

# 6817



BRITISH COLUMBIA

# ***ADVANCED HOUSE***



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**A** certified R-2000 home is probably the best-built most comfortable, healthy, energy-efficient house anywhere in the world today. It's a superior home designed for B.C.'s various climate zones and built to standards that exceed those of conventional houses. Our standards result in greater comfort; cleaner, fresher indoor air; and reduced energy cost.

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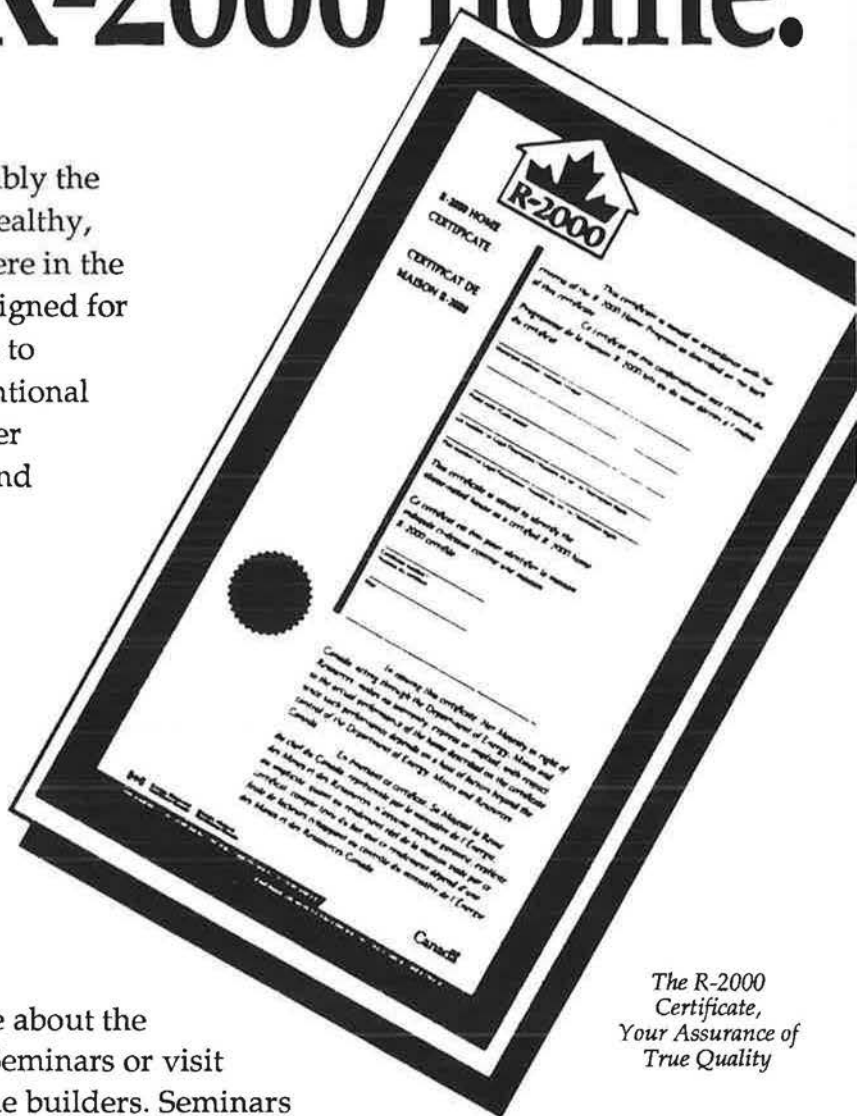
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## PROJECT OVERVIEW

The B.C. Advanced House is a demonstration of the very latest state-of-the-art building technology featuring environmentally sensitive materials, and energy efficiency.

It was initiated by the Buildings Group, CANMET (Energy Mines & Resources Canada) in partnership with the Canadian Home Builders' Association, and is co-ordinated by the Advanced Housing Society of British Columbia.

There's been no lack of government, corporate and housing industry participation in the British Columbia Advanced House Project.

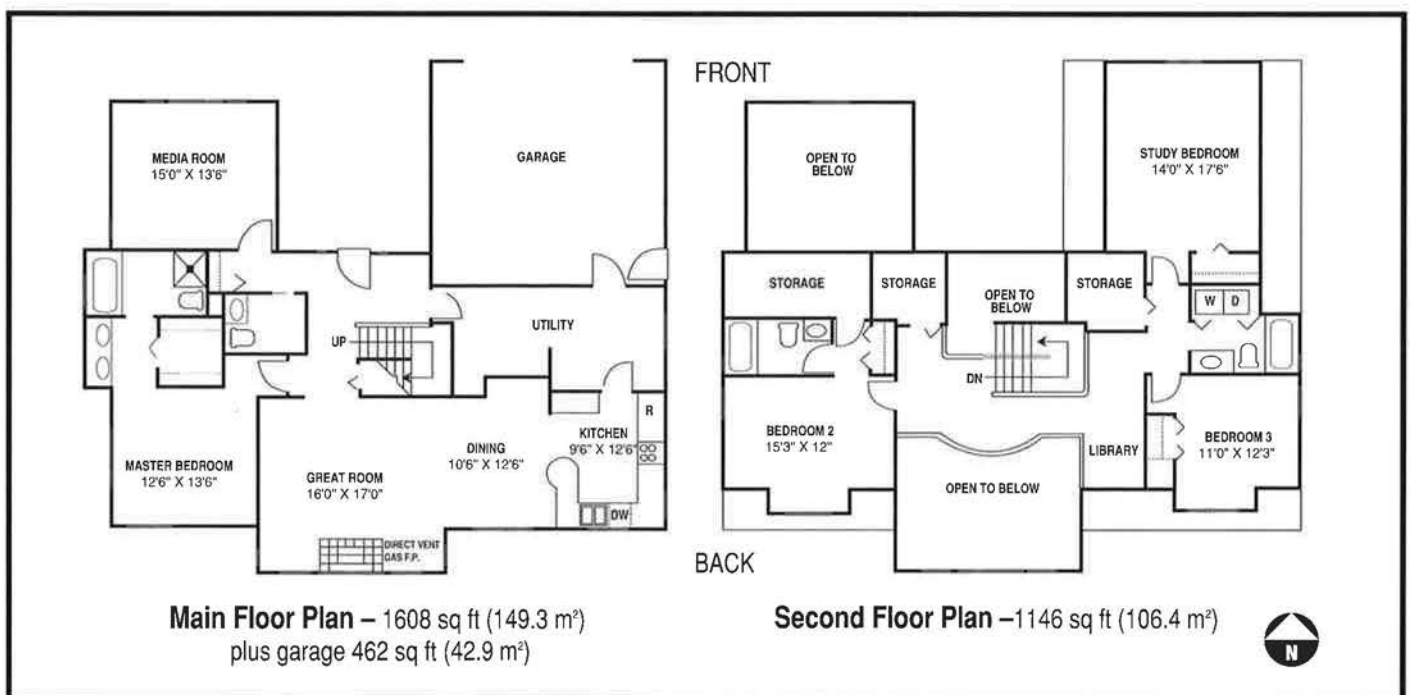
Major players in the B.C. housing industry have supported and contributed to the project.

