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# Spray Foam Insulation

Closed-cell and open-cell spray foam insulation for walls, basements, rim joists, and cathedral ceilings in NB homes

20 Expert Answers from Insulation IQ

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## How do New Brunswick's humid summers affect the curing time and performance of spray foam insulation in a Moncton basement?

**New Brunswick's humid summers significantly slow spray foam curing and can compromise performance if not properly managed during installation.** Spray foam requires specific temperature and humidity conditions to cure properly, and Moncton's Maritime climate presents unique challenges that experienced contractors must navigate carefully.

### Humidity's Impact on Spray Foam Chemistry

Spray foam curing is a chemical reaction that depends on moisture in the air — but there's a sweet spot. **Relative humidity between 40-60% is ideal for proper curing.** Moncton's summer humidity regularly exceeds 70-80%, especially during the frequent fog events rolling in from the Bay of Fundy. This excess moisture can cause several problems:

The foam may cure too quickly on the surface while remaining soft underneath, creating a skin-over-wet condition that traps uncured chemicals inside. This leads to persistent odour, potential shrinkage, and reduced R-value.

**Closed-cell spray foam is particularly sensitive** — it needs precise moisture levels to achieve its full R-6 to R-7 per inch rating and proper density of 2 pounds per cubic foot.

### Temperature Complications in Basements

Moncton basements stay naturally cool even in summer — typically 60-65°F while outdoor temperatures reach 25-30°C. **Spray foam performs best when both the substrate (concrete walls) and ambient air are 65-85°F.** Cool basement walls combined with humid air create condensation risk on the concrete surface before foam application. Professional contractors must warm the basement and potentially dehumidify before spraying.

### Professional Installation Protocols for NB Summers

Experienced spray foam contractors working in Maritime conditions follow strict protocols. They monitor temperature and humidity with calibrated instruments, often bringing dehumidifiers to job sites during high-humidity periods. **Many contractors prefer early morning installations** when humidity is typically lower, or they'll delay work during persistent fog conditions common along the Fundy coast.

The contractor should also test spray ratios more frequently in humid conditions. **Off-ratio foam** (improper mixing of the A and B components) is more likely when environmental conditions are challenging, and the consequences — odour, poor adhesion, dimensional instability — can require complete removal and re-application.

### Basement-Specific Considerations

Moncton's clay soils retain moisture, and many basements have elevated humidity year-round. **Before spray foam application, the basement must be dry** — no active leaks, no efflorescence on walls, no standing water. The concrete should be cured for at least 30 days if new. Some contractors use moisture meters to verify concrete moisture content is below 4% before spraying.

### Timing and Seasonal Strategy

**Late spring (May) and early fall (September-October) are optimal** for spray foam installation in NB basements. Summer work is possible but requires more preparation and monitoring. Winter installation faces different challenges — substrate temperatures may be too cold, requiring heating, but humidity is typically lower and more controllable.

### Performance Verification

After installation, proper curing should be verified. **Well-cured closed-cell foam should be firm to the touch within 24-48 hours** and have no chemical odour within a week. Soft spots, persistent smell, or visible shrinkage indicate curing problems that may require remedial work.

### When to Hire a Professional

Given these complexities, **spray foam is never a DIY project in NB's challenging climate**. Choose contractors with specific experience in Maritime conditions who carry proper environmental monitoring equipment and understand how to adjust their techniques for local humidity and temperature variations.

Need help finding an experienced spray foam contractor familiar with Moncton's climate challenges? New Brunswick Insulation can match you with professionals who understand Maritime installation requirements and have the equipment to handle humidity-related complications properly.

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## What fire code compliance requirements apply to exposed spray foam insulation in a Moncton basement?

**Exposed spray foam insulation in a Moncton basement must meet specific fire code requirements under the National Building Code of Canada (NBCC) as adopted by New Brunswick, with additional considerations for occupancy classification and ignition protection.**

In residential basements, exposed spray foam insulation requires a **thermal barrier** (typically 12.7mm or 1/2-inch drywall) between the foam and the occupied space when the foam exceeds certain thickness limits or when the basement is considered habitable space. The specific requirements depend on whether your basement is classified as unfinished storage space or finished living area, and which type of spray foam was installed.

**Closed-cell spray foam** applied directly to foundation walls at 2-3 inches thickness may be left exposed in unfinished basement areas used solely for utilities and storage, provided it meets flame spread and smoke development ratings. However, **open-cell spray foam typically requires a thermal barrier in all applications** due to its different fire performance characteristics. The thermal barrier protects occupants by slowing flame spread and providing crucial escape time in case of fire.

For **finished basement spaces** (family rooms, bedrooms, home offices), the NBCC requires a thermal barrier over all exposed spray foam regardless of type or thickness. This means 1/2-inch drywall properly fastened to the framing, which also serves as your vapour retarder on the warm side of the assembly. Many Moncton homeowners finish their basements after spray foam installation, and the drywall requirement actually works in their favour by providing a clean, paintable surface.

**Rim joist areas** where spray foam is commonly applied present a special case. These confined spaces between floor joists often remain exposed even in finished basements. Most spray foam manufacturers' technical data sheets specify maximum exposed thickness (typically 2-3 inches for closed-cell foam) without additional fire protection, but local building officials may interpret requirements differently.

The **City of Moncton Building Inspection Department** has final authority on fire code compliance for your specific installation. Requirements can vary based on your home's age, the basement's intended use, proximity to heating equipment, and whether the work was done under permit. Some spray foam installations completed without permits may not meet current fire code requirements, particularly in older homes where foam was applied over existing finishes or in non-standard configurations.

**Practical compliance steps** include having your spray foam contractor provide documentation showing the specific product used meets Canadian fire ratings, ensuring proper thickness limits are observed, and installing

drywall thermal barriers where required. If you're planning to finish the basement, coordinate the spray foam and drywall installation to ensure continuous fire protection.

**When to consult professionals:** Contact a qualified insulation contractor familiar with NBCC requirements and Moncton building department practices for assessment of existing installations. For new spray foam work, always use contractors who understand fire code compliance and can provide proper documentation. If you're unsure about compliance of existing foam, the City of Moncton building inspection department can provide guidance specific to your situation.

Remember that fire code compliance protects your family's safety and may affect home insurance coverage. Non-compliant installations discovered during home sales or insurance inspections can require costly remediation.

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Q3

## How much does closed-cell spray foam insulation cost per square foot in Fredericton NB? | Insulation IQ?

Closed-cell spray foam is one of the most effective — and most expensive — insulation products available to Fredericton homeowners, and understanding the real cost breakdown will help you budget accurately and evaluate quotes with confidence.

In New Brunswick, closed-cell spray foam typically costs between **\$1.75 and \$3.50 per square foot** for the installed product, depending on the thickness applied. That range sounds wide, but it narrows quickly once you know what you need. A **1-inch application** (about R-6 to R-7) sits at the lower end of that range, while a **2-inch application** (R-12 to R-14) or a **3-inch application** (R-18 to R-21) will push toward the upper end as labour,

material, and equipment mobilisation costs stack up. Most residential jobs in the Fredericton area that involve a full crawl space or rim joist package fall between **\$1,500 and \$4,500** depending on square footage and access difficulty.

**Why closed-cell costs more than other insulation types** comes down to raw material chemistry and application equipment. The two-component polyurethane system — an A-side isocyanate and a B-side polyol blend — must be heated, pressurised, and mixed at precisely the right ratio through a proportioner and heated hose set. That equipment alone represents tens of thousands of dollars in capital for the contractor, costs which are reflected in every job they price. The chemical itself is petroleum-derived and subject to global commodity pricing, which has added meaningful volatility to spray foam costs since 2021.

For **climate zone 6**, which covers all of New Brunswick, the NB Building Code (aligned with the National Building Code 2020 adoption pathway) sets minimum effective R-values that often make closed-cell the logical choice in specific assemblies. Crawl space walls, for instance, benefit from closed-cell's **Class II vapour retarder** properties (permeance below 1 perm at 2 inches), which means you can air-seal and vapour-manage in a single product rather than paying for separate poly sheeting and fibreglass batts.

**Project type affects cost significantly.** Rim joist sealing — one of the highest-ROI applications in any Fredericton home — typically requires only 2–3 inches of closed-cell in a confined area, so total project cost might be as low as \$800–\$1,600 for an average house perimeter. A full basement wall application covering 800 square feet of wall to a 3-inch thickness could run \$3,000–\$5,500 before rebates. An attic application is generally not recommended for closed-cell due to cost; open-cell or blown fibreglass is more economical in that assembly.

**Rebates can meaningfully offset the investment.** The **Canada Greener Homes Grant** (where still active under evolving federal programming) has offered up to \$5,000 for eligible insulation upgrades, and **NB Power's** home energy efficiency programs have historically provided rebates for air sealing and insulation work when done alongside an EnerGuide energy assessment. Always confirm current program availability before budgeting, as program years and funding caps change. An NB Energy Advisor pre-approval is required for most grant streams, so book that assessment before any work begins.

