

OTTAWA WINDOW PROS

Energy Savings

Heat loss, comfort, and what new windows actually
save in Ottawa

9 Expert Answers from Construction Brain

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Do quad-pane windows exist and would they even make sense in Ottawa?

Quad-pane windows do exist, though they're quite rare and not widely available through most window manufacturers. Whether they make sense for Ottawa is a more nuanced question.

Yes, quad-pane (four-pane) windows are a real product, but they occupy a very niche corner of the market. A handful of European manufacturers — particularly Scandinavian and German brands — produce them, and they've seen limited adoption in extremely cold climates like northern Canada, Alaska, and Scandinavia. They aren't a standard offering from most North American window manufacturers.

How they work is straightforward: four panes of glass create three insulating air/gas-filled chambers instead of the two you get with triple-pane. This pushes the U-factor even lower — typically into the 0.10–0.15 range, compared to 0.15–0.25 for a quality triple-pane. For context, ENERGY STAR certification in Ottawa's Climate Zone 6 requires a U-factor of 1.22 W/m²·K or lower, and a good triple-pane already blows well past that threshold.

The practical downsides are significant. Quad-pane windows are substantially heavier than triple-pane, which puts more stress on frames, hinges, and the surrounding structure. They're also considerably more expensive — often 40–70% more than a comparable triple-pane — and sourcing, servicing, and replacing sealed units if a seal fails becomes much more complicated in the Ottawa market where local suppliers don't typically stock them.

For Ottawa specifically, a high-quality triple-pane window with Low-E coating and argon or krypton gas fill already delivers exceptional performance for our Climate Zone 6 winters. The marginal heat-retention gain from a fourth pane is real but small, and the cost-to-benefit ratio rarely justifies it for a typical residential home. The better investment is usually ensuring your triple-pane windows are **properly installed with thorough air sealing** — because installation quality has a bigger real-world impact on energy performance than squeezing out an extra fraction of a U-factor point.

Where quad-pane *might* make sense is in a Passive House build, a net-zero home, or an extremely exposed north-facing installation where you're engineering for the absolute minimum heat loss possible and cost is secondary to performance targets.

For most Ottawa homeowners, a quality triple-pane from an ENERGY STAR certified supplier is the sweet spot. If you're building or renovating to a high-performance standard and want to explore what's genuinely worth the upgrade, describe the project through Ottawa Window Pros and you'll be matched with installers who work at that spec.

Q2

I keep seeing ER rating and U-factor - what's the difference and which matters more?

Both ratings matter, but they measure different things — and for Ottawa homeowners, **ER (Energy Rating)** is often the more practical number to focus on when comparing windows.

U-factor measures how well a window prevents heat from escaping. It's expressed as a number — the lower the better. A U-factor of 1.22 W/m²·K or lower is the ENERGY STAR threshold for Canada's most demanding climate zones, which includes Ottawa. Think of U-factor as the window's "thermal resistance" score. It's a straightforward measure of insulation performance.

ER (Energy Rating) is a Canadian-specific number developed by Natural Resources Canada, and it's more comprehensive. It combines three factors into a single score: heat loss through the frame and glass (U-factor), solar heat gain through the glass, and air leakage. The higher the ER number, the better. A window with a high ER is actually doing net positive work — it's capturing more solar energy than it's losing. The minimum ER for ENERGY STAR certification in Ottawa's climate zone is **34** for most window types.

Why ER often matters more in Ottawa: Because our winters are long and cold, a window that captures passive solar heat while minimizing heat loss is genuinely valuable. Two windows can have identical U-factors but very different ER scores depending on their solar heat gain coefficient and air tightness. The ER gives you the full picture in one number.

That said, **both ratings work together**. If you're comparing windows, look for an ER of 34+ and a U-factor at or below 1.22. Triple-pane windows with Low-E coatings and argon fills typically score well on both. South-facing windows especially benefit from optimized solar heat gain, which the ER captures but U-factor alone doesn't.