The list of sponsors and participants is constantly being revised as new commitments are received.

Sponsors of the B.C. Advanced House at May 31 include:

- Energy, Mines & Resources Canada (EMR/CANMET Buildings Group)
- The Environmental Partners Fund (Environment Canada)
- BC TEL
- BC Hydro
- BC Gas
- Residential Construction Institute
- General Electric Canada Inc.
- Ministry of Energy Mines and Petroleum Resources (B.C.)
- Ministry of Environment, Lands & Parks (B.C.)
- Canadian Home Builders' Association of British Columbia.

A complete listing of the B.C. Advanced House team of sponsors, participants, contributors and prime consultants may be found on pages 18, 19, 20 & 21.





## THE B.C. ADVANCED HOUSE – TOMORROW'S HOME TODAY



**RICHARD KADULSKI**  
*Architect*

**W**elcome to the British Columbia Advanced House! In an age when conservation and energy efficiency are two synonyms for survival, the home building industry introduces the Advanced House.

As one of ten such houses being built in major cities across Canada, the B.C. Advanced House, located in a new Surrey subdivision, appears as any other in the neighbourhood in terms of scaling and outward appearance. But that is where similarities end.

It is a futuristic home . . . tomorrow's home — today!

The B.C. Advanced House is the home building industry's response to a 1991 challenge from CANMET, the main research and technology development arm of Energy, Mines and Resources Canada, to design and build houses promoting energy efficiency and environmental responsibility.

The Advanced House Program was designed to promote innovation and improve the standard of residential housing in Canada.



**WARREN JONES**  
*Builder*

In British Columbia, the B.C. Advanced House Project is co-ordinated by the Advanced Housing Society of B.C. Richard Kadulski of Vancouver is the architect and project manager, while Warren Jones of Cortez Energy Efficient Homes is the builder. The Canadian Home Builders' Association of British Columbia's Technical Advisory Committee also had input.

In addition to being a demonstration home for the consumer, (with an anticipated 100,000 visits throughout the year), the house has an educational component. Over the next year it will be the site of housing industry training seminars.

During this time, our goal is to demonstrate how the new building technologies, energy efficient and environmentally friendly innovations can be applied to your present or future home.

We invite you to visit the B.C. Advanced House.

**Richard Kadulski**  
Architect/Project Manager

**Warren Jones, Builder**  
B.C. Advanced House

### **BRITISH COLUMBIA ADVANCED HOUSE MAGAZINE**

While every effort has been made to assure the accuracy of the information contained in this publication, neither the publisher nor the magazine's contributors may be held liable for errors or omissions. Please contact the Advanced Housing Society of B.C. for more information.

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## WHAT IS THE BC ADVANCED HOUSE?

The B.C. Advanced House is one of 10 across Canada, selected through a national competition. Each represents a unique response to the challenge of building homes that showcase new products and innovative building ideas for environmentally responsive and energy efficient construction. The experience gained through construction of the Advanced Houses will strengthen Canada's position as a world leader in home building.

Demonstrating new energy efficient technologies, reduced and appropriate resource use, reduced environmental impacts and healthier home construction, the B.C. Advanced House is a 2,754 sq. ft. single family home. Set on a corner lot at 1908 – 63B Avenue in a new subdivision in the Cloverdale area of Surrey, a typical Greater Vancouver suburb, the site was chosen to demonstrate how new technology can blend with existing plans, municipal zoning requirements and contemporary Canadian home designs.

The challenge for the B.C. Advanced House team was to meet the tough design standards of EM & R's Advanced Houses Program. The goal was to build a house whose total purchased energy consumption would be half that of the R-2000 program (Canada's current energy efficient building standard) or less than 25% of the energy consumed by a conventional house of the same size.

The total projected energy consumption for space heating, domestic water heating, appliances, lighting and outdoor electricity was considered in the design. Actual consumption will be monitored by SAR Engineering for two years.

In meeting the energy efficiency goal, all components of the home were taken into account including the appliances, lighting, heating and ventilation systems, fireplace, insulation techniques and much more. In meeting the environmental challenge, the home incorporates water-saving devices, a facility for recycling, the choice for low emission materials, as well as a construction waste program.

Indoor environmental requirements include room-by-room ventilation, indoor air quality guidelines, noise limits and humidity control.

Features at the B.C. Advanced House include the following new building concepts and products:

### DESIGN

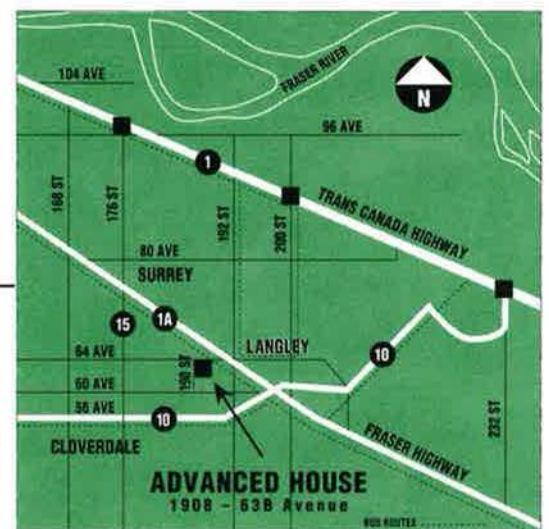
- Open plan to reflect casual West Coast lifestyles
- Smaller scale appearance, yet contains ample room (using the "room in the roof" concept)
- Maximizes solar gains
- Designed for changing family circumstances (i.e. media room could be a home office or a bedroom for elderly relatives; home office could be an extra bedroom or children's play area).
- Vaulted ceilings create visual interest and a greater sense of space.

