

Insanity

Building California style housing on a
sub - arctic plain.

Harold Orr Order of Canada

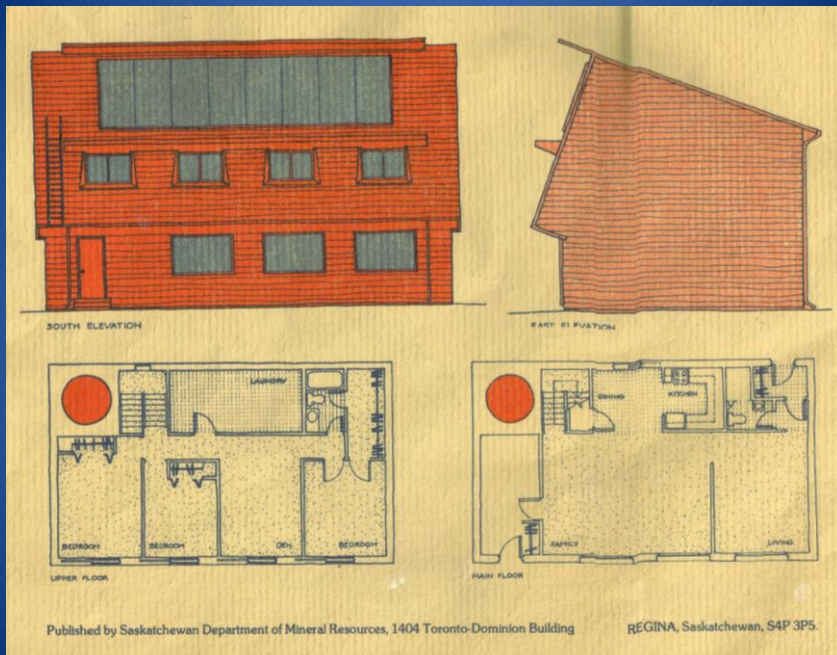


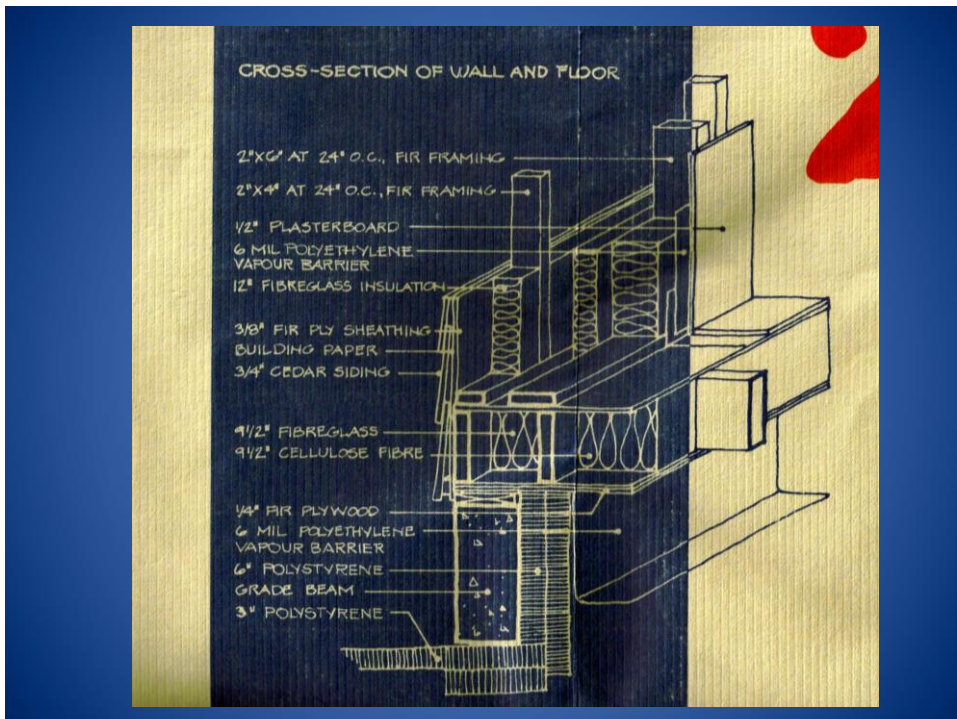
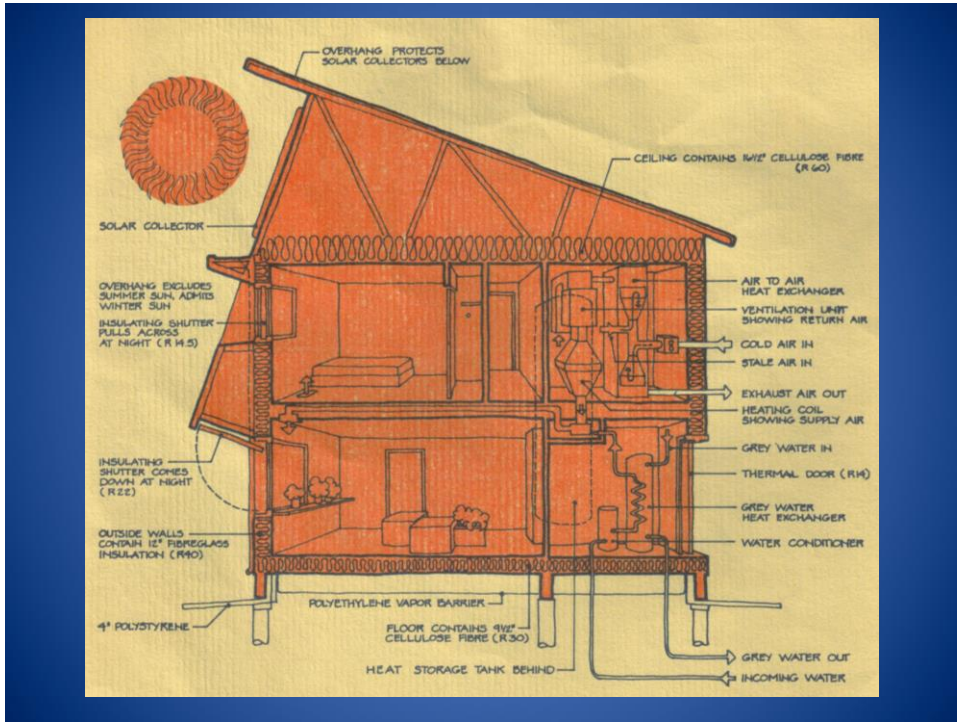
The Saskatchewan Conservation House