If you'd like help comparing specific window options for your home, request a quote through Ottawa Window Pros and ask the installer to go through the ratings on the products they stock and what suits your exposure and budget.

Q3

Does the spacer bar between the panes actually matter for energy efficiency?

Yes, the spacer bar matters more than most homeowners realize — it's one of the most overlooked components in window energy performance.

The spacer bar sits between the glass panes at the edge of an insulated glass unit (IGU), and its job is to maintain the gap that holds your argon or krypton gas fill. The problem is that the edge of the glass is the coldest part of the window, and a **thermally conductive spacer** (like traditional aluminum) creates a direct path for heat to escape. This is called **thermal bridging**, and it can significantly reduce the overall U-factor of your window even if you have excellent triple-pane glass in the centre.

Warm-edge spacers are the modern solution. These are made from materials like stainless steel, foam, or hybrid composites that conduct far less heat than aluminum. The difference shows up in two ways: better overall energy performance, and less condensation forming along the inner edge of the glass in winter. That edge condensation you might see on older windows is a direct sign of a cold-edge spacer failing to hold heat in.

In Ottawa's Climate Zone 6, this matters a lot. When outdoor temperatures drop to -20°C or colder, the edge-of-glass temperature difference between an aluminum spacer and a quality warm-edge spacer can be several degrees. Over a heating season, that adds up in both comfort and energy cost.

When comparing windows, look for spacers marketed as **Super Spacer, Swisspacer, or TGI** — these are well-regarded warm-edge products. Any quality ENERGY STAR certified window sold in Canada should include a warm-edge spacer, but it's worth confirming rather than assuming.

If you're shopping for replacement windows, request quotes through Ottawa Window Pros and ask each installer which spacer system is in the units they're quoting — it's an easy detail to verify before you commit.

Q4

What the heck is solar heat gain coefficient and why should I care?

Solar Heat Gain Coefficient (SHGC) is basically how much free heat from the sun your windows let into **your house** - and in Ottawa's climate, getting this right can save you hundreds on energy bills every year.

SHGC is measured on a scale from 0 to 1, where a lower number means less solar heat gets through. Think of it like sunscreen for your windows. A window with an SHGC of 0.30 lets in 30% of the sun's heat, while blocking 70%.

The key is finding the sweet spot for Ottawa's four-season climate where you want some free solar heating in winter but don't want to turn your house into a greenhouse in summer.

For Ottawa homes, the ideal SHGC typically falls between **0.25 and 0.40** depending on your window orientation. South-facing windows can handle higher SHGC (around 0.35-0.40) because you want that winter sun streaming in to help heat your home during those brutal February cold snaps. But west-facing windows should have lower SHGC (0.25-0.30) since they get hammered by afternoon summer sun that'll make your air conditioner work overtime.

Here's why you should actually care: A house with poorly chosen SHGC can cost you \$200-400 extra per year in energy bills. Windows with too high SHGC will overheat your home in summer, forcing your AC to run constantly. Too low SHGC means you're missing out on free solar heating in winter, making your furnace work harder. **Quality triple-pane windows with properly selected SHGC can reduce your heating and cooling costs by 15-25%** compared to old single-pane windows.

When shopping for replacement windows in Ottawa, look for **ENERGY STAR certified windows that meet our Climate Zone 6 requirements** - they'll have SHGC values optimized for our climate. The Canada Greener Homes Grant program also considers SHGC when determining rebate eligibility, so choosing the right coefficient could put money back in your pocket.

To pick the right SHGC for your home's orientation, request a free quote through Ottawa Window Pros and go through the glazing options with the installer.

Q5

How do I read all those numbers on the energy label sticker on new windows?

The energy label sticker contains key performance ratings that help you compare window efficiency and understand how they'll perform in Ottawa's climate. These standardized ratings are required on all new windows sold in Canada.