### BUILDING ENVELOPE & STRUCTURAL COMPONENTS

- Prefabricated exterior walls
- Stressed skin panels for second floor walls, roof panels and floor;
- New products made from composite materials for roof tiles
- High performance windows
- Draft-free construction
- Engineered wood products
  - wood I joists
  - parallam

### SITE AND SERVICES

- Drain rock: glass/rock combination (uses recycled green glass)
- Aerobic digester (eliminates solid wastes from municipal sewers)
- Resource efficient landscaping
- Low water consumption planting (xeriscaping)
- Recycled rubber pavers
- Plumbing: low water consumption fixtures



### MECHANICAL

- Integrated mechanical system
- Solar domestic hot water system
- High efficiency heat recovery ventilator
- Occupancy sensors to control ventilation
- Zoned ventilation
- Radiant floor heat in tile areas
- Forced warm air heating
- High efficiency air filter
- High efficiency natural gas hot water tank for space and water heating

### ENERGY EFFICIENT APPLIANCES

- Sealed combustion natural gas range
- Efficient fridge
- Natural gas direct vent fireplace
- Natural gas barbeque

### HOME AUTOMATION

- C.EBus Home automation system to control:
  - all mechanical systems (indoor environment)
  - lights
  - communications
  - appliances
  - security
  - peak energy use load control
  - emergency systems

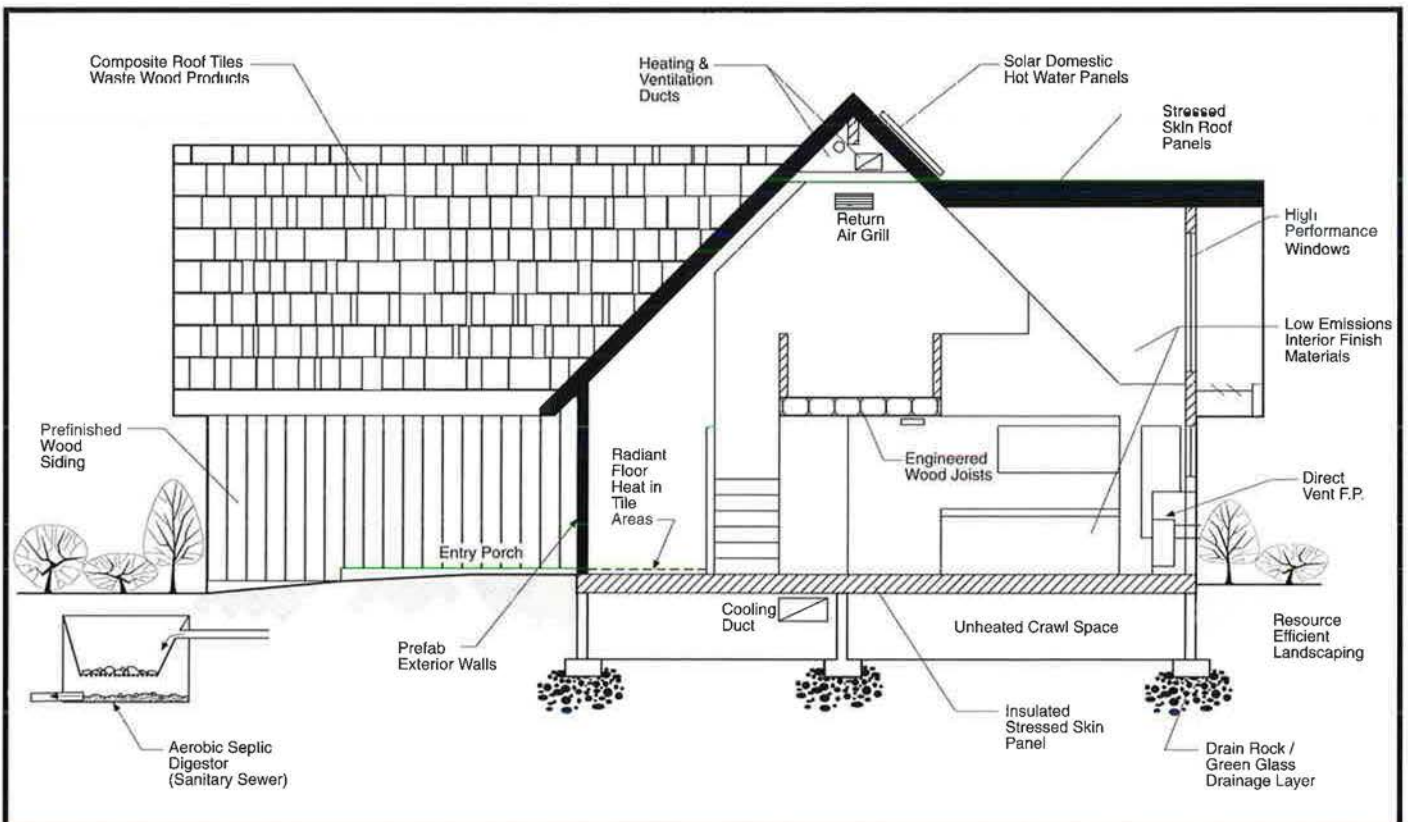
### ENERGY EFFICIENT LIGHT FIXTURES

- All light fixtures are energy efficient, high output, low wattage lamps

### HEALTHY INTERIOR FINISHES

- Low emissions, products and finishes (paints, floor finishes, carpets)

## ADVANCED HOUSE SECTION





## TECHNICAL INNOVATIONS

The British Columbia Advanced House incorporates a number of new products, technologies and innovative building ideas which are being, or are about to be, marketed throughout B.C. and all over the world. These include components which are both environmentally friendly and energy efficient. Through the incorporation of these products, the Advanced Houses are, in fact, the most environmentally friendly and energy efficient homes in Canada, using only one quarter of the energy and less than half the water used in a conventional home.

