

# Why Radiant Heating feels so good



## WARMTH WHERE IT MATTERS

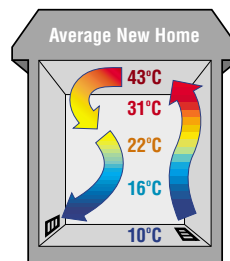
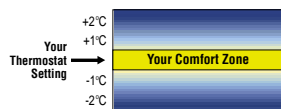
In-floor radiant heating puts warmth where it matters most – under your feet. By delivering a constant, even temperature, radiant heat increases your comfort while keeping heating costs down.

In homes with forced-air heating, the temperature at the ceiling can be extremely warm, while the floor may be cold.

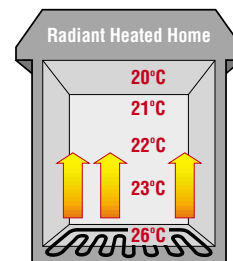
## RADIANT COMFORT – NOT HOT AIR

Wood stoves and fireplaces give off soothing warmth you can feel. That's radiant heat! Radiant energy travels through the air and produces heat when it reaches an object. In-floor radiant heating systems use this principle to deliver exceptional comfort that hot-air heating simply can't match.

With radiant heating, your home is silently warmed by heated water flowing through a network of tubing



With hot-air heating, room temperature varies. Your head can be hot while your feet are cold.



In-floor radiant heating provides even warmth and eliminates draft.

embedded in the floor. The heat from the water is absorbed by the concrete sub-floor and then radiated gently upwards. You feel warmth, not hot air.

## IN THE COMFORT ZONE

Radiant heating keeps the temperature in your home steady. The concrete floor's thermal mass holds heat and releases it slowly over time. Advanced electronic controls ensure this heat is replenished before you notice a drop in temperature.

The result? Reduced temperature fluctuation that means greater comfort, warm floors *and* warm feet.

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# How Radiant Heating works

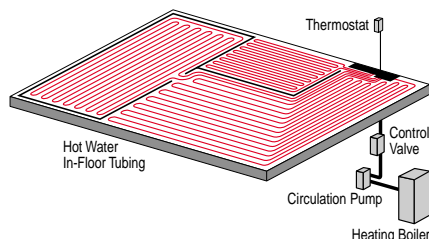


## THE NEXT STEP IN HOME HEATING

Dependable warm-water radiant heating has been used for centuries. In-floor radiant systems combine this proven concept with modern technology and high-performance materials to deliver the most comfortable home heating available.

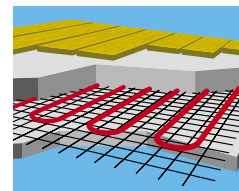
At the core of every in-floor radiant system is a network of super-durable seamless tubing. Developed in Europe more than three decades ago, this high tech tubing is designed to last the lifetime of your home.

Warm water pumped through the tubing gently heats the floor, which then radiates the warmth upwards. There are no heat vents or return-air ducts.



## THE “ULTIMATE COMFORT SYSTEM”

In-floor radiant heating systems have three main components:



- **Radiant heat tubing** is securely embedded in the concrete floor slab. The thermal mass of the concrete stores a large amount of heat energy which is gently released upwards into the home as radiant heat.
- **Thermostat and control valves** monitor temperatures in the home and send warm water to the tubing as additional heat is needed. The control system anticipates heat requirements, so the temperature in the home remains virtually constant.
- **Boiler and circulation pumps** produce heated water and power the system. Gas, oil or electric boilers can be used, depending on your fuel preference. These systems, which are much smaller than conventional furnaces, use no fans or blowers so in-floor radiant heating is virtually silent.

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# How ICF Wall Systems work



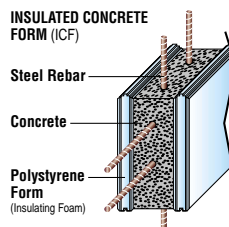
## SIMPLY BETTER HOMES

Insulating concrete forms (ICFs) are an advanced system for building both a home's foundation and above-grade exterior walls. Interlocking hollow blocks of insulating foam are stacked on foundation footings, reinforced with steel rods, and filled with concrete. The forms are left in place, providing superior insulation. ICF walls are solid with no air spaces or seams, making cold spots and drafts a thing of the past.

Once in place, ICF walls are ready for standard interior drywall and your choice of exterior cladding, brick or stucco.

## THE PERFECT CANADIAN BUILDING TECHNOLOGY

Given Canada's demanding climate, ICF wall systems are the perfect choice for long-lasting comfort, superior energy efficiency and outstanding protection.



The ICF "sandwich" of reinforced concrete and insulating foam provides exceptional structural strength and a high level of insulation. An ICF wall is extremely solid with much greater mass than typical construction, so sudden swings in outside temperatures have little impact on the temperature inside the home. No settling, shifting or warping means that repairs due to nail pops are avoided. Because the wall is one continuous structure, there are no gaps, cracks or joints to let in dust or cold winter drafts.

## STRENGTH AND FLEXIBILITY

ICF construction allows incredible design flexibility. Curved walls, vaulted ceilings, longer floor spans, and large or shaped windows are all easily accommodated. Virtually any style or type of home can be built using ICFs.