Energy Rating (ER) is the most important number - it's a single score from 0 to 50+ that combines all performance factors. For Ottawa's climate zone, look for an ER of 25 or higher for good performance, with 30+ being excellent. This rating accounts for both heat gain from the sun and heat loss through the glass and frame.

U-Factor measures how well the window prevents heat from escaping - lower numbers are better. In Ottawa, you want a U-factor of 1.22 or lower to qualify for ENERGY STAR certification and potential rebates. Premium triple-pane windows often achieve 0.8 to 1.0 U-factor ratings. This number directly impacts your heating bills during our long winters.

Solar Heat Gain Coefficient (SHGC) shows how much solar energy passes through the window, rated from 0 to 1. For Ottawa, a moderate SHGC around 0.3-0.4 works well - high enough to capture beneficial winter sun, but not so high that you overheat in summer. South-facing windows might benefit from slightly higher SHGC values.

Visible Transmittance (VT) indicates how much natural light comes through, also rated 0 to 1. Higher numbers mean more daylight, which is valuable during Ottawa's shorter winter days. Quality Low-E coatings can maintain good light transmission (0.6+) while still providing excellent insulation.

Air Leakage measures how much air passes through the window when it's closed, with lower numbers being better. Look for ratings of 1.5 or less - this is crucial for Ottawa's windy conditions and temperature extremes.

For help reading those ratings against your own orientation, request a free quote through Ottawa Window Pros and go through the label with the installer.

Q6

If I upgrade all my windows will I need to resize my furnace?

Upgrading all your windows typically won't require furnace resizing, but the improved energy efficiency will reduce your heating load and could lead to lower energy bills.

When you replace old, drafty windows with modern triple-pane, Low-E windows, your home will retain heat much better. This means your existing furnace won't have to work as hard to maintain comfortable temperatures. In Ottawa's climate, homeowners often see **15-25% reduction in heating costs** after a complete window upgrade, but the furnace itself remains properly sized for the home.

Your furnace capacity should remain adequate because HVAC systems are sized based on the home's square footage, insulation levels, and design temperatures - not just the windows. Even with significantly improved windows, the basic heating requirements don't drop enough to make your furnace oversized. However, you might

notice your furnace cycles less frequently and runs for shorter periods, which actually extends its lifespan.

Ottawa's Climate Zone 6 requirements make this even more relevant. The temperature swings from -30°C winters to +30°C summers mean your heating system needs substantial capacity regardless. Modern ENERGY STAR windows (U-factor 1.22 or lower) will improve comfort and efficiency without creating an oversized furnace situation.

The real benefit comes in energy savings rather than equipment changes. Many Ottawa homeowners find their heating bills drop noticeably after window replacement, and some qualify for Canada Greener Homes Grant rebates. Your existing furnace will simply operate more efficiently in the better-sealed home.

For a free estimate on energy-efficient window replacement that maximizes your heating savings, request a quote from Ottawa Window Pros.

Q7

Everyone keeps trying to upsell me on warm edge spacers - are they actually worth it?

Warm edge spacers are genuinely worth it in Ottawa's climate - this isn't just sales hype. The upgrade typically costs \$15-30 per window but delivers real performance benefits that matter in our harsh winters.

Traditional aluminum spacers create a thermal bridge around your window's perimeter, making the glass edges cold and prone to condensation. You've probably seen this - frost or water droplets forming around the bottom corners of windows in winter. **Warm edge spacers** use materials like stainless steel, thermoplastic, or composite materials that conduct much less heat, keeping those glass edges warmer.

In Ottawa's Climate Zone 6, where we see temperatures well below -20°C, warm edge spacers reduce condensation by 2-5°C at the glass edge. This means less frost buildup, reduced risk of mold around window frames, and better comfort near windows. The energy savings are modest but measurable - typically 2-4% improvement in window thermal performance.

The real value comes from durability and comfort. Warm edge spacers often last longer than aluminum ones because they experience less thermal stress from our extreme temperature swings. You'll also notice less of that "cold zone" feeling when sitting near windows during winter months.