**Getting accurate quotes in Fredericton** means specifying the exact application: location (rim joist, basement wall, crawl space, cathedral ceiling), existing substrate, desired R-value or thickness, and any required preparation work like removing existing insulation or addressing moisture issues first. Reputable contractors will provide a written quote with thickness guarantees and product data sheets — be cautious of quotes that specify only an R-value without specifying the minimum installed thickness, since spray foam yield varies by temperature and technique.

If you are comparing closed-cell to other options, the installed cost per R-value is higher than blown-in cellulose or fibreglass batt, but the **air-sealing and moisture-resistance benefits** are often unmatched in critical assemblies.

For many Fredericton homes built before 1980 with leaky rim joists and uninsulated crawl spaces, the energy savings from even a targeted closed-cell application can shorten the simple payback period to 5–8 years — especially as NB Power rates continue to rise.

For personalised project estimates and to connect with vetted insulation professionals serving the Fredericton region, the **New Brunswick Insulation** directory at New Brunswick Construction Network is a good starting point.

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## Is open-cell or closed-cell spray foam better for New Brunswick homes? | Insulation IQ?

The open-cell versus closed-cell debate is one of the most common questions New Brunswick homeowners and contractors face, and the honest answer is that neither product is universally better — the right choice depends entirely on where in the building you are insulating, your performance targets, and your budget. In New Brunswick's **climate zone 6** environment, the distinction matters more than it does in warmer Canadian provinces, so let's work through the key differences carefully.

**Closed-cell spray foam** is a rigid, dense product that cures to a firm, water-resistant shell. It delivers approximately **R-6 to R-7 per inch**, making it the highest R-value-per-inch product available for retrofit applications. More importantly for NB conditions, closed-cell has a **vapour permeance below 1 perm at 2 inches of thickness**, which qualifies it as a Class II vapour retarder under the National Building Code. This means it simultaneously air-seals, insulates, and vapour-manages in a single application — a significant advantage in assemblies where you cannot install a separate poly vapour barrier, such as a crawl space wall or a rim joist cavity. Closed-cell also adds **structural rigidity** to wall and floor assemblies and is completely resistant to water absorption, so a minor flooding event will not compromise the insulation.

**Open-cell spray foam** cures to a soft, spongy texture and delivers approximately **R-3.5 to R-4 per inch**. It is vapour-permeable (typically 10–20 perms), which means it functions as an air barrier but not a vapour retarder. A separate vapour barrier is required in most NB assemblies when using open-cell. The material cost is substantially lower — roughly **30–50% less per square foot** than closed-cell — which makes it attractive for large-volume applications like attics or interior wall cavities where the full R-value and vapour management of closed-cell are not needed.

**For a New Brunswick climate, the application location is the deciding factor.** Rim joists and band joists are almost universally best served by **closed-cell**: the tight, bridged cavity benefits from the structural fill, vapour control, and moisture resistance, and the relatively small area means the cost premium over open-cell is modest in absolute dollars. Basement walls and crawl space walls similarly favour closed-cell because of persistent moisture pressure from the soil side — open-cell foam in below-grade contact can absorb water and lose effectiveness over time.

In **attics**, the calculus shifts. New Brunswick's cold winters mean attic assemblies need substantial total R-value (the NBC recommends **effective R-60** in climate zone 6 under the latest energy code pathways), and achieving that with spray foam alone would be prohibitively expensive. Most contractors in Moncton, Fredericton, and Saint John use open-cell spray foam to air-seal the attic floor and all penetrations, then dense-pack the remaining depth

with blown-in cellulose or fibreglass to reach code-minimum R-values at a practical cost. This hybrid approach captures the air-sealing benefit of spray foam without paying closed-cell prices for 16+ inches of attic depth.

**Cathedral ceilings and unvented roof assemblies** in New Brunswick require careful design. The NBC requires that a sufficient portion of the total roof assembly R-value be on the cold side of any air-impermeable insulation to keep the condensation plane above the dew point. For climate zone 6, the cold-side R-value ratio guidance generally means at least **58% of total R-value** should be provided by impermeable insulation (like closed-cell) above the roof deck, or the assembly must be designed by an engineer. Open-cell alone is not appropriate for an unvented cathedral ceiling in NB without a substantial impermeable layer on the exterior.

**Cost comparison for a typical Fredericton or Moncton renovation** shows open-cell running roughly **\$0.90–\$1.75 per square foot** installed versus **\$1.75–\$3.50 per square foot** for closed-cell. For a 1,500 square foot attic floor, the difference between air-sealing with open-cell (2 inches) plus blown-in fill versus full closed-cell could be \$3,000–\$6,000 — meaningful money that is better spent on other building envelope improvements.

**NB Power rebate programs and the Canada Greener Homes Grant** treat both types of foam as eligible insulation upgrades when properly installed and documented. An NB Energy Advisor assessment before work begins will help you identify the highest-impact applications for your specific home.

For guidance on which product best suits your project and to find qualified professionals in New Brunswick, the **New Brunswick Insulation** network is a helpful resource.

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Q5

## Can spray foam insulation be applied in cold weather in New Brunswick? | Insulation IQ?

This is a critically important question for any New Brunswick homeowner or builder planning insulation work, because our climate creates a very real scheduling challenge. The short answer is: spray foam **can** be applied in cold weather with the right preparation, but it requires strict adherence to temperature protocols — and cutting corners on this in a Moncton winter will result in product failure that may not be visible until months later.

**Temperature limits for spray foam chemistry** are not arbitrary. Both open-cell and closed-cell polyurethane foam are two-component chemical systems that undergo an exothermic reaction when the A-side and B-side are mixed. The substrate surface temperature, the air temperature inside the building cavity, and the temperature of the chemicals themselves all affect how the foam nucleates, rises, and cures. Most spray foam manufacturers specify a **minimum substrate surface temperature of 15°C (59°F)** for reliable application, though some cold-weather formulations are rated to as low as 4–7°C with modified protocols.

**New Brunswick winters make compliance challenging.** Fredericton averages daily lows below -10°C for most of December through February, and Saint John and Moncton are not far behind. An unheated crawl space, rim joist cavity, or attic floor can easily sit well below the minimum application temperature on a cold morning, even when outdoor air is only mildly cold. A substrate at 5°C when foam is applied will cause the reaction to proceed too slowly, resulting in **off-ratio curing, reduced R-value yield, poor adhesion, and an open-celled or friable texture** in what should be closed-cell foam. In the worst cases, the foam will fail to adhere entirely and peel away from the substrate within months.

**How professional contractors manage cold-weather applications in NB** involves several strategies. First, the work space must be **pre-heated** — typically with propane or electric construction heaters running for 12–24 hours before application to bring substrate temperatures up and hold them there throughout the job. This is non-negotiable on any job where substrate temperatures are borderline. Second, the **chemical drums** (A and B sides) must be stored in a heated environment and maintained at the manufacturer's specified temperature, typically **18–24°C**, right up to loading into the proportioner. Drums stored in a cold van or unheated garage will deliver off-temperature chemicals that react poorly regardless of how warm the substrate is. Third, **heated hoses** on the proportioner maintain chemical temperature from the drum all the way to the spray gun — hose temperature is as important as drum temperature for consistent mix ratio and reaction.

**Practical implications for scheduling your project:** If you are planning spray foam work between November and March in New Brunswick, expect that preparation and heating costs may add \$200–\$600 or more to a typical project, and work may need to be paused or rescheduled during extreme cold snaps. A responsible contractor will use an infrared thermometer to verify substrate surface temperatures before spraying and will refuse to apply foam to substrates that are too cold — that refusal protects you as much as it protects their reputation.

**Building envelope work prior to spray foam is often more difficult in winter as well.** If the application involves an accessible crawl space or attic, getting equipment in and out safely, maintaining consistent heat in a leaky uninsulated space, and ensuring adequate ventilation for off-gassing all add complexity. Contractors in Moncton and Fredericton who do high volumes of year-round work typically have well-established cold-weather protocols; newer or seasonal operations may not.

**Curing time is also affected by temperature.** Closed-cell foam reaches tack-free in roughly 30–60 seconds under normal conditions, but in cold weather the full mechanical cure may take longer, meaning the insulated area should be kept at elevated temperature for several hours post-application before being exposed to ambient cold again.

**Spring and fall are generally the optimal seasons** for spray foam work in New Brunswick — substrate temperatures are manageable without extraordinary heating measures, chemical performance is predictable, and scheduling is typically more flexible than the busy summer renovation season. That said, properly executed winter applications are absolutely achievable and are performed routinely across the province.

If you are planning insulation work this winter or early spring, the **New Brunswick Insulation** professional network can connect you with experienced contractors who understand our climate's specific demands.

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**Q6**

## How long does spray foam insulation last in a Moncton home? | Insulation IQ?

Longevity is one of spray foam's most compelling selling points, and the evidence strongly supports the marketing claims — with some important caveats that every Moncton homeowner should understand before investing in a spray foam project.