The B.C. Advanced House includes the following features:

### STRESSED SKIN PANEL CONSTRUCTION

The house utilizes prefabricated panelized construction, optimizing material utilization. Although it is not a standard West Coast construction method, the process has been known for some time, and to this end the B.C. Advanced House took advantage of the technology and incorporated several configurations into the construction.

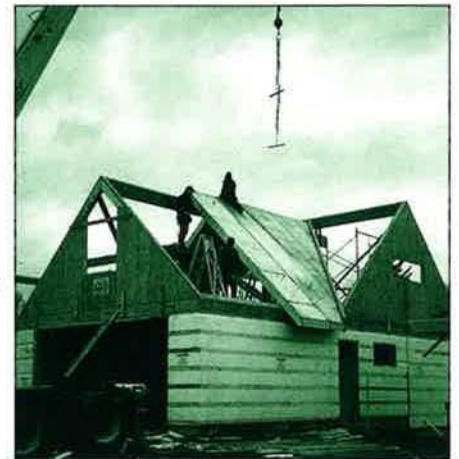
The construction of the roof, second floor walls, and main floor are stressed skin panels which were designed by Fast and Epp Partners Consulting Structural Engineers. Consisting of a polyurethane foam insulation core between two sheets of plywood, the factory-manufactured roof and second floor wall panels contribute to the overall strength of the structure, reducing the amount of lumber required. The insulation was blown with HCFC blowing agents, which are considered environmentally friendly. Polyurethane with CO<sub>2</sub> blowing agent (environmentally preferable) has now become available in the marketplace.

The advantage of stressed skin panels is that they provide very rigid and durable roof and wall construction and at the same time, reduce on-site construction time and exposure to weather. They create a very airtight building envelope using fewer studs and rafters. The 6" thick wall panels have an insulation value of RSI 5.45 (R31), and the 8" thick roof panels RSI 7.75 (R44).

The insulative properties do not stop at the walls and ceilings. The floors use 9½" thick engineered wood joists made by Trus Joist MacMillan Ltd. A variety of insulation schemes were used in the floor systems. The main floor panels are insulated with blown-in, loose fill, cellulose insulation for an insulation value of RSI 6.16 (R35). The second floor over the garage is insulated with solid expanded polystyrene (EPS) insulation blocks installed during panel assembly and trimmed to fit between the joists. The total insulation value for this section is RSI 6.16 (R35).



The main floor walls use the WhiteWall™ system, which is a factory assembled 8" thick wall system that incorporates the Superlock™ plastic locking strip which mechanically seals the 6" rigid EPS board to the 2x6 studs and top and bottom plates. The rigid insulation is trimmed to fit over the studs, creating a 2" cavity on the interior to allow for installation of electrical and plumbing services, while at the same time ensuring a minimum of 2" insulation on the outside of each stud. The cavity is insulated with batt insulation to add RSI 1.4 (R8) for a total wall insulation value of RSI 5.45 (R31).



### COMPARISON OF INSULATION VALUES

	Conventional Lower Mainland	Current R-2000	Advanced House
CEILING	RSI 4.9 (R28)	RSI 5.98 (R34)	RSI 7.74 (R44)
WALL	RSI 2.1 (R12)	RSI 3.52 (R20)	RSI 5.45 (R31)
EXPOSED FLOOR	RSI 4.9 (R28)	RSI 4.93 (R28)	RSI 6.16 (R35)
WINDOWS	double glazed clear glass metal spaces aluminum frame	doubled glazed clear glass metal spaces wood frame	triple glazed double low-E gas filled insulated spacers wood frame



### HIGH PERFORMANCE WINDOWS

Even though windows are normally the greatest source of heat loss in a home, the



B.C. Advanced House utilizes large glass areas to provide an abundance of natural light, even on overcast days.

Thanks to new high performance window technologies developed in the last few years, natural light need not be sacrificed even in exceptionally energy efficient homes. To this end, a new window currently being marketed by All Weather Windows has been used.

These wood frame high performance windows are triple-glazed, 1/2" air spaces, 2 layers coated with low-E coatings, argon gas-filled, with silicone foam insulating spacers separating the glass. Opening sash have krypton gas to achieve high R values with a narrower air space. Total average window R-value is RSI 0.82 (R4.7), a considerable improvement over the RSI 0.24 (R1.4) rating of a conventional double-glazed aluminum framed window (the type typically used in the Vancouver area).

### ROOFING: NEW COMPOSITE MATERIALS

The roof, as one of the home's dominant features, showcases a new made-in-B.C. technology that meets all the Advanced House Program criteria. Developed at the University of British Columbia, the roof tiles are made of a new cementitious composite



material incorporating C-MAX Technology Inc.'s patented process creating fire resistant, non-hazardous building products. The main ingredients are wood waste cellulose fibres and by-products of the fertilizer industry which chemically combine to create a new composite material that is both weather and fire resistant.

At the Advanced House, the wood fibres used in producing the tiles are made of waste products from local pulp mills. However, any cellulose fibres could be used including straw, sawdust or paper.

The product is half the weight of comparable concrete products and it has some of the benefits of wood fibre resilience. The tiles can be moulded into any shape or style. In keeping with the aesthetic motif of the neighbourhood, these particular tiles were made to resemble slate.

### SITE DRAINAGE

In an effort to create a market for recycled green glass (currently there is none in British Columbia), this project used a mixture of conventional drain rock with 40 per cent ground green glass under and around the perimeter of the house, as a drainage layer.

### PLUMBING

In recognition of the ever-increasing need for water conservation, the B.C. Advanced House has responded with a plumbing system designed to demonstrate that a very comfortable lifestyle can be maintained with low water consumption. In the bathrooms, for instance, six litres of water are used per toilet flush, rather than the standard 20 litres. The showers use low flow heads to reduce water consumption, and faucets have aerators.

Three electronically-controlled faucets (in the two bathrooms) have water temperature management sensors that are tied to the central home automation system, enabling faucets to be remotely controlled.



Thanks to Touch Tap™, developed by RANDOR Development Company and the brainchild of local inventor Mark Reed, something as simple as taking a shower, brushing your teeth or bathing the baby is now even safer and more energy efficient.

