in Canada to be built by the surface-coat method, which, being fast and simple, is ideally suited to self-helpers.

The floor, a prototype of a new hardboard product, was made by combining two processes. Oil-tempered hardboard, which is exceptionally hard wearing and moisture resistant, was run through a wall-panel press to engrave a pattern of aged planks onto the surface. Acadia House has given the British Columbia forest industry the opportunity to produce and test this new product.

The plans and building manual for the house are available from the Centre for Continuing Education, University of British Columbia, Vancouver, B.C, V6T 1W5, Canada. Some 34 sheets of detailed blueprints that cover all aspects of the construction, including the solar systems, plumbing and wiring, together with 150 pages of instructions for the inexperienced builder, have all been approved by Canadian building codes.



Dining and kitchen view with Trombè wall vents open on upper right. Solar water collectors are above cathedral ceiling.