**Closed-cell spray foam, properly installed, is effectively a permanent insulation material.** Independent testing and decades of real-world performance data indicate that closed-cell polyurethane retains the vast majority of its insulating value for **50 years or more**, and many building scientists believe it will outlast the buildings it is installed in. The rigid, inert polymer matrix does not absorb moisture, does not compress under load, does not settle, and does not provide a food source for mould or insects. Once cured and protected from UV light (direct sunlight degrades the surface over time), closed-cell foam is remarkably stable. Homes in the Moncton area that received closed-cell rim joist applications in the late 1990s or early 2000s — among the first wave of residential spray foam adoption in Atlantic Canada — still show no measurable performance degradation in those assemblies.

**Open-cell spray foam is similarly durable in protected applications.** Because it is vapour-permeable and somewhat flexible, it is slightly more susceptible to performance changes if repeatedly wetted, but in a properly designed assembly where bulk water intrusion is controlled, open-cell foam will also last for decades without significant degradation. The R-value per inch of open-cell does not change meaningfully over time in dry conditions.

**The key phrase is properly installed.** Spray foam's longevity figures assume correct substrate preparation, appropriate substrate temperature (a significant factor in Moncton's climate), proper mix ratio at the proportioner, and sufficient thickness to achieve the specified R-value. Foam that was applied to a cold, damp, or contaminated substrate, or foam from equipment running off-ratio, may show **delamination, shrinkage, or crumbling** within a few years. This is not a product failure — it is an installation failure, and it is unfortunately more common than the industry likes to acknowledge. This is one reason why hiring a qualified, experienced contractor matters enormously.

**UV degradation is the one reliable long-term vulnerability** of spray foam. Exposed foam in a garage, basement, or crawl space that receives direct sunlight through a window or opening will yellow, become chalky, and gradually lose surface integrity over 5–10 years. The insulation value of the bulk foam is not significantly affected, but the surface becomes powdery and may eventually need to be coated with intumescent paint (which is also required for fire code compliance in most occupied spaces — the NB Building Code requires that spray foam exposed in occupied areas be covered with a thermal barrier, typically 12.7 mm drywall). In unexposed, interior applications — which is the vast majority of residential use — UV degradation is simply not a factor.

**Moisture management is the second consideration for Moncton homes specifically.** Moncton sits in a region with meaningful humidity in summer and significant freeze-thaw cycling. Closed-cell foam's impermeability makes it excellent for below-grade applications and crawl spaces where soil moisture is a constant pressure. Open-cell foam in a basement or crawl space is a riskier choice because if bulk water does contact the foam repeatedly, the open-cell matrix can retain moisture and create conditions where the wood framing behind it cannot dry. This does not shorten the foam's life so much as it can shorten the life of the structural components around it.

**Blowing agent retention in closed-cell foam** was once a more relevant longevity consideration. Older closed-cell formulas used HCFC-141b as the blowing agent, which slowly diffused out of the foam cells over 5–10 years, lowering the R-value from an initial R-7+ per inch toward R-5.5 to R-6 at long-term equilibrium. Modern formulas use HFO or HFC blowing agents with much better retention, so the gap between initial and long-term R-value is narrower. When evaluating installed R-value, always ask for the **long-term thermal resistance (LTTR)** value, not just the initial value.

**Practical lifespan summary for Moncton homeowners:** A properly installed closed-cell spray foam application in rim joists, crawl space walls, or basement walls will realistically last **40–60+ years** with zero maintenance required, outlasting most other building components. An open-cell attic application, in a dry protected assembly, will perform similarly. The investment calculus over a 30-year mortgage period is therefore straightforward — you pay once and the performance does not degrade.

For professional insulation assessments and to connect with experienced insulation contractors serving Moncton and surrounding communities, **New Brunswick Insulation** at the New Brunswick Construction Network is a trusted starting point.

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## Does spray foam insulation off-gas and is it safe for my family in Saint John NB? | Insulation IQ?

This is a legitimate health and safety question that deserves a thorough, honest answer rather than a blanket reassurance. The short version is that **properly installed, fully cured spray foam is considered safe for residential occupancy** — but the curing period and installation process do present real chemical exposure risks that require strict protocols, and there have been documented cases of persistent off-gassing when installation goes wrong.

**What is in spray foam, and what off-gasses?** Two-component polyurethane spray foam is made by combining an A-side (typically polymeric methylene diphenyl diisocyanate, or pMDI) with a B-side (a polyol blend including catalysts, blowing agents, and flame retardants). During the **active spray and curing phase**, the uncured chemicals — particularly the isocyanates on the A-side — are significant respiratory and skin sensitizers. Isocyanate exposure is a leading occupational cause of chemical-induced asthma and is classified as a probable human carcinogen by some regulatory bodies at high exposure levels. This is why professional spray foam applicators wear **full-face supplied-air respirators and protective suits** during application — standard dust masks or N95 respirators provide no meaningful protection against isocyanate vapours.

**The occupant re-entry period is critical.** Industry guidelines and Health Canada guidance generally recommend that occupants — particularly children, pregnant women, and anyone with respiratory sensitivities — **stay out of the treated area for a minimum of 24 hours** after application, and many contractors recommend 24–72 hours for the building as a whole if the work was done in an enclosed space with limited ventilation. During this window, volatile compounds from the reaction are actively off-gassing. Adequate mechanical ventilation — opening windows and running fans to purge the space — is essential during and after application.

**Once fully cured, spray foam is chemically inert.** The A and B components have reacted completely, the isocyanates are locked into the polymer matrix, and the cured foam does not continue to release meaningful quantities of harmful compounds. This is the normal end-state for a correctly installed product, and it is the basis for the safe for occupancy claims made by manufacturers. Independent air quality testing of homes with properly installed, fully cured spray foam has generally not found elevated levels of concerning compounds.

**The problem cases — and they are real** — occur when the foam is installed **off-ratio**. If the proportioner is delivering the A and B sides in incorrect proportions (due to equipment malfunction, clogged tips, temperature issues, or operator error), one component will be present in excess of what the other can react with. Excess unreacted B-side polyols, amine catalysts, and flame retardants can off-gas from the foam for **weeks, months, or even years** after installation, producing odours and chemical exposures that have caused serious health problems

for homeowners. This is not a theoretical risk — it led to a wave of complaints and investigations in the United States in the 2010s and prompted the U.S. EPA to issue guidance on spray foam off-gassing. Canadian regulatory oversight is similar in structure but enforcement is largely provincial.

**For Saint John families specifically**, the off-ratio risk is the main concern, and it comes down entirely to contractor quality and equipment maintenance. A well-maintained proportioner running at correct temperatures with fresh, properly stored chemicals will deliver an on-ratio mix. A contractor whose equipment has not been serviced, whose chemical drums have been stored in cold conditions (a real risk given Saint John's winters), or who is cutting corners on technique is more likely to produce off-ratio foam.

**Signs of problematic foam** include a persistent fishy, amine, or chemical smell that does not dissipate after 72 hours, foam that appears soft, tacky, or greasy after curing, or foam that has an uneven, frothy, or discoloured appearance. If you notice any of these, do not re-occupy the space without air quality testing and contact the installer immediately.

**Intumescent paint and fire code compliance** are separate but related safety issues. The NB Building Code requires that spray foam exposed in occupied or habitable spaces be covered with a **thermal barrier** — typically 12.7 mm (half-inch) drywall — to limit flame spread. Exposed foam in an unfinished basement is not compliant and should be covered.

**Practical advice for Saint John homeowners:** Ask your contractor for product data sheets and the manufacturer's re-entry time recommendation. Arrange to be away from home during application and for at least 24–48 hours after. Ventilate aggressively. If any unusual smell persists after 72–96 hours, escalate immediately rather than waiting.

The **New Brunswick Insulation** network features contractors who are experienced with New Brunswick's regulatory requirements and climate conditions — a good place to start your search for qualified professionals in the Saint John area.

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Q8

## What R-value does 2 inches of closed-cell spray foam provide in New Brunswick? | Insulation IQ?

Two inches of **closed-cell spray foam** provides approximately **R-12 to R-14** in New Brunswick — typically landing around R-13 when installed under standard conditions. Closed-cell spray foam has a per-inch R-value of roughly **R-6 to R-7**, making it the highest-density, highest-performing insulation material available by thickness. That's a significant distinction from open-cell spray foam, which runs closer to R-3.5 to R-4 per inch and requires nearly double the thickness to reach the same thermal resistance.

In **Climate Zone 6**, which covers all of New Brunswick including Moncton, Fredericton, Saint John, and Miramichi, that R-12 to R-14 from 2 inches of closed-cell foam is often used as a **continuous air barrier and vapour barrier layer** rather than the sole source of insulation. The NB Building Code (aligned with the National Building Code of Canada) requires R-20 for above-grade walls and R-31 effective for foundation walls depending on the assembly. Two inches of closed-cell foam is typically the first layer in a **hybrid assembly**, paired with fibreglass batts or rigid board to achieve full code compliance.

For example, a common wall assembly in New Brunswick new construction or deep retrofits uses **2 inches of closed-cell spray foam** applied directly to the sheathing or concrete wall, followed by **R-14 fibreglass batts** in the stud cavity. This gets you to roughly R-26 to R-27 effective — comfortably above the NBC minimum and well-suited to our cold winters.