The house also features an odourless toilet developed by local inventor Henry Martens. The Ventex model toilet looks and works like a regular unit but has a small quiet in-line fan that draws about 5 L/s (10 cfm) through a standard PVC pipe vent directly to the outside, removing about 85 per cent less heated air from a home than a conventional bathroom ceiling fan. The system is complemented with a regular bathroom exhaust to vent general odors and humidity generated in the room.

#### APPLIANCES

When it comes to appliances, all are state-of-the-art and highly energy efficient. Some will be intelligent, working with the home automation system.

A prototype, direct vent, natural gas range developed by the Canadian Gas Research Institute, for example, has sealed combustion burners which do not have an open flame and use outdoor air for combustion. Combustion by-products are vented directly outdoors, improving the indoor air quality. The natural gas clothes dryer is controlled by a moisture sensor to minimize its running time and the refrigerator features the latest in energy efficient technology.

Appearing as a focal point within the great room is a direct vent, natural gas fireplace with a combustion circuit that is completely separated from the house so that outdoor air is used for gas combustion. The fireplace is connected to the home automation system and can also be used as an alternative source of heat in the event of a power failure.

Providing not only a convenient but environmentally responsible alternative to gasoline, is a natural gas refuelling appliance provided by BC Gas. It is located beside the

garage, enabling the homeowner to refuel natural gas powered vehicles at home.

The outdoor barbeque also uses natural gas, operating at about 25% the cost of propane.

#### SANITATION

A unique septic system reduces the solid waste delivered to the municipal sewer system by separating solid waste from liquids. (This means that there is less treatment required by the municipal waste treatment facility). The solids are decomposed by natural aerobic processes in a tank located under the front yard so that the city sewer system gets only the liquid waste materials.

Developed in California, it is a passive system that needs to be serviced only once every 20 years or so. The decomposed solids are then removed and used as compost.

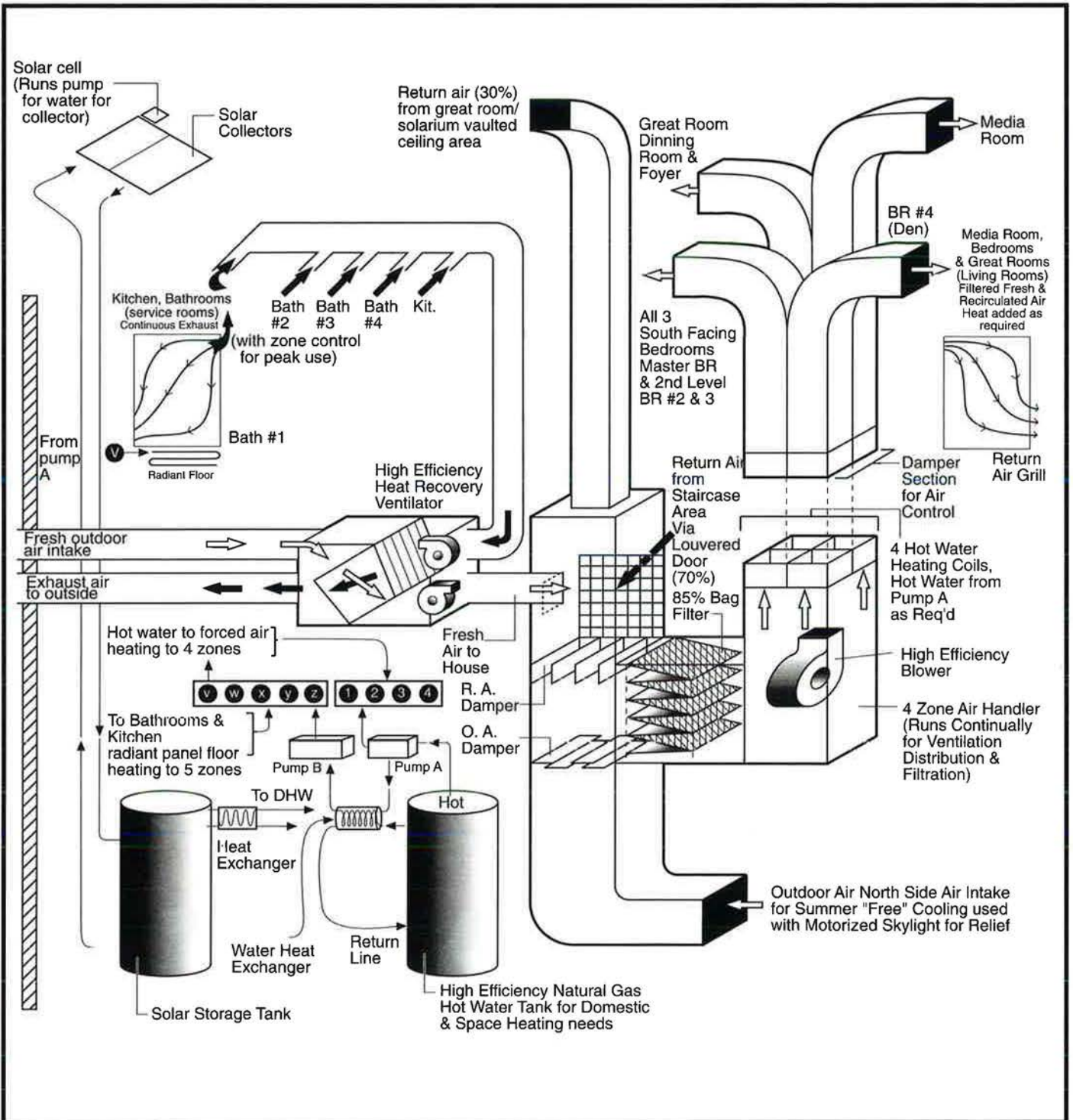


#### ENGINEERED WOOD PRODUCTS

Throughout the home, structural beams and floor joists are made from engineered wood products. Providing strength and dimensional stability, the engineered wood products also eliminate twist and shrinkage and are able to withstand loads far exceeding those of conventional lumber.