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# Energy Efficiency in ICF Homes



## ENERGY EFFICIENT – BY DESIGN

On average, ICF Showcase Homes use 40% less energy than identical wood-frame houses built to current building code standards.

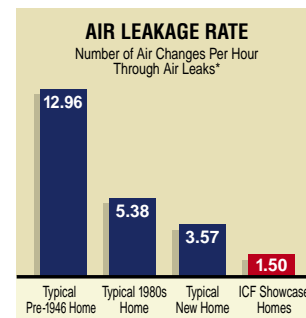
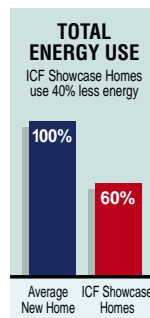
The insulating blocks used to construct ICF walls are made from high-performance rigid insulation. Combined with the heat-storing properties of the concrete core, ICF walls provide superior insulation and reduce the effects of wind and outdoor temperature swings on home comfort.

ICF Showcase Homes demonstrate the incredible energy efficiency that can be achieved using this advanced home building system.

40% less energy use means 40% lower energy bills, year after year.

## DRAFT-FREE CONSTRUCTION KEEPS THE WEATHER OUTSIDE

In most homes, a significant portion of heat loss is caused by air leakage through the exterior walls.



With traditional construction, exterior walls have hundreds of small joints where wall studs, floor plates and door and window framing meet. Every joint is a potential air leak that can let cold air, dust and moisture into your home. However, ICF wall systems dramatically reduce unwanted air leakage.

With ICF construction the exterior walls are a continuous structure from the base of the foundation to the eaves. By eliminating unnecessary joints, air leakage is kept under control. An advanced heat recovery ventilation system is installed to ensure superior indoor air quality.

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# Why ICF Homes are Whisper-Quiet

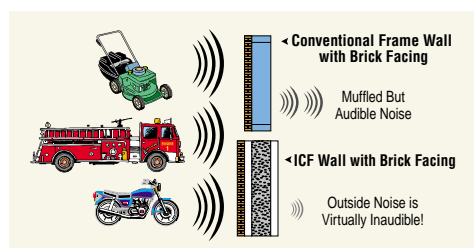
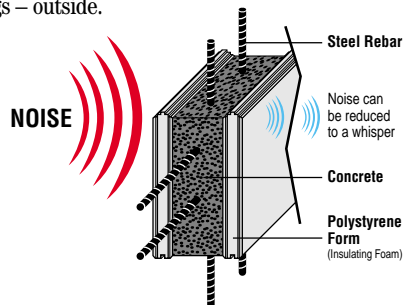


## SOLID WALLS MAKE THE DIFFERENCE

A peaceful, quiet home without the intrusion of neighbourhood noises enhances your comfort and sense of privacy. ICF homeowners often say that the quietness of their home is one of the things they value most.

Sound travels easily through air and the light-weight insulation typically used in frame walls.

In contrast, the layers of rigid insulation and steel-reinforced concrete in an ICF wall are ideal for absorbing sound, keeping outside noise where it belongs – outside.



## PROVEN PEACE AND QUIET

Laboratory testing has proven the effectiveness of concrete wall systems in controlling noise infiltration.

With traditional construction, common noises are muffled by a frame wall but are still heard clearly within a home.

ICF systems can reduce the outside noise that enters a home by 60% or more. In practical terms, this means noise produced by lawn mowers, truck and motorcycle engines and emergency vehicle sirens will be reduced to inaudible levels by an ICF wall.

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# Healthier Living in ICF Homes



## INDOOR AIR QUALITY – SOMETHING WORTH PROTECTING!

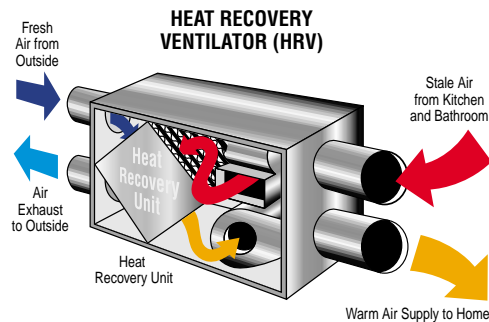
ICF Showcase homes are designed to provide better indoor air quality. This can make a real difference to your comfort and well-being.

Current construction techniques mean that homes are more air tight. Air quality can suffer without a proper ventilation system. Heat recovery ventilators (HRVs) offer a reliable and energy-efficient solution to indoor air quality.

The HRV systems in ICF Showcase Homes do two important things.

- They continuously remove stale indoor air from kitchen and bathroom areas.
- They replace stale air with fresh, filtered outdoor air that is circulated to every room in the home.

Simple wall-mounted controls let you determine the level of ventilation, as easily as setting the temperature in your home.



## VENTILATION + MOISTURE CONTROL = A HEALTHIER HOME

An HRV system consists of an advanced heat recovery unit that salvages heat from exhaust air and uses this energy to pre-heat incoming fresh air. The result is fresh air *and* lower heating bills.

The whole-house ventilation provided by an HRV also helps prevent moisture build-up that can cause mould growth – a common trigger for allergies and asthma.

And because all the fresh air coming into your home passes through the ventilation system, it's easy to filter out dust, pollen and other airborne pollutants that can cause health problems for you and your family.

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