Closed-cell foam at 2 inches also delivers an **air permeance of less than 0.02 L/(s·m<sup>2</sup>) at 75 Pa**, which qualifies it as an air barrier material under the NBC. This is one of its most underrated qualities in the New Brunswick climate: even a perfectly insulated wall with air leakage will feel cold and can accumulate moisture. The foam essentially seals and insulates in a single step.

The **vapour control class** of 2-inch closed-cell foam is typically Class II (semi-impermeable), with a permeance rating below 60 ng/(Pa·s·m<sup>2</sup>). This satisfies the vapour barrier requirement on the warm side of the insulation for most New Brunswick wall assemblies, eliminating the need for a separate 6-mil poly sheet in many applications. That's particularly valuable in basement walls and rim joists where installing poly behind drywall is awkward.

From a cost perspective, 2 inches of closed-cell spray foam in New Brunswick typically runs **.50 to .00 per square foot installed**, depending on the area, substrate complexity, and access. That's higher upfront than fibreglass or blown-in products, but when you factor in the air sealing value and vapour control it provides — functions that would

otherwise require separate materials and labour — the total installed cost of the building assembly is often comparable.

If you're renovating in **Fredericton or Moncton** and considering closed-cell foam for your basement walls, rim joists, or crawlspace, it's worth consulting with an insulation professional about whether 2 inches as a hybrid base coat or a full fill to 3–4 inches is the right strategy for your specific assembly. The New Brunswick Construction Network connects homeowners with qualified insulation contractors across the province who can assess your building and recommend the right thickness for your goals and budget.

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Q9

## Can I spray foam my rim joists myself or do I need a contractor in Fredericton? | Insulation IQ?

Rim joists are one of the highest-impact insulation upgrades in a New Brunswick home — they're responsible for a disproportionate share of heat loss and air infiltration in older houses — so it makes sense to ask whether this is a reasonable DIY project. The short answer is: **it depends on which product you use and your comfort level with the process.**

For homeowners in Fredericton and across New Brunswick, there are two realistic DIY options. The first is **two-component spray foam kits** sold at hardware stores, such as Touch 'n Foam or Fomo products. These come in pressurized canisters that mix and cure on contact, giving you a genuine closed-cell foam. A standard kit covers roughly 15 to 30 board feet, which is enough for a small project like a utility penetration or a few rim joist bays. For a full basement perimeter, you'd need multiple kits — each running **0 to 50** — and the per-square-foot cost quickly exceeds what a professional contractor would charge for the same work.

The second option is **spray foam in a can** (polyurethane gap filler). This works well for sealing gaps and small penetrations around the rim joist perimeter, but it does not provide meaningful R-value on its own. It's a sealant, not an insulation product. Many DIYers combine can foam for sealing with **rigid polyisocyanurate boards** cut to fit between joists and sealed at the edges — a legitimate technique that can achieve **R-12 to R-20** depending on board thickness, using products available at any building supply in Fredericton or Moncton.

The **cut-and-cobble rigid board method** is genuinely DIY-friendly. You measure each bay, cut 2-inch polyiso (R-13) or 3-inch polyiso (R-19) to fit snugly, press it against the rim joist, and seal the perimeter with canned spray foam. This approach is code-compatible, uses off-the-shelf materials, and avoids the complexity of working with pressurized two-component foam systems.

Where **professional spray foam contractors are strongly advisable** is when you're using a truck-mounted proportioner system to apply open-cell or closed-cell foam at full coverage. These systems use isocyanate and polyol chemicals that require proper **respiratory protection (supplied-air respirators or N100 respirators at minimum)**, skin protection, and adequate ventilation. Improper mixing ratios produce foam that never fully cures and can off-gas amines for weeks. Professional applicators in New Brunswick are trained on equipment calibration and personal protective equipment requirements that aren't practical for a homeowner doing a one-time job.

From a **regulatory standpoint**, the NB Building Code does not explicitly prohibit homeowners from applying spray foam in their own homes, and a permit is not typically required for insulation improvements in an existing house in Fredericton or other New Brunswick municipalities. However, if you're doing a permitted renovation, the insulation will be subject to inspection and must meet NBC Climate Zone 6 requirements — **R-20 for above-grade assemblies, R-10 minimum continuous for below-grade walls**.

**NB Power's Home Energy Savings Program** offers rebates for insulation upgrades including rim joists, but to qualify, the work generally needs to be documented by an **energy advisor** conducting a pre- and post-assessment. DIY work can qualify if the R-value improvements are verifiable, though using a registered contractor typically simplifies the rebate documentation process considerably.

For most Fredericton homeowners, the sweet spot is the **cut-and-cobble rigid board approach** for a straightforward DIY rim joist upgrade, or hiring a licensed insulation contractor if you want spray foam applied quickly and effectively in a single visit. New Brunswick Insulation connects you with experienced local contractors who work throughout the Fredericton region.

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## How does spray foam insulation help with moisture problems in New Brunswick basements? | Insulation IQ?

Moisture in New Brunswick basements is one of the most persistent and damaging building problems homeowners face, and it's not simply a matter of water coming in through the walls — it's often a combination of **bulk water intrusion, vapour diffusion, and condensation** driven by the province's cold winters and humid summers. Spray foam insulation addresses at least two of those three pathways directly, which is why it's become the preferred insulation strategy for below-grade spaces across Moncton, Fredericton, Saint John, and the Miramichi valley.

**Condensation is the most misunderstood moisture source** in NB basements. Concrete foundation walls are cold for most of the year. When warm, humid indoor air contacts a cold surface, moisture condenses — this is the same physics as a cold glass sweating on a summer day. Traditional insulation methods that leave an air gap between the insulation and the concrete wall (such as fibreglass batts in a framed wall built several inches away from the foundation) actually create a cold, dark, humid cavity that is ideal for **mould growth**. The concrete stays cold, the warm air seeps behind the framing, and you have exactly the conditions that produce the musty smells and black staining that plague so many older NB homes.

**Closed-cell spray foam applied directly to the concrete wall** eliminates this problem. The foam is sprayed right onto the foundation surface, conforming to every irregularity, and once cured it bonds to the concrete mechanically. The foam is the **thermal break** — the concrete never gets cold enough on the interior-facing surface to cause condensation, because the foam moves the dew point to within the foam layer or to the exterior side of the assembly. Since closed-cell foam is also vapour semi-impermeable at 2 inches (permeance below  $60 \text{ ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$ ), it dramatically reduces the rate at which moisture-laden air can diffuse through the wall from either direction.

The **air sealing function** is equally important. Spray foam is a certified air barrier material under the National Building Code when applied at sufficient thickness (typically 50 mm / 2 inches for closed-cell). Air sealing a basement is not just about energy efficiency — in a New Brunswick winter, air leaking through gaps in the foundation carries moisture that deposits on cold surfaces and accumulates over months. Rim joists and sill plates are notorious entry points; spray foam applied across the entire rim joist and sill plate assembly seals these gaps completely in a way that fibreglass or cut-and-cobble board cannot fully replicate.

**Open-cell spray foam behaves differently** and is generally not recommended for below-grade New Brunswick applications. It's permeable to both air (when not thick enough) and vapour, and it can absorb water if the foundation ever weeps. If water infiltrates behind open-cell foam, the foam soaks it up and holds it against the structure. Closed-cell foam, by contrast, is **hydrophobic** — it does not absorb liquid water, and if the foundation weeps, the foam surface simply gets wet on the exterior face without wicking moisture into the stud cavity.

It's worth noting that **spray foam is not a substitute for drainage**. If a New Brunswick basement has active bulk water intrusion — water coming through cracks under hydrostatic pressure — that needs to be addressed through exterior waterproofing, interior drainage systems, or crack injection before insulation is applied. Spray foam applied over an actively leaking wall will trap the water and can cause spalling of the concrete behind it. An honest insulation contractor will flag this during the assessment.

For an **existing finished basement** in Fredericton or Moncton that has a history of musty smells but no visible water, spray foam applied to the rim joists and sill plates is often enough to make a dramatic improvement — those are the highest-infiltration points and the areas where condensation most often occurs. For unfinished basements or full gut renovations, closed-cell foam to the full foundation wall height provides the most comprehensive moisture control available in a single product.

**NB Power rebates** are available for qualifying basement insulation improvements through the Home Energy Savings Program. New Brunswick Insulation works with qualified contractors across the province who understand both the building science and the rebate process.

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**Q11**

## **What are the pros and cons of spray foam vs fibreglass batts in Miramichi NB? | Insulation IQ?**

Choosing between **spray foam** and **fibreglass batts** is one of the most common decisions homeowners in Miramichi and throughout New Brunswick face when insulating or re-insulating their homes. Both products are legitimate and widely used — but they perform very differently, and the best choice depends on your assembly, budget, and what problems you're actually trying to solve.

**Fibreglass batts** have been the standard residential insulation product in Atlantic Canada for decades. They're manufactured to fit standard stud spacing (16 or 24 inches on centre), they're available at every building supply in Miramichi and surrounding communities, and they're within reach of most DIY budgets. A kraft-faced R-22 batt for a 2x6 wall cavity costs roughly **.00 to .40 per square foot** of wall area for materials. For a contractor-installed job, expect **.50 to .50 per square foot** installed, depending on the project.