# ADVANCED HOUSE MECHANICAL SYSTEM SCHEMATIC





In areas where the structure requires larger beams, parallel strand lumber (Parallam), a layered and laminated wood product developed by MacMillan Bloedel Ltd., that also withstands shrinkage and twisting and is able to take on large loads, has been incorporated into the structure.

### AIR CIRCULATION

A highly advanced circulation system offers a number of benefits. First, the house is divided into four zones so that air circulation can be maximized meaning that heat and ventilation are directed to the areas where they are required. Second, a high efficiency bag filter captures most particles in the air, and third, the kitchen and bathrooms are continuously exhausted.

Additionally, a high efficiency heat recovery ventilator optimizes the energy efficiency of the home ventilation system. Fresh outdoor air is delivered directly to the circulating air. The exhaust stream is controlled by a new special motorized damper developed by Eneready Products of Burnaby to efficiently direct stale air from those areas requiring higher rates of exhaust.

Cold water is heated by the solar system before it goes into the high efficiency natural gas hot water tank.

The solar system is capable of producing up to 50% of the annual domestic hot water needs of the house. If the interior overheats in the summer, an outdoor air damper opens and cooler outdoor air is drawn in from the north side of the house. The motorized skylight on the second floor opens to passively exhaust the air.

### RECYCLING

To aid in the management of household wastes, a recycling station is incorporated in the kitchen.

Recycled products have been incorporated in a number of other areas. A new interlocking paving brick (Rubberloc Pavers) made from

recycled rubber tires is used for the patio and on the garden paths. The drywall (manufactured by Domtar) contains recycled gypsum collected as scrap material from other construction sites. The deck off the master bedroom is made with a plastic wood locally manufactured product that uses recycled plastics like milk jugs and yogurt containers.

### HEATING/VENTILATION

The heating and ventilation system is a state-of-the-art, integrated mechanical system offering interior climate control for comfort, health and energy efficiency.

The climate control system provides winter space heating, summertime cooling, air circulation, filtration, and ventilation. Space heating is provided by a combination of radiant floor heat in the bathrooms and kitchen and forced warm air in the other rooms.

A high efficiency natural gas hot water tank provides space heating and domestic hot water needs. A solar water heater system contributes about 50% of the home's annual domestic hot water. The pump on the solar system is powered only by a solar (photovoltaic) panel mounted on the roof.

### ELECTRICITY USAGE

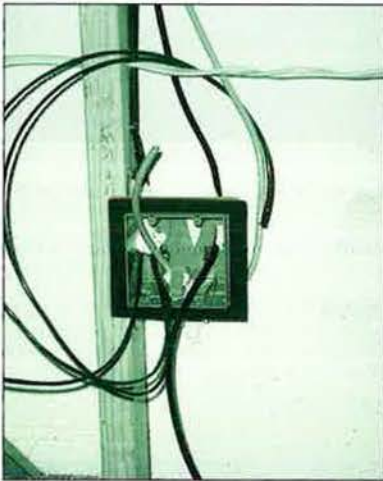
The electrical system, designed by B.C. Hydro, demonstrates that a residence can be fed from a 60 amp service (which is less than half the normal load of a typical house) and that significant cost savings are possible in houses that have smaller service requirements.





Other objectives are:

- to simulate the operation of electrical appliances in the residence to show that this can be done with a smaller service than the usual 200 amp. service
- to demonstrate how, during periods of peak loads, intelligent appliances can reduce or restrict consumption to further the effect of different electrical tariffs
- to help in the development of appliances and controls which are more efficient
- to investigate the benefits for electrical end-use when appliances "talk" for load control and occupant comfort
- to determine the advantages and disadvantages in using communications systems for device control
- to investigate alternate communications systems for larger housing developments
- and to help in the development of automated controls.



A second photovoltaic powered system pumps rainwater collected in a cistern located under the terrace to water the garden.

### LIGHTING

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Power Smart energy efficient lighting is used throughout the Advanced House.

The average light output of all light fixtures used is greater than 40 lumens per watt. (A conventional 100 watt incandescent lamp has a light output of 15 lumens per watt.)

This demonstrates that high lighting levels in a pleasing design can be had with lamps that draw much less energy than conventional incandescent lamps.

The goal for the home was to ensure that the total installed lighting capacity not consume more electricity than 8 watts per square metre. (75 watts per 100 square feet)

### INTERIOR FINISHES

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The sick building syndrome can extend to single family homes. Materials that release toxic chemicals such as urea formaldehyde and volatile organic compounds (VOCs) contribute to it. Commonly found in drapes, fabrics and glued wood products, they can seriously affect a home's indoor air quality. With this in mind, the interior materials and finishes selected for the Advanced House were carefully chosen to keep pollutant sources low.

All the cabinets in the kitchen and bathroom are made of medite 2, a stable non-off-gasing composite board. Glues used are water based, as are all wood and lacquer finishes. The granite counter top uses no binders. Cabinets in the home were supplied by Enviro Safe 2000, a cabinet manufacturer specializing in this type of millwork.

Other non-polluting products used include water-based interior paints (Lifemaster 2000 by Glidden Paint). The hardwood floors manufactured in Penticton use formaldehyde free substrates, water based adhesives and fume free prefinished coatings. The ceramic and glass tiles are stable products manufactured in Burnaby.

Kiln-dried pre-finished cedar siding coated with a non-toxic acrylic was used outside. Developed by Olympic Stains, the new siding also enhances and protects the wood's durability. The Classic Coat cedar siding is distributed by MacMillan Bloedel and carries a 15-30 year warranty.

### INTERIOR DESIGN

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Despite its advanced design components, automation system and state-of-the-art electronics, the Advanced House is still a home. Diane Quintin, of Design Plus Consultants, put together decor that is meant to project a cozy, homey feeling in an effort to counteract the "advanced" feel of the inherent technology.

"The Advanced House was a challenging project for a number of reasons," says Diane.



"Because it is a demonstration home, the interior had to be designed to withstand constant traffic; to provide space for seminars, employee training, and client functions; and ultimately to be transformed into a single family home."

The interior design had to address all these concerns as well as enhance the demonstration of energy efficient technologies, reduced resource use levels and environmentally friendly building techniques designed for the occupants' improved health and well being.

