AT HOME

Editor: Liz Pogue > Telephone: 250-380-5373 > E-mail: features@tc.canwest.com

RESTORATION

Turning green with age

House gets technology, new look that respects its Edwardian style

PEDRO ARRAIS
Times Colonist

It can be argued the greenest building is the one still standing. Demolition and the demand for new materials to build a new house contributes to overall greenhouse gas emissions. Perhaps surprisingly, retrofitting an existing building can be comparable to building new.

Preserving the character-defining elements of a heritage house is nothing new. The challenge faced by owners today is how to incorporate the latest green building technology into heritage conservation.

"It's the ultimate dance," says Dave Coulson, president and senior designer of Dave Coulson Design, who has more than 25 years experience in heritage restorations — his résumé includes preservation work at Emily Carr House. "When you apply 'adaptive reuse' to a heritage structure you can address energy efficiency concerns while retaining the character of the house."

He says a big challenge is to get the house through all the necessary upgrades and not break the bank. Results of a recent green restoration in Victoria saw final construction costs to be about $250 a square foot. Those costs include hand-built cabinetry, fibe-optic wiring and a high level of detailing.

"Hopefully this will dispel the myth that new construction is cheaper," Coulson says.

Before the restoration, the 99-year-old, two-storey, three-bedroom house showed problems typical of its age. On top of that, previous owners had carried out ill-advised renovations, such as the removal of important load-bearing walls and posts, which compromised the house's structural integrity.

DARREN STONE, TC
A geothermal wellhead to bring heat from the Earth.

DARREN STONE, TIMES COLONIST
This old house has the latest fibre-optic wiring.

TIMES COLONIST ARCHIVE
Dave Coulson is renowned for heritage restorations.

Air leakage and minimal insulation in the 2,700-square-foot structure resulted in very high energy usage. According the Natural Resources Canada's EnerGuide rating, an older house that has not been upgraded will have a rating between zero and 50.

To reduce fuel costs, Coulson installed a geothermal heat pump to supply the home heating needs. The house now uses a radiant heating system. He used a blown-in soy-based polyurethane insulation and sealed the house with a vapour barrier. A heat recovery ventilator was added, with the unit installed all on the back of the building, where it cannot be seen from the street.

The house now boasts solar hot water with photovoltaic panels for some of the house's electrical needs. Gas inserts in fireplaces replace inefficient wood-burning units. The house has parallel electrical systems that allow for a future photovoltaic system or generator add-on.

DARREN STONE, TIMES COLONIST
The owners didn't sacrifice the home's Edwardian charm to get a bright, modern look.

To reduce the family's exposure to electromagnetic fields and further reduce electrical consumption, a whole-house kill switch shuts off all electrical current at night.

Windows were repaired or replaced — broken leaded glass was replaced with vintage glass. Double pane, argon-filled low-emissive coated glass in wooden frames was added, although many of the original, main floor windows remain single-pane but with refurbished frames.

With all these measures, the house has been tested at an EnerGuide rating of 80, meaning the house falls within the top five per cent of energy-efficient homes, according to Natural Resources Canada.

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