The **limitations of fibreglass** in New Brunswick's Climate Zone 6 conditions are well-documented. Fibreglass is an air-permeable material — it slows air movement but does not stop it. Air leakage through stud cavities is responsible for a significant portion of heat loss in NB homes, and fibreglass batts simply pack the cavity without sealing the perimeter gaps at top and bottom plates, around electrical boxes, or at the sill plate. This means fibreglass-insulated walls often perform well below their nominal R-value in practice. Studies from the National Research Council of Canada have shown air-permeable insulation in leaky assemblies can lose **30 to 50% of its effective thermal performance** compared to what the label R-value suggests.

Fibreglass is also **susceptible to convection within the batt** when temperature differentials are high — a real issue in a Miramichi winter where outdoor temperatures can drop to -25°C or colder. When the fibres are in contact with cold sheathing and warm interior air, the air within the batt circulates, reducing effective R-value. And poorly installed batts — compressed, torn, or with gaps at the edges — perform significantly worse than the rated value.

**Spray foam** addresses both of these limitations directly. Closed-cell spray foam at **R-6.5 per inch** is the most thermally efficient insulation available, and it's a complete **air and vapour barrier** at 2 inches. Open-cell spray foam is softer, less dense, and provides approximately R-3.7 per inch, but it also fills every cavity fully and seals gaps that batts cannot reach. Both types bond to the substrate and seal around electrical boxes, pipes, and framing irregularities in a way no batt product can.

The **drawbacks of spray foam** are primarily cost and irreversibility. Professional closed-cell spray foam installation in Miramichi runs **.00 to .00 per square foot** for a wall application, three to four times the cost of fibreglass batts. That premium is often justified in below-grade applications (basement walls, rim joists, crawlspaces) where moisture control is as important as thermal performance. In above-grade wall cavities where a proper air barrier membrane (like Typar or Tyvek) is already in place and the wall is well-sealed, the added cost of spray foam over batts is harder to justify on pure energy payback grounds.

Spray foam is also **permanent**. Once cured, it adheres to framing and sheathing. If you need to rewire, add plumbing, or access the wall cavity in the future, removing closed-cell foam is a messy and destructive process. Some contractors and building scientists advocate for **open-cell foam in wall cavities** for this reason — it's easier to cut through for future work, though it still requires a separate vapour barrier in Climate Zone 6.

**A hybrid approach** is increasingly popular in Miramichi new construction and deep energy retrofits: **1 to 2 inches of closed-cell foam** sprayed against the sheathing for air sealing and vapour control, with **R-14 or R-22 fibreglass batts** filling the remainder of the stud cavity. This combines the air sealing and vapour management of foam with the cost efficiency of fibreglass, achieving R-22 to R-27 effective in a standard 2x6 wall at a total cost closer to **.00 to .50 per square foot** installed.

For **Miramichi homeowners** weighing this decision, the location matters: spray foam is almost always the better choice for basements, crawlspaces, and rim joists regardless of budget, while above-grade walls are often where fibreglass batts — installed with careful attention to air sealing at the perimeter — deliver strong value. The New Brunswick Construction Network can connect you with insulation professionals across the Miramichi region who can assess your specific assembly and give you a quote on both approaches.

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Q12

## Do I need to remove old insulation before applying spray foam in my Dieppe attic? | Insulation IQ?

Whether you need to remove existing insulation before applying spray foam in your Dieppe attic depends on **what's already there, what condition it's in, and what you're trying to accomplish** with the spray foam. There's no single answer — the right approach varies significantly depending on whether you're air sealing the attic floor, creating a sealed (conditioned) attic, or adding to an unvented roof assembly.

The most common scenario in older Dieppe homes is an **attic floor insulated with fibreglass batts or blown-in cellulose**, with the attic itself vented through soffits and a ridge vent. If your goal is to **air seal the top plates and penetrations** — which is one of the highest-impact energy improvements you can make in a New Brunswick house

— spray foam can be applied directly over or around existing insulation without removing it. An insulation contractor will typically pull back or temporarily displace the loose-fill in the areas needing sealing, apply a bead of two-component spray foam to seal around electrical boxes, top plates, plumbing chases, and other penetrations, then redistribute the existing insulation on top. This approach is fast, relatively inexpensive, and does not require disturbing the bulk of your attic insulation.

If existing insulation is in **poor condition** — wet, compressed, contaminated with mould or rodent activity, or simply providing far below the NB Building Code requirement of **R-50 for attic floors in Climate Zone 6** — removal before any remediation or upgrade is usually the right call. Applying spray foam over wet or mould-affected insulation traps the moisture and organic material against the attic floor, where it will continue to degrade the structure. A reputable contractor in Dieppe or Moncton will inspect the existing insulation before recommending a strategy, and wet or contaminated material should always be removed first.

The situation changes significantly if the goal is to convert the attic from a **vented cold attic** to an **unvented conditioned attic** — sometimes called an unvented roof assembly or hot roof design. In this approach, spray foam is applied to the **underside of the roof deck** (rafters) rather than the attic floor, and the attic space becomes part of the conditioned building envelope. This is done when mechanical systems (HVAC, ductwork) are located in the attic, when you want to use the attic as storage without temperature extremes, or during a significant roof renovation. For this assembly, **all existing attic floor insulation must be removed** before proceeding — keeping it in place would create an insulated floor in a now-conditioned space, wasting materials and money.

For an **unvented roof assembly in Climate Zone 6**, the NB Building Code requires the spray foam to provide a minimum ratio of insulation on the exterior side of any air-permeable insulation to prevent condensation within the assembly. The specific requirement for Climate Zone 6 is that **at least 51% of total assembly R-value** must come from the spray foam (or other air-impermeable insulation) at the roof deck. In practice, most unvented attic assemblies in New Brunswick use **3 to 5 inches of closed-cell spray foam** at the roof deck, providing R-20 to R-33, with or without additional insulation below.

**Existing fiberglass batts on the attic floor** do not need to be removed simply because you're adding spray foam on top, provided they're dry and in good condition. However, if you're adding blown-in insulation to top up an existing R-30 attic floor to R-50 — which is a common upgrade supported by **NB Power Home Energy Savings Program rebates** — removing old batts and replacing with a uniform blown-in application often gives better coverage and fills gaps that batts leave at the perimeter.

The **Canada Greener Homes Grant** also provides funding for attic insulation upgrades, including spray foam air sealing, when combined with a pre- and post-assessment by a registered energy advisor. For Dieppe homeowners, this means the net cost of an attic upgrade can be significantly reduced through stacking provincial and federal incentives.

Before any spray foam work in your Dieppe attic, have a qualified insulation contractor assess the existing materials for moisture content and condition. That single inspection — which reputable contractors typically provide at no charge — will tell you definitively whether removal is necessary or whether you can build on what's there. New Brunswick Insulation connects homeowners throughout the Dieppe and greater Moncton area with experienced contractors who can evaluate your attic and recommend the most cost-effective path forward.

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## How quickly can spray foam insulation be installed in a typical Riverview home? | Insulation IQ?

Spray foam insulation is one of the faster insulation methods available to homeowners in Riverview and the greater Moncton area, but the actual timeline depends on several factors including the scope of work, the area being insulated, and the type of foam being applied. For a typical installation — say, insulating the attic, rim joists, and a few stud bays in an average-sized Riverview bungalow — professional crews can often complete the job in a single day, sometimes in as little as four to six hours.

For a **full house spray foam application**, including exterior walls, attic, basement rim joists, and crawlspace, you're typically looking at one to three days depending on home size. A 1,500 to 2,000 square foot Riverview home with a full attic application of **closed-cell spray foam** at two to three inches can usually be completed in roughly six to eight hours of active spray time. A larger two-storey with complex geometry might require a second day.

**Open-cell spray foam** installs somewhat faster in terms of achieving the required thickness because it expands more aggressively — up to 100 times its original volume — but it requires more material volume to reach target R-values. **Closed-cell foam** expands less (around 30 to 40 times) but delivers higher R-values per inch (approximately R-6 to R-7 per inch versus R-3.5 to R-4 per inch for open-cell), meaning you need less physical thickness to hit your target, which can speed things up in tight spaces.

The process itself involves setup and masking time before the actual spray begins. Crews must protect surfaces, windows, and HVAC intakes before applying. Active spray time is often a fraction of the total job time — preparation and cleanup can each take one to two hours. Once the foam is applied, it begins curing almost immediately.

**Closed-cell foam** achieves a tack-free surface in under a minute and reaches full cure within 24 hours, though contractors typically allow at least 24 hours before painting or finishing over it. **Open-cell foam** expands and cures in a few hours but requires proper ventilation during and after application due to off-gassing during cure.

One important consideration in Riverview and across New Brunswick is **temperature**. Spray foam requires substrate and ambient temperatures above 15°C for optimal adhesion and expansion. During winter installations, crews may need to pre-heat spaces with temporary heating equipment, which adds setup time. Summer installs are generally faster and more predictable.