#### HOME AUTOMATION

Home automation has begun and the B.C. Advanced House is leading the way with the first demonstration of the CEBus home automation system. Home automation provides a communication system whereby appliances "talk" to each other to share power loads and manage household appliances and security systems.

With the CEBus system, appliances communicate with each other through messages sent over the telephone and regular power lines as well as infra-red and fibre optics, so that if the doorbell or telephone rings, for instance, while the vacuum cleaner is on, the vacuum will automatically stop. Although it may sound futuristic, the pre-wiring required for the CEBus system is, in fact, modest and well suited for renovations.

Home automation has significant benefits for the elderly and handicapped user. It assists a disabled individual to achieve independence within his or her own home.

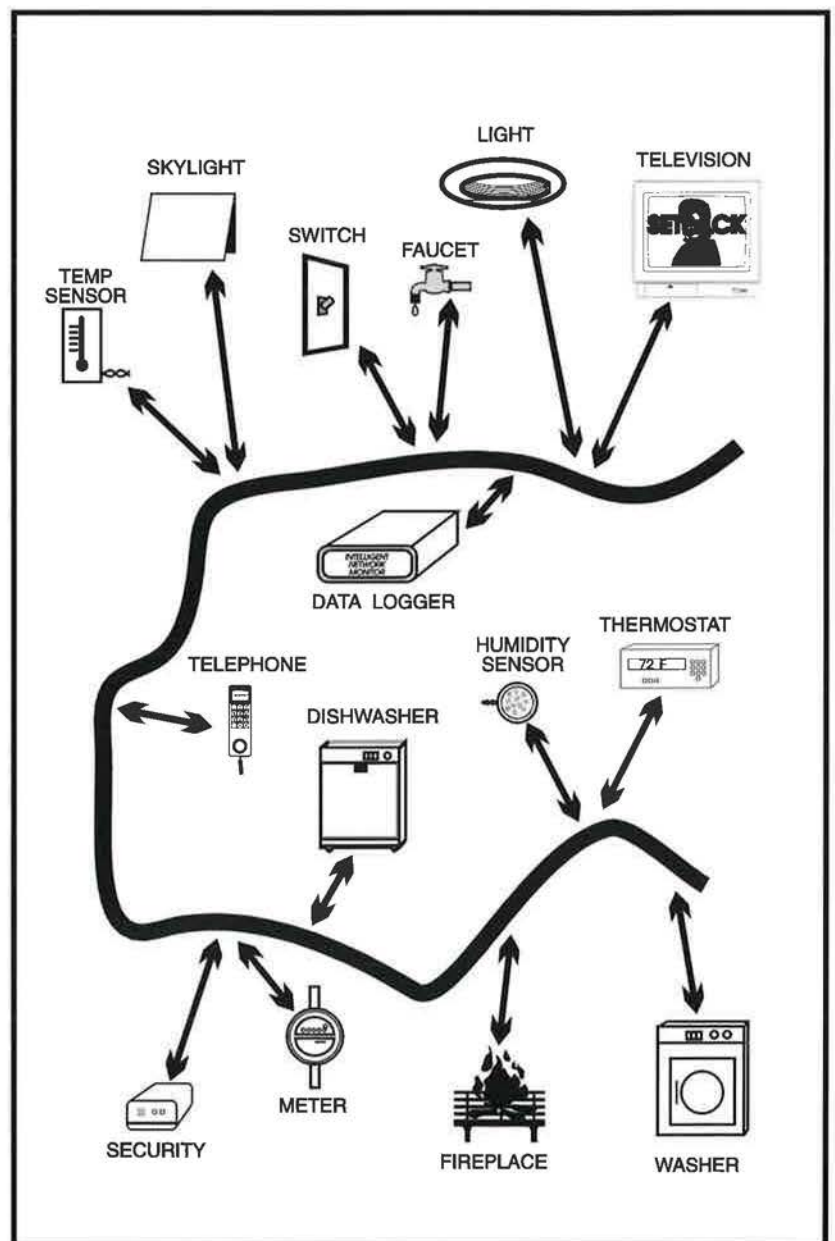
Extra security can be provided when the house is vacant by the random control of lights and appliances to simulate an occupied condition.

The goodbye instruction, when leaving the house, tells the system what should be turned off or on by pre-programming. (It can check

to see if the coffee pot or oven has been turned off.)

A "good night" routine enables lights to be turned off as the occupants retire for the

## CEBus HOME AUTOMATION



night, perhaps leaving one low-level light on for safety.

The home automation system for the Advanced House was co-ordinated by Ludo Bertsch of Horizon Technologies Inc. Home automation is of special interest to the BC TEL project team that was assembled to work with Advanced House technicians. The team sees the house as an ideal site for testing remote metre reading and other communication applications.

BC Gas is assessing the interaction of natural gas appliances and the CEBus home automation system as part of an air quality study.

#### WASTE MANAGEMENT

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Keeping in mind that the construction of a typical single family home produces 2.5 tonnes of waste, waste management was an important consideration in the planning and construction of the B.C. Advanced House.

A comprehensive waste management program based on the three R's – reduce, reuse, and recycle was undertaken to lessen the impact of house construction and operation.

By choosing to build with prefabricated components and through the use of premanufactured elements such as roof, walls and floor panels the quantity of materials used on site was greatly reduced.

Much of the waste wood went to other construction sites while recyclable materials were taken to a recycling facility.

The end result was a construction site with less waste than on a normal site.

#### LANDSCAPING APPROACH

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The landscape design of the B.C. Advanced House mirrors a number of the key principles of energy and resource efficiency.

Richard Stevenson and Jonathan Losee of Vancouver-based Stevenson Losee Landscape Architects have incorporated these principles into the landscape plan in a variety of ways.

They include:

- Storage and reuse of existing topsoil and amendments to existing soil using recycled organic compost.
- Water conservation by use of drought tolerant plant selection, drip irrigation and collected rain water;
- Habitat creation for birds and butterflies;
- Use of food-producing plant materials;
- Native plant materials for self-sustaining plantings;
- Reduction in quantity of processed materials;
- Recycling and use of local landscape materials;
- Reduction of hard impermeable surface areas, use of porous concrete or unit pavers;
- Solar powered pump for irrigation system.
- Rain water collected from downspouts and stored in a water retention pond and in a cistern for garden irrigation during periods of drought.





