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A firm foundation

Today's improved insulation choices may not be evident when 'viewing' a new home but you'll notice a difference in comfortable living every day — and reduced heating costs.

By Les Walker

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The traditional concrete foundation wall, with no insulation, is disappearing from building sites.

Bonnie Bobryk Photography

Perhaps one of the most important areas of today's eco-aware efficient homes is that portion not readily on view when discussing 'curb appeal' — the basement.

"Impending building codes dictating higher insulation values and enhanced energy-savings have focused increased contractor and client attention on this first step in home building," explains Craig Beazley, president of Beazley Homes and Developments Ltd., Mount Uniacke. "The traditional concrete foundation wall, with no insulation, is disappearing from building sites. Indeed, old technology is no longer welcomed by new buyers. The industry, its builders and home

buyers are demanding improved foundation insulation. Fortunately, as construction products and practice technologies advance, there is a wider selection of choices on the market, and more on the horizon."

Categorizing common foundation insulation choices, he selects five.

"Number one is ICF (Insulated Concrete Forms)," he says. "It's tops for a dry, habitable basement free from mould and mildew. The forms comprise rigid expanded polystyrene (EPS) interlocking, modular units dry-stacked (without mortar). Concrete is pumped into the cavity to form the structural element of the foundation wall. Once concrete has firmed up, forms remain in place permanently."

ICF, he says, provides structure, thermal and acoustic insulation, a vapour barrier, accommodates electrical conduit and plumbing installation, backing for wallboard inside, and brick or siding outside.

"Overall, ICF provides an 11" wall (depending on design characteristics), rated at an energy-efficient, heat-saving R22 — one of the principle reasons for its popularity."

Number two choice, says Beazley, is a studded wall cavity on the interior of a traditional foundation filled with closed cell expandable spray foam insulation applied directly to the foundation wall.

"It doesn't require a vapour barrier and can be covered by wallboard. Benefits include stopping air and moisture infiltration and energy cost savings." In addition, this product can also be applied to the exterior of the foundation as well.

Third on his list is rigid foam insulation. Glued on the interior of the foundation basement walls, it is then studded and the cavities filled with batt insulation, vapour barrier applied and then covered with wallboard.

"You can also increase insulation values by applying rigid insulation to the exterior of the foundation."

Four, he suggests, is Tyvek HomeWrap® - Air Barrier Material™. Unlike rigid foam, which is applied to the interior of the concrete walls, Tyvek is applied directly to the wood framing, separating the two. "It combats

water, moisture and air infiltration, deters development of mould, mildew and wood rot, and ensures a more comfortable, energy-efficient home by preventing the contact of batt insulation and the foundation wall."

A fifth suggestion, adds Beazley, is Floor slab insulation.

"It meets new code standards and is highly energy efficient. Two inches of rigid slab insulation (typical) is laid on a prepared area before pouring concrete. With additional layers, slab insulation can deliver R20 to R30 values."

Today's energy and-cost-conscious home buyers and builders "are acutely conscious of the demand and requirement for energy-efficient residences. An un-insulated foundation can result in large heat loss and make below-grade rooms uncomfortable despite an otherwise tightly sealed, well-insulated house."

Foundation insulation, he says, can lower heating requirements by diminishing water vapour condensation, which is often caused by temperature differences between the basement interior and foundation exterior. "Exterior insulation can curb heat loss through the foundation, protect damp proofing coating from damage during back-filling, and serve as a capillary break to moisture intrusion. It also protects your foundation from the effects of the annual freeze-thaw cycle, and reduces potential for condensation on basement surfaces."

Today's improved insulation choices may not be evident when 'viewing' a new home but, says Beazley, "You'll notice a great difference in comfortable living every day, and reduced heating costs every month."