For **rim joists** only — a very common priority for NB homeowners looking to seal a major air leakage point — a professional crew can typically complete an average home in two to four hours. Rim joist spray foam is often the best return on investment for the time spent, as this area is responsible for a disproportionately large share of heat loss and cold-air infiltration in New Brunswick's Climate Zone 6 winters.

**Attic-only applications** for a typical 1,200 to 1,500 square foot Riverview home take roughly three to five hours, including prep. If you're converting from an open attic with blown-in insulation to a sealed, conditioned attic using spray foam on the underside of roof sheathing, expect a longer timeline as the old insulation may need to be removed first.

Overall, compared to batts or blown-in insulation, spray foam often takes less total time once installed correctly because there are no second passes, no settlement concerns, and no need for a separate air or vapour barrier application. The preparation and professional application time is front-loaded, but the result is a single-step air sealing and insulation solution.

If you're planning a spray foam project in Riverview or anywhere in the greater Moncton region, qualified professionals listed on the **New Brunswick Insulation** directory can provide accurate timelines and quotes based on your specific home layout.

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Q14

## Is spray foam insulation worth the extra cost for a New Brunswick climate? | Insulation IQ?

For New Brunswick homeowners, the question of whether spray foam insulation justifies its premium price tag over fibreglass batts or blown-in cellulose comes down to understanding what you're actually getting for the extra dollars — and in a Climate Zone 6 province like New Brunswick, the case for spray foam is often very compelling.

New Brunswick sits solidly in **Climate Zone 6**, which means long, cold winters with significant heating degree days. Fredericton averages around 4,400 heating degree days per year; Moncton and Saint John are in similar ranges.

This extended heating season means air leakage — which spray foam uniquely addresses — is not a minor inconvenience but a major driver of energy costs and comfort problems. In older NB homes, air infiltration can account for **30 to 40 percent** of total heat loss. Fibreglass batts and even blown-in insulation, despite achieving their rated R-values in lab conditions, do almost nothing to stop air movement through gaps, cracks, and penetrations. **Spray foam seals and insulates simultaneously**, which is the core reason it often outperforms higher-R-value alternatives in real-world performance.

**Closed-cell spray foam** at two inches delivers approximately R-12 to R-14 and creates a complete air and vapour barrier. **Open-cell spray foam** at three and a half inches (filling a standard 2x4 stud bay) delivers around R-13 with excellent air sealing, though it requires a separate vapour retarder in NB's cold climate. In practical terms, a properly spray-foamed home often performs better in blower door tests and utility bills than a theoretically higher R-value home insulated with batts that were installed carelessly or that have settled over time.

The **cost premium is real**. Across New Brunswick, closed-cell spray foam typically runs \$1.50 to \$3.00 per board foot installed, versus \$0.40 to \$0.80 per square foot for blown-in cellulose. For a full attic application on a 1,500 square foot home, spray foam might cost \$4,000 to \$8,000 compared to \$1,200 to \$2,500 for blown-in. That gap is significant, but it needs to be weighed against performance, longevity, and available rebates.

On the **payback timeline**: NB Power's Home Energy Efficiency Incentive Program offers rebates for insulation upgrades, and the **Canada Greener Homes Grant** provided up to \$5,600 for qualifying energy improvements — which included air sealing and insulation work. While the federal program has evolved, energy audits through NRCan-registered advisors can still unlock provincial and utility incentives. With rebates, the effective cost of spray foam can drop meaningfully.

Where spray foam is **clearly worth it** for NB homes: rim joists (the single highest-impact area per dollar in most older homes), attic hatches, cantilevers, basement header spaces, and anywhere with complex geometry where batt insulation simply won't seal. For full stud wall cavities in a new build or gut renovation, the economics are tighter, and many builders use a hybrid approach — **closed-cell spray foam** on the cold side for vapour control and air sealing, then filled out with blown-in or batts to reach the required R-value more economically.

The **NB Building Code** requires exterior walls to meet minimum R-20 effective in most residential applications, and attics to reach R-50 in climate zone 6. Spray foam can achieve these values in less physical space than alternatives — an important factor when working with older homes with shallow rafter bays or thin wall assemblies.

Long-term benefits also include moisture control, mould prevention, and structural reinforcement (closed-cell foam adds rigidity to stud bays). Homes in coastal NB communities near Saint John or Shediac that deal with higher humidity swings benefit particularly from closed-cell's near-zero permeability.

For most New Brunswick homeowners upgrading from batts or aging blown-in insulation, **spray foam is worth the premium** at key locations — especially rim joists, attic access points, and any area with documented air leakage. A full-house spray foam application is a bigger economic decision that benefits from an energy audit. Qualified insulation professionals listed on **New Brunswick Insulation** and the **New Brunswick Construction Network** can walk you through site-specific payback calculations.

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**Q15**

## **Can spray foam insulation help reduce ice dams on my Bathurst roof? | Insulation IQ?**

Ice dams are a persistent and costly problem in Bathurst and across northern New Brunswick, where heavy snowfall and frigid temperatures create ideal conditions for the freeze-thaw cycle that causes them. The good news is that spray foam insulation — when properly applied — is one of the most effective long-term solutions available, addressing ice dams at their root cause rather than just treating the symptoms.

**Ice dams form when heat escaping through the roof melts snow on the upper portions**, and that meltwater flows down toward the cold eaves and refreezes. Over time, this ice buildup forces water back up under shingles, causing leaks, rot, and interior water damage. The traditional fix of ice-and-water shield membrane or roof rakes treats the symptom; proper attic insulation and air sealing treats the cause.

The reason ice dams occur almost always comes down to two related problems: **inadequate insulation and, more critically, air leakage into the attic**. Even a well-insulated attic with loose-fill cellulose can develop ice dams if warm, moist interior air is leaking through light fixtures, top plates, partition walls, or other penetrations into the attic space. That escaping air carries heat and humidity that warms the roof deck unevenly, triggering melt. Spray foam

is uniquely capable of addressing both problems at once.

For Bathurst homes — which regularly see January temperatures of -15°C to -20°C and substantial snowpack — there are two main spray foam approaches to eliminating ice dams. The first is **insulating and air-sealing the attic floor** using open-cell or closed-cell foam sprayed into the top-plate area, around penetrations, and over the insulation to create a continuous air barrier before adding additional blown-in insulation on top. This stops the warm air movement that causes uneven roof heating. The second, more comprehensive approach is to create a **hot roof or sealed attic assembly** by spraying closed-cell foam on the underside of the roof sheathing. This brings the attic into conditioned space, eliminates the differential between attic temperature and roof temperature, and prevents ice dams entirely because the entire roof deck stays at a consistent temperature.

The **sealed attic approach** using **closed-cell spray foam** is particularly popular in northern NB communities like Bathurst, Campbellton, and Edmundston where the snowfall and cold are most severe. Closed-cell foam at three inches applied to the underside of roof sheathing delivers approximately R-18 to R-21, and combined with open-cell foam brought up to the required depth, can achieve the **R-50 effective thermal resistance** that the NB Building Code calls for in Climate Zone 6 attics. A fully sealed attic also makes HVAC equipment and ductwork in the attic space far more efficient — a common setup in many Bathurst-area homes.

For a home that currently has a vented attic with blown-in insulation and a history of ice dams, the recommended sequence is: first perform an **air sealing inspection** to identify leakage points, then apply spray foam at the attic floor level to seal those points, then top up with blown-in insulation to reach the required R-value. This approach costs less than a full roof deck application and resolves the problem in the majority of cases.

It's worth noting that **ventilation matters too**. A properly vented roof with adequate soffit and ridge vents allows cold outside air to flush the attic space and keep the roof deck uniformly cold — which also prevents ice dams. But in older Bathurst homes with tight soffit areas, blocked vents, or insufficient vent cross-section, ventilation alone won't solve the problem. Spray foam air sealing combined with even modest improvement in ventilation consistently outperforms either fix alone.

In terms of cost, an attic air sealing and spray foam treatment in a typical Bathurst-area home runs \$1,500 to \$4,000 depending on scope, and may qualify for **NB Power insulation incentives** or **Canada Greener Homes** rebates, especially if done as part of a broader energy upgrade following a home energy audit.

Ice dams are not inevitable in New Brunswick winters — they are a symptom of a building science problem that spray foam professionals can fix. Contractors listed through the **New Brunswick Insulation** network can assess your specific attic assembly and recommend the most cost-effective approach for your Bathurst home.

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## What thickness of spray foam do I need for exterior walls in New Brunswick? | Insulation IQ?

Determining the correct thickness of spray foam for exterior walls in New Brunswick requires balancing the **NB Building Code minimum requirements**, climate zone performance targets, the type of foam being used, and the wall assembly you're working with. The answer varies depending on whether you're using closed-cell or open-cell foam, whether it's a new build or a retrofit, and how the foam fits into the overall wall system.

New Brunswick falls entirely within **Climate Zone 6**, which demands high-performance wall assemblies. The National Building Code of Canada, as adopted in New Brunswick, requires a minimum of **RSI 3.52 (approximately R-20 effective)** for above-grade exterior walls in new residential construction. However, "effective" R-value accounts for thermal bridging through studs, which means the insulation itself must exceed R-20 to achieve R-20 effective. Many energy-efficient builders in Moncton, Fredericton, and Saint John target R-24 or higher in wall assemblies to account for this and to meet energy model requirements under Part 9 of the Code.

