



# Are basements really necessary?

**A Swedish-designed house foundation system eliminates the need for a furnace or building a basement, a benefit for retired people who don't want to climb stairs.** By Albert Warson

"Basements," says Otto Wyga, a Guelph, Ont. general contractor, "are nothing but trouble," which explains why eight years ago he built his own 1,800-sq.-ft. bungalow on a slab-on-grade, radiant-heated floor system just six inches down on his property.

The tradeoff for sacrificing the basement, he says, is that, among other things, the system saves money on the cost of construction, is more energy efficient, doesn't produce mold or mildew, contaminants and odours and is more comfortable.

"It's a simple system, easy to work with, and cheaper than building a basement," he says of Legalett, which means "floating on the land" in Sweden, where it was developed about 30 years ago.

Scott Perry, president of Legalett Inc., based in Long Sault, Ont. and the North American distributor, says the cost saved by not building a basement in a 1,000-sq.-ft. house can cover the cost of a 500-sq.-ft. surface addition, creating "daylight storage" space and many of the other functions normally found in basements.

It is set on a bed of gravel covered by six inches of polystyrene insulation. The operative part is an eight-inch concrete slab embedded with four-inch hot air or hot water heating ducts and coils which produce warm floors and even temperatures. No need for a furnace. All that's needed is space for a hot water heater, nor is there any wasted energy, says Wyga.

His house incorporates walls of insulated concrete forms, which he says creates a total insulation package and a "phenomenal" comfort level. While it is possible to add air conditioning he says he doesn't have it. "The concrete in the walls cools the house down late afternoon in the summer in about 20 minutes." Besides, his house has large windows to catch breezes.

Perry also notes that in the absence of a basement there are no

expensive repairs for leaks in the basement, no risk of flooding from failed sump pumps and therefore no need for insurance for those risks, including for the contractors.

"How many people actually use their basements," he says. "People want the outdoors and sunlight." Except for those who want a recreation room, laundry room, storage space, possibly an apartment that can be rented, which may explain why the concept isn't sweeping the country but slowly gaining popularity.

And since there is no furnace to break down or replace the only repair would be a fan and heat exchanger, which are easy to access and inexpensive to replace.

Charlene Zandbelt, an architectural technologist with Tucker Design, Winchester (near Ottawa), says her firm has designed a few homes with Legalett systems for couples already retired or nearing retirement. They prefer not to climb stairs.

"You don't have to worry about footings or frost protection in the basement," she says. "The footings are engineered to maintain a steady temperature. There is no need for a radiant-heated second floor because the main floor generates enough warmth, which of course rises.

Chuck Vrana, a retired airline pilot, built a 2,300-sq.-ft. bungalow near Cornwall with the system and has lived in it since March 2004. In his case, it is a split-level version, with a one-storey front elevation at grade and rear elevation down four feet. "Half the basement is used for living space and half for storage, mechanical systems and a workshop," he says.

Perry says the concept has become particularly popular in Sweden since 1990 and is selling well in other European countries and in Japan.