For Ottawa homeowners, warm edge spacers make the most sense if you're already investing in quality double or triple-pane windows. If you're getting budget windows, the spacer upgrade might represent a large percentage of your window cost. But on mid-range to premium windows, it's usually worth the relatively small additional investment for the improved comfort and reduced condensation issues.

For a detailed assessment of whether warm edge spacers fit your specific project and budget, request a quote from Ottawa Window Pros for an honest evaluation.

Q8

Does it matter which direction my windows face for energy efficiency?

Absolutely yes - window orientation significantly impacts your home's energy efficiency and comfort levels. The direction your windows face determines how much solar heat gain you receive and when you get it throughout the day.

South-facing windows are your biggest energy opportunity in Ottawa's climate. These windows receive direct sunlight for most of the day during winter months, providing valuable free heating when you need it most. However, they can also cause overheating in summer, so proper window selection with Low-E coatings becomes crucial. South-facing windows should prioritize solar heat gain control - look for windows with moderate Solar Heat Gain Coefficient (SHGC) ratings around 0.25-0.35.

North-facing windows receive minimal direct sunlight year-round, making them the biggest source of heat loss in winter. These windows should prioritize insulation over solar gain. Triple-pane windows with low U-factors (ideally 0.20 or lower) are especially important on the north side. Since they don't contribute solar heating, focus entirely on preventing heat loss through superior glazing and frames.

East and west-facing windows present unique challenges. East windows get morning sun, which can be pleasant in winter but may cause glare issues. West-facing windows receive intense afternoon sun, particularly problematic in summer as they heat your home when outdoor temperatures are already at their peak. These orientations benefit from Low-E coatings that block infrared heat while allowing visible light.

In Ottawa's Climate Zone 6, **south-facing windows can reduce your heating costs** by 10-15% when properly specified, while poorly chosen north-facing windows can account for 25% of your total heat loss. The temperature difference between a quality triple-pane window and a basic double-pane can be 8-10°C on the interior glass surface during our -25°C winter days.

Window treatments and overhangs also matter by orientation. South-facing windows benefit from overhangs or awnings that block high summer sun but allow low winter sun. East and west windows often need blinds or films to control glare and heat gain.

For recommendations based on your home's orientation, request a free quote through Ottawa Window Pros and go through glazing choices with an installer.

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Should I get different window specs for my south-facing windows versus north-facing?

Yes, you should consider different specifications for south-facing versus north-facing windows to optimize energy performance and comfort in Ottawa's climate. The orientation significantly affects how much solar heat gain and light your windows receive throughout the year.

South-facing windows receive the most direct sunlight and solar heat gain, especially during winter months when the sun is lower in the sky. For these windows, you'll want to balance capturing beneficial winter heat while preventing summer overheating. Look for windows with a **moderate Solar Heat Gain Coefficient (SHGC) of 0.25-0.35** and excellent insulation properties with a **U-factor of 1.22 or lower**. Triple-pane glass with Low-E coatings works well here, as it allows good light transmission while controlling heat gain.

North-facing windows receive minimal direct sunlight year-round and are primarily heat losers in Ottawa's cold climate. For these windows, prioritize maximum insulation over solar heat gain. Choose windows with the **lowest possible U-factor (ideally 0.8-1.0)** and you can accept a lower SHGC since you're not getting much solar benefit anyway. Triple-pane windows with argon fill and multiple Low-E coatings are ideal for north-facing exposures.

In Ottawa's Climate Zone 6, this orientation-specific approach can reduce your heating costs by 10-15% compared to using identical windows throughout your home. Many homeowners also choose slightly different frame materials - vinyl or fiberglass for maximum insulation on the north side, while wood or aluminum-clad options work well on the south where thermal performance is less critical.

For a comprehensive window replacement strategy that considers your home's specific orientation and energy needs, request a consultation with Ottawa Window Pros for personalized recommendations and a free estimate.

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