was built in 1977 was one of the first energy conservation demo houses in North America. Over 30,000 people toured the two-storey structure; cubicle in shape, airtight, and equipped with a heat recycling system.

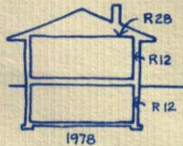


It had no furnace; instead, the house was heated with a solar heating system designed specifically for Saskatchewan's extreme climate.





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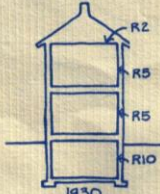


1978

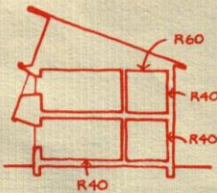
super-insulation

The Conservation House is wrapped in a giant sleeping bag of insulation. The walls are insulated to R40*, the ceiling to R60 and the floors to R40 (R30 plus natural "ground effect"). This is more than double the current standards of R12 (walls), R28 (ceiling) and R12(floor) — and triple the amount in most houses.

The walls are stuffed with three thick layers of fiberglass batts — one 6" thick and two 3.5". To accommodate all this, the walls are 12" wide and consist of two separate frames of 2 x 4 studs (2 x 6 on



1930



R60
R40
R40

loadbearing walls) on 24" centres. A standard wall is a single frame of 2 x 4s on 16" centres.

The floor and attic are insulated with cellulose fibre, an energy-conserving material made of recycled paper processed in Saskatchewan.

The fibre was blown in to a depth of 16½" in the attic, 9½" in the floor. To provide enough space, 2 x 10 joists were used in the floor.

All this adds to the cost of the house. But it will pay off, over the long term, in lower fuel bills. In an energy-short economy, a good general rule is the more insulation the better.

* The R-value is an index of resistance to heat loss. The higher the R-value, the greater the resistance to heat loss.

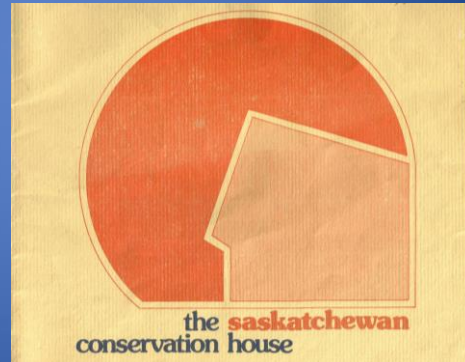
Innovative Features of the Saskatchewan Conservation House

1. High Insulation levels:
 - Attic R60 cellulose insulation
 - Walls R 44 glass fiber batt
 - Floor R 30 in joist cavity using cellulose insulation
2. Very well sealed roof, walls and floor
(0.8 air changes per hour at 50 pascals)
3. First plastic surface air to air heat exchanger in Canada
4. Insulating shutters on most of the windows
5. Gray water heat exchanger
6. Vacuum tube solar collectors with a 2900 US gallons water storage tank for heat

Overall Lessons

Simple is better than complicated

Passive is better than active



The cornerstones

- More insulation
- Better air tightness
- Good ventilation

What followed

- Blower doors
- HRVs
- HOTCAN > HOT2000
- Saskatoon Parade of Homes
- SEEH > R2000
- EMR > NRCan

What made it work

- Government and industry working together with a solid science underpinning
- The science guys – SRC (Orr, Dumont, Vanee)
NRC (the Prairie Research Station, Hutchison, Handegord), Timisk, Onysko, Burnett, Yuill