**Closed-cell spray foam** delivers approximately **R-6 to R-7 per inch**. To reach R-20 effective from spray foam alone in a 2x6 stud wall, you need approximately three to three and a half inches. However, most spray foam wall applications use foam to handle the air/vapour barrier function and a portion of the thermal resistance, with the remainder provided by another product:

- **2x6 wall with 2" closed-cell foam (R-12 to R-14) + fibreglass batts (R-12 to R-14)** is a very common NB hybrid assembly. The foam handles vapour control, air sealing, and thermal bridging reduction on the cold side; the batts fill the remaining cavity. This assembly comfortably exceeds R-20 effective.
- **2x4 wall with 2" closed-cell spray foam (R-12 to R-14) + R-12 batts** hits approximately R-20 to R-22 total, though the shallower stud depth limits options. In a 2x4 retrofit, 1.5 to 2 inches of closed-cell foam against the sheathing is the sweet spot before adding batts.
- **Open-cell spray foam** at R-3.7 per inch requires roughly **5.5 to 6 inches** to hit R-20 — which only fits in a deep 2x6 cavity, and requires a **separate vapour retarder** (6-mil poly or vapour barrier paint) on the warm side because open-cell foam is vapour-permeable and cannot act as the vapour barrier required by the NB Building Code in Climate Zone 6.

For **continuous exterior insulation** — a technique increasingly used in NB new builds to eliminate thermal bridging — closed-cell foam is sometimes sprayed onto the exterior face of sheathing before cladding. At 1.5 to 2 inches, this adds R-9 to R-14 to the wall assembly, pushes the dew point outside the stud cavity, and dramatically reduces air leakage. Combined with R-12 or R-20 batts in the stud bay, this creates high-performance walls well above code minimum.

For **retrofit work** in older Moncton or Saint John homes being opened up for renovation, 2 inches of closed-cell foam against the exterior sheathing is the most common recommendation — it provides the critical air and vapour barrier at the cold side, and the remaining cavity can be topped up with blown-in insulation for an economical hybrid assembly.

**Vapour barrier compliance** is an important consideration for New Brunswick. The Code requires a vapour barrier with a maximum permeance of 60 ng/(Pa·s·m<sup>2</sup>) on the warm side of walls in Climate Zone 6. Closed-cell spray foam at 1.5 inches or more typically achieves a permeance well below this threshold, meaning it **can serve as the vapour barrier**. Open-cell foam cannot — it is far too vapour-permeable and requires a separate 6-mil poly sheet on the interior side.

For **basement walls** in NB, which face both exterior cold and potential ground moisture, 2 to 3 inches of closed-cell spray foam directly on the concrete or block is generally the minimum recommended, delivering R-12 to R-21 while also acting as moisture control on the cold side of the assembly.

As a practical rule of thumb for New Brunswick exterior walls: **2 inches of closed-cell foam is the working minimum** for most wall retrofits where batts will fill the remainder; **3 to 3.5 inches of closed-cell foam alone** can get you to code in many cases; and open-cell foam should generally be reserved for areas where a separate vapour barrier will be installed.

For a precise specification suited to your specific wall assembly, connecting with a qualified insulation contractor through the **New Brunswick Insulation** directory is the best path to a code-compliant and energy-efficient result.

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## Does spray foam insulation act as a vapour barrier in NB homes? | Insulation IQ?

Whether spray foam can serve as your vapour barrier in a New Brunswick home is one of the most important — and most frequently misunderstood — questions in residential insulation. The answer depends almost entirely on which **type** of spray foam you're using and how thick it's applied, because the two main products behave very differently when it comes to vapour permeance.

**Closed-cell spray foam** is a highly effective vapour retarder and can function as the primary vapour barrier in most New Brunswick wall and roof assemblies when applied at sufficient thickness. Closed-cell foam has a **vapour permeance of approximately 35 to 60 ng/(Pa·s·m<sup>2</sup>) at 1 inch**, and as thickness increases, permeance drops further — at 2 inches, closed-cell foam typically falls below 30 ng/(Pa·s·m<sup>2</sup>). The **NB Building Code** (following the National Building Code of Canada) requires vapour barriers on the warm side of insulation in Climate Zone 6 to have a maximum permeance of **60 ng/(Pa·s·m<sup>2</sup>)**. This means closed-cell spray foam at 1.5 to 2 inches typically meets this requirement, and at 2 inches or more, it exceeds it comfortably. This is a key reason why closed-cell foam applied to the **cold side of wall assemblies** — against the exterior sheathing or on the interior face of a poured concrete foundation wall — is so effective in New Brunswick: it handles both the thermal resistance and the vapour control function in one product.

**Open-cell spray foam** is a completely different story. Open-cell foam is **vapour-permeable**, with a permeance typically in the range of **1,700 to 2,800 ng/(Pa·s·m<sup>2</sup>)** — many times higher than the Code limit. This means open-cell foam provides essentially no vapour barrier function whatsoever. In New Brunswick's cold climate, using open-cell foam in a wall or attic assembly **without a separate vapour barrier on the warm (interior) side** would risk significant moisture accumulation in the wall assembly during winter, potentially leading to mould, rot, and structural damage. If you're using open-cell foam in NB, a **6-mil polyethylene vapour barrier** or vapour barrier paint applied to the interior face of the framing is mandatory under the Building Code.

The **placement** of the vapour barrier also matters in NB assemblies. The Code requires the vapour barrier to be on the **warm-in-winter side** of the insulation — meaning the interior side in a wall assembly. When closed-cell foam is sprayed against the exterior sheathing inside a stud cavity (a common retrofit approach in Moncton and Fredericton renovation projects), it sits on the cold side of the assembly. This is actually advantageous from a building science perspective: it keeps the sheathing warm and dry by preventing interior vapour-laden air from reaching the cold sheathing surface. The closed-cell foam's low permeance then functions as a **class II vapour retarder** at the cold side, which is acceptable under the NBC's prescriptive compliance path when certain conditions are met regarding the ratio of exterior-to-interior insulation.

For **attic applications**, when closed-cell foam is sprayed to the underside of the roof sheathing to create a sealed (unvented) attic, it acts as both the air barrier and vapour retarder for the roof assembly. The NB Building Code's requirements for vapour control in sealed roof assemblies are satisfied by closed-cell foam at the specified thickness, typically 3 to 4 inches minimum for a sealed attic assembly in Climate Zone 6, achieving R-18 to R-28 while providing complete vapour and air control.

For **foundation walls and rim joists**, closed-cell spray foam is particularly well suited because it simultaneously provides moisture resistance (resisting bulk water and ground moisture), air sealing, thermal insulation, and vapour control — eliminating the need for the complex layering of separate membrane, batt, and poly assemblies that older NB basement renovation guides recommend.

A common **practical hybrid** used by many New Brunswick builders and contractors: spray 2 inches of closed-cell foam against the exterior sheathing or cold surface to satisfy vapour control requirements and seal air leakage, then fill the remaining cavity with blown-in cellulose or fibreglass batts to achieve the target R-value economically. This approach is code-compliant, building-science sound, and more cost-effective than filling the entire cavity with closed-cell foam.

If you're unsure whether your planned assembly requires a separate vapour barrier alongside spray foam, or whether your specific product and thickness meet the NB Building Code threshold, a qualified insulation contractor can review your assembly in detail. Professionals listed through **New Brunswick Insulation** and the **New Brunswick Construction Network** are familiar with provincial code requirements and can confirm your assembly is both compliant and durable in our Climate Zone 6 conditions.

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Q18

## How do I find a certified spray foam installer in Edmundston NB? | Insulation IQ?

Finding a qualified spray foam installer in Edmundston takes a bit more research than hiring for other home-improvement trades, but the extra effort is well worth it. **Spray polyurethane foam (SPF) is a two-component chemical system that requires proper training, calibrated equipment, and a full understanding of off-ratio risks** — problems that arise almost exclusively from installers who cut corners on certification or equipment maintenance.

The most reliable credential to look for in New Brunswick is **Spray Polyurethane Foam Association of Canada (SPFA)** training or its equivalent from a manufacturer-backed certification programme. Several of the major foam manufacturers — Icynene, Lapolla, and BASF among them — run their own certified installer networks, and their websites let you search by postal code. Edmundston's proximity to the Quebec border means some contractors may be based in Rivière-du-Loup or Dégelis and service the greater Madawaska County area routinely; don't automatically rule out a company because its head office is just across the provincial boundary, provided the crew is licensed to work in NB.

**New Brunswick does not currently have a dedicated provincial licence for spray foam contractors**, unlike electricians or plumbers who require Technical Safety Authority of NB (TSANB) licensing. That makes manufacturer certification and verifiable insurance even more important. At minimum, any installer you hire should carry **\$2 million general liability** and WorkSafeNB clearance. Always request both certificates before work begins — reputable contractors provide them without being asked twice.

