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EDITOR: JANET VLIEG, 498-5687;

jvlieg@thejournal.ca

EDMONTON JOURNAL

SATURDAY, APRIL 8, 2006

Solid to the core

A cement boom is lowered into place during construction of a home in Leduc by SBC Construction Services.

Energy savings and soundproofing are big selling points for constructing homes with insulating concrete forms, say builders

JANE CARDILLO
Special to The Journal
EDMONTON

A warehouse is the last thing that comes to mind when strolling past a charming Colonial-style home in Edmonton's stately Glenora neighbourhood.

But that's what the teenage daughter of the home's prospective buyers pictured when she learned the dwelling was made of concrete.

"We told our daughter that it was concrete and she thought it was going to look like a warehouse inside," says Jeff with a laugh. The homeowner, who did not want his real name used, lives in the house with his wife and daughter. The 15-year-old was pleasantly surprised when she walked through the door.

"It's gorgeous inside," says Jeff. Deep window sills lend an air of early 20th-century grace to this brand-new, two-storey. There's a cozy eating nook off the ultra-modern kitchen and the spacious living room leads into a formal dining room. Brazilian tigerwood floors gleam underfoot. Outside, a covered front verandah

beckons invitingly, while blue-grey siding, the colour of a sleepy ocean, gives the home a slightly weathered look and allows it to fit seamlessly in among the neighbourhood's much older houses.

The house, by Dabro Homes, won honourable mention for design excellence from the Cement Association of Canada at the Canadian Home Builders Association conference this February in Lake Louise.

The award is given to a residential project that makes extensive use of concrete construction while demonstrating outstanding design and functionality.

Where is the concrete in this home? It's certainly not visible inside or outside.

It's all behind the walls, says Darren Graff of Dabro Homes.

"From the outside it looks like any other home," Graff says.

But between the interior walls and exterior siding, conventional woodframe construction has been replaced by interlocking, lightweight polystyrene blocks — the same material used to make disposable coffee cups — that stretch from foundation to rafters.

Concrete is poured into the cubes, which remain in place to provide insulation and attachment surfaces for interior and exterior wall finishings.

The end result is a highly energy-efficient house that puts woodframe dwellings to shame.

"Overall, ICF (insulated concrete form) buildings are 44 per cent cheaper to heat in the winter and 32 per cent cheaper to cool in the summer," says Graff who likens the construction to a solid concrete envelope wrapped around the home.

"So basically, what we tell our customers is, 'We'll cut your energy bills in half.'"

The walls have insulation values comparable to R-50. To put it in perspective, R-24 is considered a good insulation value in a conventionally built house.

Concrete's ability to absorb and store the sun's heat is what makes it such an excellent insulator.

"It takes a long time for concrete to heat up and cool down," says Graff. "So that gives you a constant indoor temperature. Rather than having peaks and lows during the night and day, you get an inside temperature that stays the same."

Jeff says that's the case with his home. "In the winter it's been most toasty. It seems like once the house is warmed up then we can keep the temperature down and it seems to retain its warmth."

In the summer, the house stays cool. "It's not air-conditioned, but it is much cooler than a regular home because of the inflated walls," says Jeff. "It can retain the heat in the wintertime but in the summer it repels the heat."

Because there's minimal air leakage in a concrete home, a heat-recovery ventilation system is a necessity, says Graff. The mechanical system exhausts the home's stale air and replaces it with outside air. In winter, the system warms the cold incoming air.

In the summer, says Graff, the heat-transferring unit works the opposite way. "The heat is taken out of the warm air coming in."

The energy efficient qualities of the Glenora home have not gone unnoticed by the Edmonton Region Home Builders Association which bestowed on it a SAM award for energy efficiency at its recent awards night.

The lavish ceremonies, held annually, are the association's way of paying homage to the best of the best in the Greater Edmonton home building industry.

"It (the insulating concrete forms) obviously increased the insulation," says association president Peter Jackson.

Concrete homes have another advantage over their stick-frame counterparts. They are much quieter. A home using insulated concrete forms has a sound transmission classification — or STC — of 50. A wood-frame building has a rating of 25.

"Our walls are twice as quiet," says Graff. "A comparison that we often tell people is the walls in movie theatres between the theatres have an STC of 50."

Noise reduction is something Jim and Jen Durlsting notice in their concrete

house in Calmar, south of Edmonton, built by SBC Concrete Services Ltd.

"It's definitely quieter," Jim Durlsting says. "We do not get the road noise that I noticed in stick-frame houses or two-by-six walls."

Clayton Reitzel, president of Edmonton-based SBC, says his company is in the process of building a 3,064-square-foot insulated concrete form showhome in Leduc. It will boast such features as a curved staircase, walk-out basement and a three-storey-high turret.

Besides the stunning architecture, it's the energy efficiency and sound-deadening qualities of the house that set it apart.

"You don't hear any road noise or, this project being very close to the airport, you won't hear the airplanes," Reitzel says.

Both Reitzel and Graff estimate that it costs about eight per cent more to build a home with insulated concrete forms, but the payback in energy savings makes it worthwhile.

Reitzel asked a client about heating bills after his first winter in a concrete house.

"He (the homeowner) said the worst month was \$48," Reitzel chuckles.

Dabro Homes is taking energy efficiency to another level with construction of its new showhome in the Crestwood neighbourhood.

The insulated concrete form house has two solar panels on the roof.

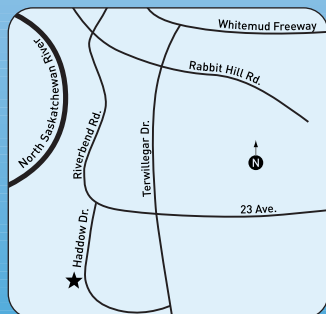
See CONCRETE / J2



The building process involves pouring cement into polystyrene forms, which remain in place as part of the walls.



Walls of solid concrete aren't visible in this award-winning Dabro Homes house.



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