Plants are zoned according to water requirements, and drip irrigation is installed for high water use areas.

Alternatives to traditional lawn areas are used in the landscape, such as drought tolerant perennials, evergreen groundcover, native groundcover and ornamental grasses.

Separating the house from the street and acting as a long-term, low-maintenance alternative to wooden fencing is an evergreen hedge and instead of the typical lawn, the front yard boasts a Native Garden which provides food and shelter for a variety of birds. Fruit and nut producing trees are planted along the west boulevard, affording an abundance of shade to the home during the summer months.

Herbs, flowers and vegetables can be grown in the back yard and a trellis on the south wall supports deciduous clematis vines providing window shade in the summer, while allowing the sun to filter through in the winter.

Raised bed vegetable garden plots built from recycled plastic timber are provided along with a rodent-resistant compost bin and throughout the backyard are plants that are both edible and ornamental.

The patio paving is made of a new material using recycled rubber tires as interlocking paving stones that are tough yet resilient. The driveway paving stones create a solid paving surface that allows a large portion of surface water to drain through.

The deck leading off the master bedroom is made of plastic wood. Manufactured in Vancouver from recycled waste plastics, it is a durable material that needs no additional treatment or finishing.

### **VISITOR DONATIONS HELP ORPHANS' FUND**

There's an added benefit to a visit to the B.C. Advanced House.

Visitors to the Advanced House have an opportunity to help children in need through a contribution to the CKNW Orphans' Fund,

which the station has operated since 1945. (The station absorbs 100 per cent of the fund's operating costs.)

"Every cent of the money contributed by visitors to the Advanced House will go to help the children," said John Plul, CKNW's Vice President, Promotions. So when you visit the Advanced House, look for the CKNW Orphans' Fund donation receptacle.

CKNW is also promoting the Advanced House through a series of remote broadcasts, on-location interviews and public service announcements throughout the year while the house is open for viewing.

B.C.'s largest radio station joins the Vancouver Sun and U-TV as major media sponsors of the B.C. Advanced House.

### **ADVANCED HOUSE A LEARNING EXPERIENCE**

There's a strong educational component to the house, as both the public and those involved in the home building industry will learn from the Advanced House experience.

In addition to hosting a year-long open house featuring public tours, the house will become the site for seminars designed to provide industry representatives with detailed information on new and innovative building ideas, many of which are featured in the Advanced House.

The Advanced House will also play host at various times during the year to delegates attending conferences and special events in this area, including delegates to a major international technical conference on Innovative Housing in June 1993 in Vancouver.

For information on industry seminars scheduled at the Advanced House:

**CONTACT THE ADVANCED HOUSE SOCIETY OF B.C.**

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## PROJECT TEAM

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*Project Manager and Architect*

### CORTEZ ENERGY EFFICIENT HOMES

**Warren Jones**  
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Tel: 538-1754  
*Construction Manager*

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#201-1672 West 1st Avenue  
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Tel: 731-7412  
*Structural Engineering*

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**Richard Stevenson and Jonathan Losee**  
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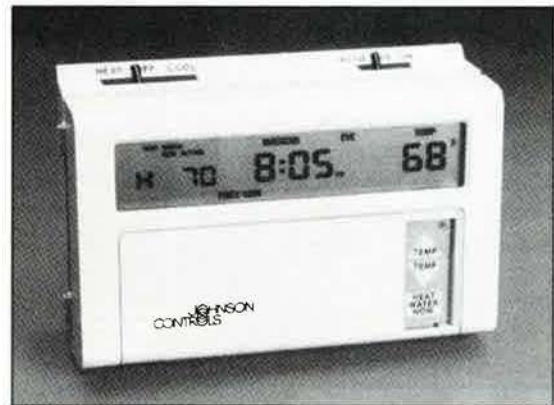
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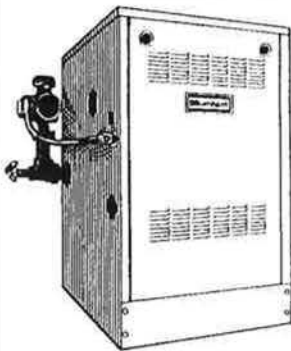
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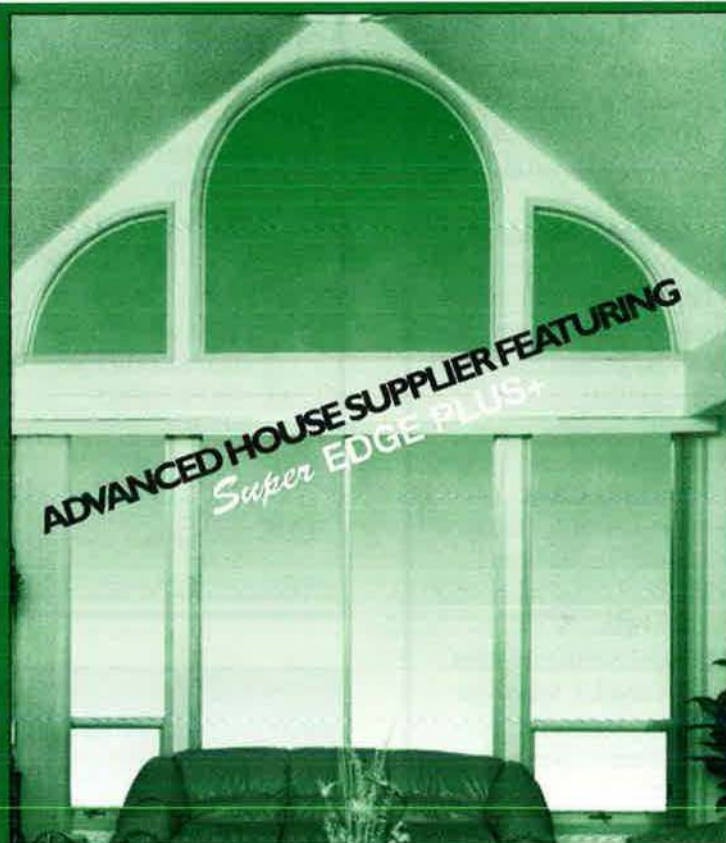
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