When gathering quotes in Edmundston, ask each contractor directly which foam product they use, what the **closed-cell R-value per inch** is (good closed-cell foam runs R-6 to R-6.5 per inch; anything lower suggests a lower-density off-ratio blend), and what their purge and flush procedure is at job start-up. An experienced installer will also discuss your **vapour barrier requirements** under the NB Building Code — for Climate Zone 6, a Class II vapour barrier (or the equivalent achieved by a sufficient closed-cell foam thickness) is required on the warm side of insulation in heated spaces.

References matter enormously with spray foam. Ask each candidate for three to five completed jobs in the Edmundston or Grand Falls area and call those homeowners. Specifically ask whether the foam cured without strong residual odour after 24–48 hours, whether the installer masked adjacent surfaces properly, and whether the finished surface is uniform without soft or tacky spots. Tacky foam is a red flag for an off-ratio mix that may off-gas isocyanates over time.

For pricing context in the Madawaska County region, **open-cell spray foam typically runs \$1.00–\$1.50 per board foot installed**, while **closed-cell foam ranges from \$2.00–\$3.00 per board foot** depending on thickness. A

typical uninsulated 1,200 sq ft basement-wall job in Edmundston might cost \$4,000–\$7,500 depending on height and preparation required. Get at least three written quotes and compare them line by line — thickness, product brand, and post-installation cleanup are all scope items that affect price.

**NB Power's Home Energy Efficiency Upgrade programme** may offer a rebate for spray foam as part of an eligible air-sealing and insulation project; check current rebate levels on the NB Power website or ask your installer whether they work with the rebate process. The federal **Canada Greener Homes Grant** (subject to current funding availability) also listed SPF as an eligible measure when combined with a pre- and post-retrofit EnerGuide assessment.

New Brunswick Insulation and the New Brunswick Construction Network can help you connect with vetted insulation professionals serving Edmundston and the Madawaska Valley — a good starting point when you want to compare qualified options without cold-calling the phone book.

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## Can spray foam insulation cause moisture problems if applied incorrectly in NB? | Insulation IQ?

Yes — and this is one of the most important cautions any New Brunswick homeowner should understand before approving a spray foam project. **Incorrectly applied spray foam does not just underperform; it can actively trap moisture, promote mould growth, and cause structural damage that costs far more to remediate than the original insulation job.** The good news is that all of these problems are entirely preventable when the work is done by a properly trained installer.

The most common moisture-related failure with spray foam is **misapplication of open-cell foam in below-grade or moisture-exposed assemblies**. Open-cell foam is vapour-permeable — it allows water vapour to migrate through it. In a New Brunswick basement or crawlspace, where soil moisture and groundwater pressure are significant, open-cell foam sprayed against a concrete foundation wall can absorb liquid moisture and hold it against the framing. The Fredericton and Moncton areas both see meaningful spring groundwater pressure, and Saint John's harbour-adjacent neighbourhoods deal with humidity levels that make vapour management especially critical. **Closed-cell foam is the correct choice for below-grade applications** because its impermeable cell structure acts as a Class II vapour retarder itself, keeping both vapour and liquid water from reaching wood framing.

**Off-ratio mixing** is the second major source of moisture-related problems. Spray foam is a two-component system — the A-side (isocyanate) and B-side (polyol resin) must be dispensed at the correct ratio and temperature for the foam to cure fully. When the ratio is wrong — usually because equipment isn't calibrated, hoses are cold, or an inexperienced installer doesn't warm the drums properly — the resulting foam may appear normal but remain partially uncured. Partially cured foam is permeable to moisture in ways fully cured foam is not, and in NB's Climate Zone 6 freeze-thaw cycles, moisture that wicks into soft foam can expand on freezing and physically deteriorate the installed layer over successive winters.

**Insufficient thickness in closed-cell applications** creates a subtler but serious risk. The NB Building Code requires a **Class II or better vapour barrier** on the warm side of insulation in Climate Zone 6 wall assemblies. Closed-cell foam at **2 inches achieves approximately R-12 and is classified as a Class II vapour retarder** (permeance  $\leq 1$  perm). If an installer applies only 1 inch of closed-cell foam to save material and then relies on a separate poly sheeting vapour barrier, any gap in that poly — around electrical boxes, at corners, along sill plates — becomes a spot where warm interior air can contact the cold foam face and condense. Attic applications are similarly sensitive: open-cell foam on the underside of roof sheathing must be thick enough that the dew point never falls within the foam layer during a New Brunswick winter.

**Inadequate air sealing at the perimeter** of a spray foam job is another moisture pathway. Foam that doesn't fully adhere at the junction between the sill plate and foundation, or that pulls away from framing members as it cures, allows air movement — and air movement carries the bulk of moisture load in a building assembly. A trained installer will check all edges after initial cure and fill any gaps before leaving the site.

From a practical standpoint, the warning signs of a problematic installation are: foam that is soft or spongy rather than firm after 24 hours, a persistent chemical odour beyond 48–72 hours, visible colour variation (yellowish or greenish patches in what should be uniform cream or white foam), and foam that has visibly pulled away from framing. If you observe any of these conditions, stop the project, ventilate the space, and request that the contractor assess the batch chemistry before proceeding.

If you're already experiencing mould or moisture problems in a space that was previously spray-foamed, an independent **energy auditor or building science consultant** can perform a moisture assessment and thermal imaging scan to identify where the vapour assembly has failed. Remediation typically involves removing the affected foam section, treating any mould on framing with an approved fungicidal agent, addressing the underlying moisture source, and re-spraying correctly.

For guidance on spray foam moisture management specific to New Brunswick conditions, the insulation professionals listed on New Brunswick Insulation and the New Brunswick Construction Network are a reliable starting point.

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Q20

## What warranty should I expect from a spray foam insulation contractor in New Brunswick? | Insulation IQ?

Warranty terms for spray foam insulation in New Brunswick vary more than most homeowners expect, and understanding what is and isn't covered before you sign a contract can save you significant frustration later. **A well-structured spray foam warranty typically covers two separate things: the material itself and the workmanship — and these are often provided by two different parties.**

**Material warranties** come from the foam manufacturer, not the installer. Major brands such as Icynene, Lapolla (now part of Carlisle), BASF Enertite, and Demilec typically offer **lifetime material warranties** on their closed-cell and open-cell products, provided the foam is installed by a certified applicator according to the manufacturer's technical data sheet. These warranties cover defects in the foam itself — crumbling, shrinkage beyond specified tolerances, or loss of R-value — but they do not cover installation errors, substrate issues, or water intrusion from sources outside the foam assembly. To access a manufacturer warranty, your installer must be part of that manufacturer's certified network, so always confirm which brand they use and ask to see their applicator certification before work begins.

**Workmanship warranties** come from the contractor and are where you'll see the widest variation in New Brunswick. A reputable installer will offer at minimum a **two-year workmanship warranty**, with better operators offering five years. This covers installation defects such as adhesion failure (foam peeling off the substrate), off-ratio application that results in abnormal off-gassing or soft spots, missed areas, or inadequate thickness relative to what was quoted. Get the warranty terms in writing in the contract — not just verbally — and confirm that the coverage specifies what remediation the contractor will provide (re-spray, material credit, or labour-only repair).

There are several important exclusions you will see in virtually every spray foam warranty in the industry. **Substrate movement is the most common.** If your foundation wall cracks and the foam cracks with it, that is not a warrantable defect in the foam or the installation. Similarly, if roof sheathing deflects seasonally and separates from the foam at edges, that is attributed to structural movement rather than foam failure. In New Brunswick, frost heave and foundation settlement are genuine concerns — particularly in the Saint John River Valley where seasonal ground movement can be pronounced — so this exclusion is worth understanding clearly.

**Moisture intrusion from external sources is universally excluded.** If a basement leaks due to failed waterproofing, weeping tile, or a window well that floods, the resulting moisture damage to spray foam (particularly open-cell foam) is the homeowner's responsibility, not the installer's. This is why it's critical to address any active water intrusion before spray foam is applied, and why reputable installers in NB will document the condition of the space prior to spraying.

For projects that involve **NB Power rebates** or the **Canada Greener Homes Grant**, keep in mind that warranties may interact with rebate conditions. The Greener Homes programme requires a post-retrofit EnerGuide assessment, and if that assessment reveals substandard installation, you may need remediation before the final grant is released. Some contractors include the EnerGuide assessment coordination in their scope — confirm this upfront.

The overall installed cost for a spray foam project in New Brunswick — say, \$5,000–\$12,000 for a typical residential basement and rim joist application — makes warranty quality a meaningful financial consideration. A contractor offering a one-year workmanship warranty at \$800 less than a competitor offering five years may not be the better value proposition. Ask each contractor to walk you through their defect-reporting process: how do you contact them, what is their response time commitment, and do they carry **errors and omissions insurance** in addition to general liability? E&O coverage is relatively rare among smaller insulation contractors but provides an important backstop if workmanship defects are disputed.

Finally, keep a copy of your contract, the product technical data sheets, and any photos taken during installation in a safe place. Warranty claims are much easier to support when you can document what was installed and to what thickness.

New Brunswick Insulation and the New Brunswick Construction Network can connect you with insulation contractors who are transparent about their warranty terms and certified with reputable manufacturers.

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